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Educational Level as a Moderator Between Stress and Suicidal Ideation Among Law Enforcement Officers

Sittipong Permsookjit
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Sittipong Permsookjit

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Walden University
2022

Abstract

Educational Level as a Moderator Between Stress and Suicidal Ideation

Among Law Enforcement Officers

by

Sittipong Permsookjit

MS, 2017

BS, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

May 2022

Abstract

Law enforcement officers are exposed to occupation-related stress at a level greater than any other occupation, save war combatants, such stress can lead to suicidal ideation.

There is a growing trend of suicidal ideation among law enforcement officers. This trend will threaten the stability of society if it is allowed to continue. Educational level has been shown to improve quality of life and is considered a quantitative resource. Using the theoretical framework of appraisal theory, this study's purpose was to examine the moderating effects of educational level on stress and suicidal ideation among law enforcement officers. A total of 72 individuals completed the surveys. This study had a quantitative design implementing linear regression analysis to evaluate to what degree stress affected suicidal ideation, educational level affects stress, and educational level moderated between stress and suicidal ideation. Findings indicated that stress was a variable that positively affected suicidal ideation, and that educational level negatively affected stress. However, educational level was shown to be a nonsignificant factor moderating stress and suicidal ideation among law enforcement officers. A recommendation for future studies is to examine an alternate moderating variable such as gender differences. This study may inform positive social change through efforts to lower suicidal ideation among law enforcement officers and strengthen the stability of society.

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Dedication

If I dedicated this work to the people who deserve it, this would be a very large section of the dissertation. With that in mind, I would like to dedicate this dissertation to these individuals in no particular order. I would like to dedicate this work to my parents, Frederick Gerald and Pannee Beecher, who are always with me in spirit if not in person. Their unconditional love and faith that I would achieve my goals if I persevered have always motivated me through life's obstacles. I would also like to dedicate this work to my wife, Jayne, whose unwavering faith and dedication were the pillars that made this work possible. Without her support, I would not have been able to finish. Finally, to my children, Frederick, Alexander, and Elizabeth, who had to do without a father for the time it took to complete this dissertation. They provided needed breaks and lots of smiles, and they grounded my feet firmly on reality. To these people, I say, "Thank you and I love you."

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Chapter 1: Introduction to the Study

The estimated total law enforcement officer (LEO) population within the United States as of 2019 was roughly 790,000 men and women serving in specific roles such as police officers, sheriff's deputies, and criminal investigators, to name a few (Data USA, 2019). Work environments for LEOs range from sparsely populated vast counties to densely populated urban cities. The current general population within the United States numbers approximately 329 million (Population Clock, 2019). By comparison, LEOs make up less than 1% of the total U.S. population, but they are tasked with the responsibility of protecting and serving the larger population. This is a tremendous responsibility, and the burden of that responsibility may manifest as psychological stress. Past studies (Acquadro-Maran et al., 2015; Burke, 2016; Collins, 2003; Zeitlin, 1995) identified stress as being linked to suicide and suicidal ideation (SI). Stress is one of the variables present in an attempted suicide act (Larned, 2010). The social science research method labels any variable of a study that controls the intensity of another variable as a moderator. There are moderators (Krause, 2019) that control stress as it leads to SI. These moderators include, for example, self-help, self-medication, and peer support (Krause, 2019). The focus of this study was to understand educational level (EL) as another moderator of stress on SI. It is imperative to understand the connection between stress and SI within the law enforcement community for the task of safeguarding LEOs' welfare and thus safeguarding the welfare of society in general. The potential positive social change implications of this study include contributing information toward the current understanding of how stress might lead LEOs to consider SI as a possible solution

for relieving stress and assist in redesigning current LEO departmental procedures for mitigating SI. This study may help to identify a moderating variable such as EL that may decrease the negative effects of stress experienced by LEOs in the course of job performance.

Chapter 1 addresses the study's background, problem statement, purpose, research questions and hypotheses, theoretical framework, nature, definitions, assumptions, scope and delimitations, limitations, and significance, concluding with a chapter summary.

Background

Stress is a factor of life that affects people negatively and in different ways such as depression, anxiety, and substance use disorders (Beam et al., 2017; Jamieson et al., 2016; Raposa et al., 2015). Stress has been linked to SI in past studies (Burke, 2016; Collins, 2003; Violanti et al., 2016b). Studies have shown that stress has negatively affected society in areas such as marriages (Beam et al., 2017), education (Shkëmbi et al., 2015), and occupations (Acquadro-Maran et al., 2015). According to the American Institute of Stress, approximately 1 million American employees report work absences due to stress (Boyd, 2019). Work absenteeism implies a negative impact on household incomes due to lost wages, potential negative work performance ratings, and the possible deterioration of relationships between management and employees. Stress may be said to affect every aspect of society, and nobody is free from its effects. One of the occupations profoundly affected by stress is that of policing (Foley & Massey, 2020).

Stress that is viewed as uncontrollable is said to be chronic stress (Steffen et al., 2017). Chronic stress may lead to abnormal behaviors such as depression, anxiety, and SI

(Steffen et al., 2017). SI is the thought of suicide that may precede the act of suicide (Harkavy-Friedman, 2017). SI does not always lead to a completed suicidal act. It is, however, one of the integral steps in a suicide process. When an individual, for example, speaks of killing themselves or talks about wanting to kill themselves, they are contemplating suicide (Larned, 2010). When the person is an imminent threat to themselves and has the method or means of carrying out a suicide, then that person is at a high risk of suicide. LEOs are like the citizens they serve. A major difference between LEOs and citizens is that LEOs are exposed to occupational stressors at a greater rate than the average citizen (Acquadro-Maran et al., 2015). Police officers are exposed to chronic stress due to occupational stressors (Acquadro-Maran et al., 2015; Liberman et al., 2002) and are at a higher risk of SI (Violanti, 1995).

In prior work (Acquadro-Maran et al., 2015; Krause, 2019), certain variables were examined for their possible mitigating effects on stress. These variables included self-help, self-medication, and peer support (Krause, 2019). Krause (2019) highlighted the fact that many of the mitigating variables had positive results due to the educational background of the participants. The idea was that participants who were aware of their psychological condition were more prone to seek help when it was required. The Krause study, with a quantitative analysis approach, focused on a god-mediated variable against depressive symptoms and anxiety among college students as the population. The goal of the current study was to understand the extent to which EL moderates the association between stress and SI among law enforcement officers. There was a need for this study to provide law enforcement departments nationwide with more evidence of the effects that

EL has on stress and SI. The present study was needed to understand the beneficial applications of EL for lowering SI among LEOs and assist in lowering LEOs' occupational stress levels.

Problem Statement

SI is on the rise in the LEO population as evidenced by the steady rise of successful suicide rates among LEOs (Blue H.E.L.P., 2019). Data from an LEO suicide prevention website, Blue H.E.L.P., showed a steadily increase of LEO suicide from 143 in 2016 to 206 in 2019 (Blue H.E.L.P., 2019). The statistic showed a 44% increase over 4 years (Blue H.E.L.P., 2019). LEOs are at a higher risk of job-related injuries at a rate 3 times greater than that of any other occupation in the United States (U.S. Department of Labor, 2018). Occupational stress is a growing concern for LEOs, psychologists, and administrators because it affects officer health, duty performance, and public safety (Larned, 2010). A recent statistical analysis (Heyman et al., 2018) found that more first responders died by suicide than on duty in 2017. According to the Centers for Disease Control and Prevention (CDC, 2021), suicide (47,511) is the 10th leading cause of death in the United States. It is the second leading cause of nondisease and nonpathogenesis-related deaths behind unintentional injury (173,040; CDC, 2021). Heart disease (659,041) and malignant neoplasms (599,601) rank first and second overall, respectively (CDC, 2021). Before a completed suicidal act is the process of SI. A person will typically go through thoughts of suicide and contemplation before acting on these thoughts. Not all mental illness leads to suicide, but SI is an integral part of a successful suicidal act (Harkavy-Friedman, 2017). Past studies (Skopp et al., 2018; Stanley et al., 2016; Zeitlin,

1995) identified one common variable contributing to successful suicide: stress. It is common for LEOs to develop job-related psychological disorders (Collins, 2003), and the issue of stress is one of the most common complaints. Contributing factors for occupational stress for this population include dangerous situations, such as being shot at, stabbed, and struck by vehicles (Collins, 2003; Gove, 2005). Adding to existing situations that create an even more stressful work environment is the negativity of public perceptions of LEOs (Cook, 2015; Farbman, 2015; Pitel et al., 2018). The work environment arising from negative public perception puts a strain between middle management and the patrolling LEOs to the point that LEOs feel that supervisory support is lacking (Sargent & Terry, 2000). Karasek's (1979) job demand control (JDC) model indicates that the average employee experiences stress that stems from a combination of lack of supervisory support with the multidimensional aspects of job demands and job control. Job-related stress is attributed to job demands and a decrease in work control. The above condition illustrates the typical organizational stresses impacting LEOs.

The appraisal theory (AT) of stressors, according to Folkman et al. (1986), addresses the mechanism by which humans evaluate stimuli. AT (Lazarus & Folkman, 1984) explains the individual's ability to distinguish between positive and negative stimuli. The JDC model and AT help to explain the nature of some of the stresses experienced by LEOs. Prolonged exposure to occupational stressors results in chronic stress that may lead to a mental disorder such as acute stress disorder (American Psychiatric Association, 2013). Maladaptive behaviors such as absenteeism, avoidance, irregular sleep, and SI are some observable responses to occupational stress. Reinka and

Leach (2018) pointed out in their study that experiences play an important role in appraisal assessments. Prior experiences dictate how an individual will behave in response to any subsequent threat of the same nature. Reinka and Leach's study left the reader wondering whether EL has any influence on stress and SI. Alternatively, Krause (2019) discovered that participants in his study were insulated from the deleterious effects of stress by the presence of EL factors. However, Krause did not examine whether his findings applied to the LEO population, creating a potential research gap. Clifton et al. (2018) stated that social support, stoic self-help, and self-medication were mitigating factors for officers experiencing job-related stresses in their latest study. Their study emphasized the most common methods of stress coping for LEOs. Gomes et al. (2018) discovered through their study that officers who experienced prolonged exposure to traumatic events during duty eventually developed an indifference to suffering, which caused them to become less fearful of death and develop SI. The study by Gomes et al. did not mention EL being one of the mitigating factors for LEOs against SI, giving rise to the desire to examine this variable of the research gap. In summary, occupational stressors elicit potential maladaptive coping strategies, of which SI is one. To moderate the effects of stress, EL has been shown (Krause, 2019) to dampen its effects. Currently, there exists no study that combines the variables of stress, SI, and EL among the LEO population.

Purpose of the Study

This quantitative study examined the moderating effects that EL has on stress and SI among LEOs. EL was a predictor of stress control in Krause's (2019) study. Krause

showed that more highly educated study participants experienced a reduction in intensity between stress and depressive symptoms compared to participants with lower levels of educational attainment. Additionally, studies have shown the deleterious effects of stress on the health of LEOs, such as suicide, risky behaviors, and burnout (Acquadro-Maran et al., 2015; Burke, 2016; Gershon et al., 2002; Liberman et al., 2002; Violanti et al., 2016a). Stress has been implicated as a factor in SI among police officers (Carleton et al., 2018; Larned, 2010; Violanti et al., 2016b). The variables in the current study were stress levels (independent variable [IV]) and SI (dependent variable [DV]). The moderating variable was EL. This quantitative study used a hierarchical multiple regression analysis examining the interaction between stress and EL affecting SI levels among LEOs. Through this study, I sought to compare stress levels to SI, controlling for EL for the LEO population. The independent variable stress level was taken from the Operational Police Stress Questionnaire (PSQ-Op; McCreary & Thompson, 2013). The dependent variable was defined as SIs obtained from the Suicide Behaviors Questionnaire—Revised (SBQ-R; Osman et al., 2013), and the moderating variable, EL, was defined as the level of education reported by the participants, as taken from the initial demographic items on the survey. The details will be discussed in Chapter 3.

Research Questions and Hypotheses

The following research questions and hypotheses were designed to investigate the effects of EL as a moderating variable (M) between stress (IV) and SI (DV).

RQ₁: Does stress decrease or increase SI among LEOs?

H₀₁: Stress does not decrease or increase SI among LEOs as evidence of the interaction between the IV and DV on the regression model.

H_{A1}: Stress does decrease or increase SI among LEOs as evidence of the increasing/decreasing interaction between the IV and DV on the regression model.

RQ₂: Does EL decrease or increase SI among LEOs?

H₀₂: There is no relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model.

H_{A2}: There is an inverse relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model.

RQ₃: Does EL buffer or enhance the effects of stress on SI among LEOs?

H₀₃: There are no moderating effects of EL on stress for SI among LEOs as evidence of the interaction between the M and IV for SI on the regression model.

H_{A3}: There are moderating effects of EL on stress for SI among LEOs as evidence of the interaction between the M and IV for SI on the regression model.

LEO stress level (IV) was measured via the PSQ-Op (McCreary & Thompson, 2013), and the SI level was measured via the SBQ-R (Osman et al., 2013). The EL (MV) was obtained as a part of the demographics data.

Theoretical Framework

My quantitative study used AT by Folkman et al. (1986) as the theoretical framework to understand the effectiveness of EL as a moderator between stress and SI among LEOs. AT explains the process of the threat analysis phenomenon that a person experiences when faced with a decision (Folkman et al., 1986). In my study, the LEOs experienced work-induced stresses that often arose from situations that required split-second decisions, such as the decision to use deadly force (Odunayo et al., 2015). In response to the issue above, LEOs are continually training for various possible encounters (Larned, 2010). It is this repetitive training that helps LEOs feel confident to handle actual situations associated with policing. AT involves the same repetitive conditioning. It is this repetitive conditioning of familiar situations that is the premise of AT (Lazarus & Folkman, 1984). Lazarus and Folkman (1984) explained that stress and the appraisal of stress are different for everyone. One person may consider a particular environmental or psychological agent stressful while another person may consider the same agent as not stressful at all. The significant difference is the individual appraisal of the agent (Lazarus & Folkman, 1984). The individual appraisal takes into consideration whether the individual has familiarity with the stressor and the availability of resources to meet the nature of the stress. The estimation of the individual to handle the stress then is dependent upon familiarity with the stressor. Further solidifying the concept, Grinker and Spiegel (1945) stated, “appraisal of the situation requires mental activity involving judgment, discrimination, and choice of activity, based largely on past experiences” (p. 122). My study drew upon another study (Krause, 2019) that examined the relationship

between stress and depressive symptoms across different ELs. The study by Krause (2019) concluded that higher educated participants were better able to control for stress using the moderating variable than participants with lower ELs. This conclusion was further supported by another study (Mirowsky & Ross, 2005) that linked EL to better health. This quantitative study examined to what levels EL moderates stress toward SI among LEOs. AT, as described in the section above, helped to guide this quantitative study. AT will be further examined in Chapter 2.

Nature of the Study

This study was designed as a nonexperimental, correlational, quantitative approach to examine the effects that ELs have on the effectual strength of stress on SI among LEOs. The study was nonexperimental because the nature of the occupation would have been too sensitive for an experimental approach, considering that LEOs have an immense responsibility to keep the public safe. An experimental approach might have drawn vital resources away from essential duties such as public safety. The study also took a correlational, quantitative approach because it examined the magnitude of the association among three variables: education levels, stress, and SI. A quantitative analysis approach was more appropriate because it allowed an empirical analysis of the type of associations among variables from the data that were collected. The variables were stress levels (IV), SI (DV), and EL (moderating variable). Each LEO was given a questionnaire containing the PSQ-Op (McCreary & Thompson, 2013) and the SBQ-R (Osman et al., 2013). LEOs' age, gender, and EL were also collected from the questionnaire. The study used hierarchical linear regression analysis to interpret the data collected. The results of

the analysis assisted in answering whether ELs have any effect on the strength of stress over SI.

Definitions

Appraising: The process of placing priorities on a specific item or event (Ellsworth, 2013). Folkman et al. (1986) explained that the individual ranks events based upon emotions elicited at the time that the event occurs. Future similar events will elicit a similar emotional response.

Education: A structured form of learning (Mirowsky & Ross, 2005). Mirowsky and Ross (2005) explained that EL predicts improved health and well-being.

Emotions: The psychological phenomena that the individual experiences as a result of neurological excitation (Pepe et al., 2007). Izard (2009) explained that the emotions are an elusive construct within the scientific community due to advancing research and contemporary theories. Izard asserted that emotions affect the cognitive abilities of the individual.

Evaluative judgment: The process in which an individual derives a conclusion after appraising a situation or item (Ellsworth, 2013). Ellsworth (2013) stated that emotions often precede evaluative judgment.

Law enforcement officer (LEO): An individual tasked with upholding and enforcing the laws prescribed by a municipality, county, or jurisdiction (Violanti et al., 2016b). Violanti et al. (2006b) listed LEOs among several variants: police officer, sheriff's deputy, and federal agent, to name a few.

Police stress: The occupationally related influence that elicits a psychological and physiological response specific to LEOs (Wassermann et al., 2018). There exist two sources for police stress: organizational and operational (Acquadro-Maran et al., 2015).

Suicidal ideation (SI): The persistent thought of killing oneself (Stanley et al., 2016). Violanti et al (2016b) explained that the emotion of hopelessness and the sense that life is not worth living typically precede SI and that occupational stress common to LEOs contributes to this thought process.

Assumptions

For this study, I assumed that the participants were active commissioned LEOs employed with a municipality's police department, a county sheriff's office, a university/college's police department, a hospital district's police department, or an equivalent agency for the sole purpose of enforcing rules and regulations for that agency and protecting the welfare of its citizens. This study involved the assumption that the LEOs took the questionnaires and surveys honestly, and that the information that they provided was truthful. I assumed that the LEOs provided all the information asked of them and did not withhold pertinent information such as SIs on the questionnaire and survey. It was also assumed that the participants in this study voluntarily answered the questionnaires and survey of their own accord. These assumptions were necessary because the population of focus needed to be LEOs, and their honest responses to the questionnaire and survey were integral toward collecting the essential data to interpret the results.

Scope and Delimitations

LEOs are dying more by suicide than in the line of duty (Heyman et al., 2018). Issues contributing to this trend include stress, among other factors (Odunayo et al., 2015; Stanley et al., 2016; Violanti et al., 2016b). Bishopp and Boots (2014) listed other contributing factors, such as prior exposure to traumatic events, depression, occupational burnout, alcohol abuse, and social reclusiveness. The focus of the current study was not to highlight the causes contributing to SI. This would have been a daunting task, given the number of contributing factors already listed. This study addressed stress because it is the most common contributor to the development of SI (Gershon et al., 2002; Liberman et al., 2002; Odunayo et al., 2015; Wassermann et al., 2018). The outcomes of these stressors are varied. These outcomes may include depression (Steffen et al., 2017), maladaptive behaviors (Gershon et al., 2002), SI (Bishopp & Boots, 2014), and suicide (Larned, 2010). The outcome, SI, was selected because it was logistically feasible to obtain this type of information through a questionnaire/survey format from living participants rather than sorting out actual causes of LEO deaths, which have been known to be identified incorrectly in historical statistical databases (Klinoff et al., 2015). Additionally, to be socially effective, the current work used SI because it has the potential of providing conclusions that may impact the rate of suicides. Several other factors to consider include mediating, moderating, and extraneous variables (Creswell, 2009). Mediating and extraneous variables have equal weight in affecting the relationship between stress and SI. EL was chosen as the moderating variable because it is viewed as a constructive form of coping mechanism (Mirowsky & Ross, 1998). It is also a common

requirement for LEO applicants to possess a certain EL before being admitted to many police training academies in the United States (Arlington Police Department [PD], 2019; Houston PD, 2020; Minneapolis PD, 2020; New York PD, 2020). I conducted the current work to understand the effect of EL in moderating stress and SI among LEOs.

The study boundaries included focusing solely on the law enforcement population because the phenomenon of LEO suicide had steadily increased in the past 5 years (Heyman et al., 2018; Ramchand et al., 2019). The potential for suicide and SI among LEOs poses a threat to the stability of the communities in which these LEOs work. As these communities are part of the larger nation, it is assumed that the threat is of national importance. The subgroup within the LEO population of interest for this study was the group that is experiencing job-related stress. LEOs who test negative for job-related stress on the PSQ-Op (McCreary & Thompson, 2013) were excluded from the study. Stress was chosen as the IV because it is one of the common variables that contribute to SI (Skopp et al., 2018). Stress was chosen as the IV because, in past studies (Acquadro-Marani et al., 2015; Gershon et al., 2002; Liberman et al., 2002; Odunayo et al., 2015; Wassermann et al., 2018), stress was identified as the main contributing factor to SI.

The theoretical framework (Lazarus & Folkman, 1984) used for this study was chosen for the relevance of its concept, which involves appraising the nature of the stressor. Prolonged stress leads to deleterious coping behaviors, of which SI is one (Wassermann et al., 2018). I chose AT as the study framework because it is reasonable to assert that LEOs would have to appraise the nature of the stress before they can deal with it. AT also explains why experience is vital to how one reacts to any particular stress

(Lazarus & Folkman, 1984). This belief brings in the concept of EL as the moderator between stress and the deleterious outcome of SI. This project began with an assumption that EL provides the experience necessary to moderate stress before it becomes SI.

External validity is defined as the ability of a study's findings to be generalizable to any particular situation or group (Creswell, 2009). How suitable is this study's finding applicable to other occupations where stress can be moderated by EL to reduce the effect of stress on SI? Good sampling is vital for generalizability (Creswell, 2009). LEOs were chosen as the focus population because their occupation is open to all legal citizens of the United States. The selection criteria, however, may be stringent. For the current study, I viewed stress as a preexisting condition that EL has the potential of moderating before it dissolves into SI. The potential generalizability of this study's result would be possible for a similar occupation whose members experience similar occupationally induced stress such as military members in combat, security guards, and jailers.

Limitations

This study had several limitations. The first limitation was that it required participants to be currently employed LEOs with a commissioning agency. The current LEO population is 1% of the total population of the United States; thus, obtaining adequate participation was a limitation. I maximized my chances of gaining adequate participants by recruiting from LEO social media groups. Another limitation of this study was the willingness of the participants to admit when they were suicidal. This was a vital piece of the study that required the participants to be truthful in the questionnaire and survey. Problematic SI is continuous thoughts of suicide, as opposed to temporary SI,

where the person rejects suicide after a day or two (Larned, 2010). This presented a confounder variable that affected construct validity. To distinguish the difference, I added two questions to the survey asking participants how long they had experienced SI and whether they were still feeling SI. LEOs' questionnaires that indicated problematic SI were retained for analysis, whereas temporary SI was excluded from the study.

Construct validity is defined as the ability of a test or tool to measure a construct it was designed to measure (Creswell, 2009). This study measured two constructs: stress and SI. The measurement tools used for this effort were the PSQ-Op (McCreary & Thompson, 2013) and the SBQ-R (Osman et al., 2013), respectively. Both tools are published works, and explicit permission was granted by the publishers for noncommercial, educational research use (McCreary & Thompson, 2013; Osman et al., 2013). The PSQ-Op's reliability was assessed by two methods: Cronbach's coefficient alpha and corrected item-total correlations (McCreary & Thompson, 2004). Cronbach's coefficient alpha was .92, and the corrected item-total correlations ranged from .39 to .70 (McCreary & Thompson, 2004). Both methods provide evidence that the measurement possesses internal consistency and reliability to measure the construct (McCreary & Thompson, 2004). The SBQ-R possesses sensitivity and specificity percentages of 93 and 95, respectively (Osman et al., 2001). This indicates that the tool does correctly identify participants with SIs (Osman et al., 2001).

I anticipated no bias for this study.

Significance

SI that leads a person to complete an act of suicide is a tragic loss of that person. It is tragic because the person cannot reverse that fateful decision to end their life when another less detrimental alternative exists. This study focused on understanding to what extent a moderating variable can control stress as it develops into SI for LEOs. EL is a moderating variable that can control stress and lower SI. The significance of this study resides in its potential to generalize not only to the LEO community, but also to the military community and society in general. Achieving this understanding could ultimately help further current knowledge within the field of clinical psychology in treating stress before it leads to SI (Ramchand et al., 2019). Lowering SI would be a significant positive social change, considering how profoundly suicide affects society (Ramchand et al., 2019). Time, resources, and families are significantly affected by suicide (Skopp et al., 2018). The ability to decrease the effects of stress before it develops into SI through a moderating variable such as EL would give the field of clinical psychology and the field of psychology in general an edge over SI rates. The advancement in knowledge of moderating variables such as EL would assist clinicians in treating LEOs for stress (i.e., chronic stress), an added tool to ultimately help to lower SIs and successful suicidal acts. This study's findings could potentially help lower SIs within the LEO population and thus lead to a decrease in SI in society.

Summary

This chapter started with an introduction section that addressed the topic of the study, why the study needed to be conducted, and the potential positive social change

implications of the study. The background section followed, which summarized the research literature related to the scope of stress and SI. It also described the gap in knowledge within psychology that this study addressed and why this study was needed. The problem statement section stated the problem of SI within the LEO population and summarized evidence of SI within the LEO population. Gaps in the current research literature were also addressed. The purpose of the study section followed. This section stated the quantitative methodology of the study. It also identified stress as the IV, EL as the moderating variable, and SI as the DV. The research questions and hypotheses section presented three relevant questions: Does stress decrease or increase SI among LEOs? Does EL decrease or increase SI among LEOs? Does EL buffer or enhance the effects of stress on SI among LEOs? The relevant variables were measured using published tools, the PSQ-Op (McCreary & Thompson, 2013) and SBQ-R (Osman et al., 2013). Appraisal theory (Lazarus & Folkman, 1984) was discussed in the theoretical framework section, which addressed why it was appropriate for this study. In the nature of the study section, I explained the rationale behind selecting stress, EL, and SI as variables for the study. In the definitions section, I clarified and defined relevant terms used within the study. The assumptions section identified and described the assumptions necessary for the context of the study. In describing the study scope and delimitations, I sorted out the criteria for the inclusion of the LEO population. I also addressed other theories that might have been appropriate for the study but were excluded. The limitations section described research design limits and validity issues such as internal and external validities. It also addressed potential biases. The final section, which focused on the study's significance, addressed

the potential contributions of the study to the field of clinical psychology and the positive social change potentially stemming from this study.

Chapter 2 contains an introduction section followed by the literature search strategy, theoretical foundation, a literature review related to key variables, and summary and conclusion sections.

Chapter 2: Literature Review

Introduction

LEOs are dying more by suicide than in the line of duty, and the trend is rising (Heyman et al., 2018). SI commonly precedes the act of suicide (Ramchand et al., 2019; Skopp et al., 2018; Violanti et al., 2016b), and stress is the most prevalent symptom of SI (Ramchand et al., 2019). Past studies by Costa et al. (2019), Koopmans et al. (2017), and Skopp et al. (2018) identified variables having influences on SI as age, prior exposure to trauma, and interpersonal relationships, respectively. Other studies (Bishopp & Boots, 2014; Gomes et al., 2018; Milner et al., 2017; Violanti et al., 2016b; Violanti, 2004) examined the relationship between stress and suicide. However, a substantial amount of research is still lacking about EL moderating for stress and SI. A recent study (Krause, 2019) examined the moderating effects of EL on stress and depression but made no mention of the moderating effects of EL on stress and SI. EL is said to have a positive effect on expected life outcomes and improves overall personal health (Mirowsky & Ross, 2005). Educational attainment has been documented in past studies (Bauldry, 2015; Lorant, 2003) to have profound positive effects on the physical and mental health and welfare of the individual. The purpose of the study was to examine the moderating effects that EL has on stress and SI among LEOs.

Chapter 2 contains an introduction and a literature search strategy. It also contains a theoretical foundation section and a literature review related to the key variables. This chapter ends with a summary and conclusion section.

Literature Search Strategy

The library databases used for my study were JSTOR, PsycINFO, SAGE Journals, SocINDEX with Full Text, and Taylor and Francis Online. These databases were accessed through Walden University's library resource webpage. The four listed databases were chosen by recommendation from Walden University's library resources for general psychology subject matter. Search engines used for my study included Google, Google Scholar, and Bing.

Key search terms and combinations of search terms included *police*, *stress*, *performance*, *burnout*, *suicide*, *ELs*, *LEO*, *depression*, *law*, *job stress*, *college*, and *occupational stress*. The combination of these terms was limited using the Boolean limiter on each of the library databases. The number of results returned for the searches ranged from 64,911 articles to zero articles. There existed a multitude of research articles containing one or two of the terms, but none that contained three or more. For example, over 1,000 research articles existed for the subjects of *suicide* and *stress*, but none existed for *suicide*, *stress*, and *police*, or *stress*, *police*, and *EL*. I set an appointment with the Walden Library for assistance in searching for the terms for my study. The university librarian attempted to search for the terms and concluded that no article existed with the three terms combined: *stress*, *SI*, and *EL*.

The criteria used to select works for the literature review encompassed articles written from 2014 to 2019 to meet the 5-year requirement. Additionally, only articles are written in the English language and only peer-reviewed scholarly journals were chosen.

Research articles that exceeded the 5-year range were chosen based upon their relevance to provide background information.

Theoretical Foundation

AT (Lazarus & Folkman, 1984) was selected as the foundation of my study.

Lazarus's work on stress in the mid-1960s was the catalyst for his later work with Folkman on AT (Lazarus & Folkman, 1984). The term "stress" was in vogue as early as the 14th century to denote hardship or extreme pressure (Lazarus & Folkman, 1984). It was not until 1932 that Cannon's contribution to the understanding of the physiology of emotions gave Selye, in 1936, the boost to create his work on general adaptation syndrome (Lazarus & Folkman, 1984) which contributed to the understanding of "stressors" or stresses caused by the environment upon the organism. Lazarus and Folkman (1984) acknowledged that Wolff's major work in neurology helped define stress as a "dynamic state" of emotional reaction to external stimuli. From these pioneering works of Cannon, Selye, and Wolff, Lazarus and Folkman were able to shape and define the current usage of the term "stress" to mean the organism's process of reacting to a stimulus. An important aspect of Lazarus and Folkman's understanding of stress is the way that organisms manage stress, called "coping." This is the crux of AT—the organism's ability to assess stress and respond accordingly to achieve homeostasis (Lazarus & Folkman, 1984).

A recent study by Jamieson et al. (2016) highlighting the effectiveness of AT among college students revealed that appropriately appraising stress improves overall exam scores. Participants were separated into experimental and controlled groups. The

experimental group read a passage describing the benefits of stress management before the examination. The control group only took the exam. The study data supported the conclusion that the experimental group performed better on the exam (Jamieson et al., 2016). AT indicates that the experimental group's perceived stress could be controlled by the students' resources (Jamieson et al., 2016). I believe that the process of accurately appraising stressors is vital for LEOs to better manage their stress levels. Knowing, evaluating, and understanding stressors allow LEOs to cope better with stress. Jamieson et al. (2018) also examined the affective response to stressors. Participants mediated stress response through the appraisal process, which again helped them to manage stress levels (Jamieson et al., 2018).

Self-compassion was examined as a moderating variable on perceived stress and personal health in a separate study (Homan & Sirois, 2017). The authors stated that AT explains the process of interpreting perceived stress from a different perspective. Homan and Sirois (2017) concluded that self-compassion lowered perceived stress levels for the experimental group. The key components of self-compassion are self-kindness, common humanity, and mindfulness (Homan & Sirois, 2017). Homan and Sirois explained that self-kindness allows the individual to perceive adversities with acceptance. Common humanity informs individuals that humans are imperfect while mindfulness permits them to move past negative emotions. Combined, these three components of self-compassion mitigate the effects of perceived stress through the appraisal process (Homan & Sirois, 2017). In addition to lowering levels of stress, self-compassion also promotes healthier lifestyle habits such as healthy eating, exercise, and medical check-ups, to name a few

(Homan & Sirois, 2017). Homan and Sirois (2017) concluded that the appraisal process plays a role by mediating between perceived stress and physical health. The role that EL has in the relationship between stress and SI is unknown.

A study (Clément & Dukes, 2017) was conducted to assess the emotional learning of young children. In that study, Clément and Dukes (2017) used AT to explain that children utilized the appraisal process to facilitate social learning. Children received different cues from their caregivers dependent upon the desired outcomes. For example, a child from a family that prizes catching fish would appraise the reactions received from him touching a fishing pole as a positive emotion, and the child would learn to handle a fishing pole. Conversely, if the child touched a tennis racket and received a disapproving glare from his caregiver, the child would learn to not touch a tennis racket again. AT from this study may be applied to explain that LEOs using the appraisal process for stress control is a better outcome than maladaptive coping strategies such as SI.

In a separate study, Wassermann et al. (2018) examined the appraisal process of the South African Police Service (SAPS) to control for job-induced stressors. The authors used AT to explain the findings that SAPS personnel were able to formulate better coping strategies than SI (Wassermann et al., 2018). Members of SAPS were able to cope with stressful occurrences by using coping strategies such as social support and strategic problem solving. These coping strategies were resources that could meet the level of the stressors in the appraising process.

My rationale for choosing AT (Lazarus & Folkman, 1984) was based on the large amount of research and numerous studies (Bishopp & Boots, 2014; Costa et al., 2019;

Gomes et al., 2018; Milner et al., 2017; Violanti, 2004) pointing to stress as the main contributor to SI among LEOs. Because the occupation of policing is filled with stressful situations daily (Gershon et al., 2002; Liberman et al., 2002; Odunayo et al., 2015; Violanti et al., 2016a; Wassermann et al., 2018), it is reasonable that LEOs could benefit tremendously by using the appraisal process.

Stress is a major factor contributing to a variety of maladaptive behaviors, of which SI is one (Boyd, 2019; Liberman et al., 2002; Odunayo et al., 2015; Wassermann et al., 2018). Lazarus and Folkman (1984) stated that an organism's survival depends upon its ability to deduce and respond to the level of threat present. Threats may be external, such as environmental phenomena or other organisms, or they could be internal, such as physiological or psychological phenomena. This is the basic appraisal process. Striving towards homeostasis is the goal of appraising and survival. AT (Lazarus & Folkman, 1984) relates to my study because when LEOs experience occupational stress, their ability to appraise and respond to the stress will determine how they are affected. Hence, LEOs who are better at appraising stress will be quicker to achieve homeostasis than LEOs who are not and develop maladaptive behaviors, of which SI is one. Therefore, I asked these research questions to help build upon the existing theory that stress may be moderated through EL: Does stress decrease or increase SI among LEOs? Does EL decrease or increase SI among LEOs? Does EL buffer or enhance the effects of stress on SI among LEOs? I believe that my study will help build on the existing knowledge of AT (Lazarus & Folkman, 1984) by adding an understanding of the role of EL as a moderator during the appraisal process.

Literature Review Related to Key Variables

This section contains three parts. In the first part, I discuss contemporary research articles on the three chosen variables: stress, EL, and SI. The researchers in all of the studies reviewed used quantitative analysis except Isopahkala-Bouret (2017), who used the qualitative approach. Following the article reviews, I discuss the strengths and weaknesses of each study reviewed. A summary of what is known, unknown, and controversial about the topic of the study ends this section.

Stress

I selected stress as the IV because it is a relevant subject in law enforcement. Countless scholarly articles support the current understanding of stress as an emotional, physiological, and psychological phenomenon of the human experience (Homan & Sirois, 2017; Lazarus & Folkman, 1984). Stress is viewed as a persistent catalyst for maladaptive behaviors such as SI (Acquadro-Maran et al., 2015; Carleton et al., 2018; He et al., 2019). He et al. (2019) pointed to stress through traumatic events as the precursor to suicidal behaviors. In the current climate of racial tension and a call for defunding the police (Zerkel, 2020), stress is at an all-time high for LEOs, and as previous studies have shown, stress leads to maladaptive behaviors (Carleton et al., 2018).

Several past studies matched the constructs for AT (Lazarus & Folkman, 1984) and had a quantitative methodological approach consistent with my study. One of these past studies (Acquadro-Maran et al., 2015) examined stress levels for a group of LEOs. The cohorts were separated by gender and job roles (i.e., administration vs. operation). Acquadro-Maran et al. (2015) examined the differences between men and women

experiencing stress. The study identified four variables persistent among their participants: job role, gender, stress, and coping mechanisms. Acquadro-Maran et al. found that women in job categories of administration and operation experienced greater effects of stress than did their men counterparts and that female patrol police officers in the operational category experienced the most stress of all the cohorts (Acquadro-Maran et al., 2015). Acquadro-Maran et al. concluded in their quantitative methodology that stress experienced by all participants caused them to develop coping mechanisms ranging from self-distraction to self-blame and that these coping mechanisms were stratified according to job roles. Acquadro-Maran et al. discussed in their conclusion that further research could help in understanding how this population arrived at their maladaptive coping strategies.

A separate study (He et al., 2019), with a quantitative analysis approach, examined stress levels and SI among a cohort of college students in China. He et al. (2019) stated that various stressors such as low self-esteem, hopelessness, and lack of social support contributed to the high risk rate for SI. He et al. concluded in their discussion that religiosity had a weak direct effect on SI. They also found that religiosity had a strong interaction between stress effects on SI. In a separate study, Carleton et al. (2018) examined the extent of stress among public safety personnel within a Canadian province using a quantitative analysis approach. Carleton et al. pointed to several factors contributing to increased stress levels. These contributors included sex-based discrimination, sexual harassment, marital status, and lack of social support, among others (Carleton et al., 2018). Carleton et al. discussed the importance of early detection

of stress to prevent maladaptive coping mechanisms such as SI among the Canadian LEO population. They hoped that their findings would inform clinicians of the prevalence of stress among Canadian LEOs that develops into SI. Cumulatively, the research emphasizes the deleterious impact of stress upon the development of coping mechanisms such as SI. Past studies have examined several moderator variables to mitigate the effects of stress. One of these moderators is EL.

Educational Level

A recent quantitative analysis study (Isopahkala-Bouret, 2017) examined the relevance of EL for a group of participants based on the criteria of age (54–62 years) and how obtaining higher ELs affected quality of life for these same participants. Isopahkala-Bouret (2017) based her findings on the agency perspective model. The agency perspective model posits that humans have the potential to change their situations with the help of society (Isopahkala-Bouret, 2017). According to Isopahkala-Bouret, the participants saw improved standards of living and higher life satisfaction as ELs increased. Participants (Isopahkala-Bouret, 2017) were effectively able to influence the institutional and societal circumstances that surrounded them with increasing education levels.

A past study using a quantitative methodology (Cunningham, 2006) showed the effectiveness of ELs in improving overall quality of life by increasing wages for graduates. Cunningham (2006) stated that besides an increase in wages, society benefits from members obtaining postsecondary education by lowering social program costs such as unemployment compensation, Medicare and Medicaid, food programs, welfare, and

other social programs compared to high school graduates. Additionally, the incarceration rate was lower among the group with at least some college education than for the group with high school education only (Cunningham, 2006).

Bauldry (2015), through quantitative analysis, examined the moderating value of EL on the predictor variable of stress against the outcome variable of depression among a cohort of participants from two levels of socioeconomic backgrounds using a quantitative analysis approach. Bauldry found that EL buffered the effects of stress more for participants from a lower socioeconomic background than participants from a higher socioeconomic background. The cohorts were stratified into two levels, those with some college credits and those with 4-year degrees. Bauldry concluded that cohorts from lower socioeconomic backgrounds with a 4-year degree were buffered from the effects of stress more than all the other groups because they had completed a 4-year degree. The rationale for Bauldry's conclusion was based on the resource substitution hypothesis (Mirowsky & Ross, 1998). To summarize the resource substitution hypothesis (Mirowsky & Ross, 1998), EL buffers the effects of the declining health of individuals of families with parents possessing lesser education if these individuals have higher EL. Conversely, individuals with poor education from families with poorly educated parents will have health disparities amplified. Mirowsky and Ross (1998) concluded that EL is the mechanism that individuals use to improve life satisfaction. When education levels increase, financial earnings increase, health care improves, and thus overall health improves, with an emphasis on mental health (Mirowsky & Ross, 1998).

A separate study (Ma et al., 2016) using quantitative methodology points to the benefits of ELs as a preventative factor among older participants because it fosters healthy behaviors. Ma et al. (2016) explain that obtaining higher ELs provide graduates with an improved quality of life and a higher standard of living. Additionally, college graduates contribute more in taxes towards local, state, and federal levels (Ma et al., 2016). This is viewed as an aggregate benefit because the added revenue stream allows government entities to focus on the members of society that have not yet achieve higher ELs while those with higher ELs require little government assistance (Ma et al., 2016). Ma et al. contend that ELs improve the participant's quality of life by fostering the knowledge of a healthier lifestyle. This lifestyle distinguishes between positive and maladaptive coping behaviors (Ma et al., 2016).

Suicidal Ideation

SI is a major issue for society (Bishopp & Boots, 2014; Gomes et al., 2018; He et al., 2019; Lazarus & Folkman, 1984; Odunayo et al., 2015; Wassermann et al., 2018) and scholars in the field of psychology have approached the issue from various perspectives (Bishopp & Boots, 2014; Carleton et al., 2018; Wassermann et al., 2018). Bishopp and Boots (2014) confirm that SI is a maladaptive stress response and examined the relationship between work-related traumatic events experienced by LEOs and the development of SI through a quantitative methodology. Bishopp and Boots found that various correlates contribute to the development of SI such as age, gender, race, marital status, social support, and psychosocial risk factors. Bishopp and Boots based their findings on the general strain theory (GST: Agnew, 1992). Agnew posits that members of

a society are relegated under duress to commit a crime when devoid of a legal means of obtaining socially accepted goals. Stress and strain are derived from exposure to violent criminal events in the course of job performance (Bishopp & Boots, 2014). Bishopp and Boots explain that stress and strain were positively linked to the development of SIs. General strain theory also explains the development of SI to certain degrees in the presence of mediating variables such as depression, anger, burnout, lack of social support, and alcohol consumption (Bishopp & Boots, 2014). In the presence of these adverse mediators, stress and strain evolved into maladaptive behaviors such as SI (Bishopp & Boots, 2014). Wassermann et al. (2018) examined the pervasiveness and transformation of coping mechanisms of LEOs in response to job-related stressors using a quantitative analysis approach. Wassermann et al. found that AT (Lazarus & Folkman, 1984) explains the development of SI as a response to stress. A coping mechanism is a component of AT (Lazarus & Folkman, 1984). There are two major coping mechanisms within AT: problem-focused and emotion-focused. A problem-focused coping mechanism is based on the cognitive evaluation of the stressor and formulating a positive solution to lessen the effects of that stressor (Lazarus & Folkman, 1984). An emotion-focused coping mechanism is based on the reduction of negative emotional responses to stressors (Lazarus & Folkman, 1984). Wassermann et al. explain that LEOs who were taught problem-focused coping was able to better manage stressors, but this fact was contingent upon early introduction of the coping mechanism. Wassermann et al. conclude that coping mechanisms change over time morphing into context-based coping which became a part of the individual's repertoire. If the individual had no coping mechanisms

to counter stress, a maladaptive coping mechanism such as SI becomes a possible alternative (Wassermann et al., 2018). This is the result found in a different study (Milner et al., 2017). Milner et al. focused on the rate of suicides among the Australian LEO population using quantitative methodology. Milner et al. stated that suicide for Australian LEOs was twice the rate of the general population and conclude that the prevalence of suicide was the result of work-related stressors and the lack of positive coping mechanisms. The suicide rate for male LEOs was higher than the rate of their female colleagues. Milner et al. explained that this was caused by social pressures. Male LEOs were expected to cope with stressors, but the lack of positive coping mechanisms gave rise to SI (Milner et al., 2017). These findings echo the findings of earlier studies.

Strengths and Weaknesses of the Literature Reviewed

In this section, I will discuss what I believe to be the strengths and weaknesses of the research literature that were reviewed above. The subsections will be organized according to the variables mentioned, stress, EL, and SI.

Stress

The strength of the studies by Acquadro-Maran et al. (2015), Carleton et al. (2018), and He et al. (2019) rest upon the methodological approach. Acquadro-Maran et al. examined the issue from an empirical perspective identifying each coping strategy implemented by the participants. For instance, Acquadro-Maran et al. explain that participants in the operational services, i.e., patrol, used self-blame and negation to cope with stressors while members of the interior department (management roles) preferred to use religiosity as a coping strategy. Carleton et al. and He et al. also conducted their

studies in the same manner. The three studies provided a quantifiable measure of the amount and type of stress experienced by their respective participants. This contrasts with studies conducted in a qualitative approach where stress levels cannot be quantified. It is a strength of the three studies that they identified the coping strategies utilized. In addition to Acquadro-Maran et al., Carleton et al., and He et al. also list coping strategies relevant to stress reduction. Although coping strategies are relevant to stress reduction it is reactive rather than a moderator. A weakness of the Acquadro-Maran et al. study was the low response rate from the study population. This affects their analysis of responder bias (Acquadro-Maran et al., 2015). Another weakness of the Acquadro-Maran et al. study was the lack of a comparison group. He et al.'s study strength includes a large sample size ($n = 5,301$). Carleton et al. list EL as a covariate to sociodemographic of their study but did not pursue the possibility that EL could moderate for stress. He et al. did examine a moderator, but that moderator was religiosity although the participants were all college students in China. A subsequent weakness of the He et al. study was the lack of generalizability for students outside of China and adults not in a university setting. Carleton et al.'s study population sample was self-selected which means the sample could not be the best representative of the Canadian PSP population. Another weakness of the Carleton et al. study was the fact that the participants who failed to complete the initial survey did not answer the follow-up questions to the survey on suicide. A common weakness of these two studies (Carleton et al., 2018; He et al., 2019) was the lack of EL as the moderator variable. My study will attempt to address this research gap.

Educational Level

Bauldry (2015), Isopahkala-Bouret (2017), and MA et al. (2016) examined the potency of EL to affect the quality of life. Bauldry and Ma et al. were conducted in a quantitative methodology and list results of EL. These include annual wages, age groups according to EL, differences between wages stratified for ELs, and other results. Bauldry states that a weakness includes an assumption that confounders be included in the propensity score model for EL and stress. Another weakness of the Bauldry study lies in the assumption that the propensity scores were measured without error. Bauldry reasons that methods to incorporate errors into the propensity measurements have yet to be formulated at the time of his study. Isopahkala-Bouret's study was a qualitative approach. As mentioned earlier, strengths in a quantitative approach permit fellow scholars to track the quantity of a certain variable. However, Isopahkala-Bouret makes a strong case for the qualitative approach stating that the perceived quality of life could only be obtained through qualitative analysis. Results for EL for Isopahkala-Bouret's study include confidence, security, and identity. These results are clear but not quantifiable. Examining the effects EL has on SI should yield empirical data. That is the goal of my study.

Suicidal Ideation

Bishopp and Boots (2014), Milner et al. (2017), and Wassermann et al. (2018) were reviewed for the strengths and weaknesses of their study on SI. The strength of the Bishopp and Boots study is the pervasiveness of the GST to explain LEO maladaptive coping behaviors which are evident in the rise in SI rate. Furthermore, Bishopp and Boots found that stress and strain increased the rate of SI by 99 percent absent of controls for

risk factors. A weakness of the Bishopp and Boots study is the low impact of the mediator variable on the stress and SI relationship. Milner et al. study strengths demonstrate the SI rate in their LEO population over 12 years. The study also emphasizes the common method of suicide was by hanging and the relevant age group was among the younger and middle-aged. A weakness of the Milner et al. study was the reliance on the national suicide data which may be under-reported. Another weakness of the Milner et al. study is the possible miscoding of the LEOs occupation. A strength of the Wassermann et al. study is it confirms that LEOs utilized AT to assess the relevance of stress. This factor might mitigate the effects of stress as it develops into SI. A weakness Wassermann et al. mention was the longitudinal design of the study. The design decreased the sample size with successive samplings. The retrospective nature of the instruments used in the Wassermann et al. study is another weakness. It is less accurate than an instrument that measures momentary accounts. The third weakness of the study would be the self-report method of data collection because it relied on participant's memories and are prone to bias.

Known, Unknown, and Controversial

Acquadro-Maran et al. (2015), He et al. (2019), and Carleton et al. (2018) state that stress is the catalyst for maladaptive coping strategies such as SI. Mirowsky and Ross (1998 & 2005) inform our knowledge that EL positively affects the quality of life. SI is prevalent among the LEO population (Bishopp & Boots, 2014; Milner et al., 2017; Wassermann et al., 2018). These are the known facts substantiated through the above past studies. What is unknown currently is the effectiveness of EL to moderate the

relationship between stress and SI among the LEO population. Past studies (Carleton et al., 2018; He et al., 2019) have examined moderating variables, but EL was not one of these. A controversial issue involving the LEO population is the lack of willingness of its members to reach out for help in fear of being ridiculed or viewed as being weak (Violanti, 1995; Violanti et al., 2016b). Obtaining participation would be difficult given the current controversies involving defunding the police departments that have permeated throughout society (Zerkel, 2020). The above studies show variables exist that will affect the relationship between stress and SI. Appraisal theory informs us those humans experience a phenomenon that assesses situations differently based upon individual resources. Additionally, Mirowsky and Ross make a strong case for the beneficial influence of EL on overall health. However, there is a lack of past and current research that provides evidence that EL moderates between stress and SI among LEOs. My study will attempt to explain the effectiveness of EL to moderate stress and SI among LEOs using AT as the theoretical framework.

Summary and Conclusion

This chapter presented literature reviews on the variables stress, EL, and SI for my study. Stress has a proven empirical link to SI in past studies. These past studies have examined moderating variables that buffered stress on SI, but ELs have not been examined as a moderator between stress and SI among the LEO population. In chapter 2, I provide reasons for choosing the variables, what contemporary scholars have found regarding the variables and any known, unknown, and controversial issues about the variables.

Stress is known to be a major contributor to SI (Carleton et al., 2018). Bauldry (2015), Carleton et al. (2018), and He et al. (2019) examined the ubiquitous nature of stress as it permeates throughout every level of society. Its persistence is unquestionable. Bauldry asked if the EL buffers for stress. He discovered that EL did indeed buffer for stress, but nothing is known if Bauldry's findings are generalizable to the LEO population. Carleton et al. studied the severity of SI and found it to be common among the Canadian LEO community. Although EL was listed as a covariate for stress, Carleton et al. did not further investigate the subject. It is worthy to note that the statistical analysis of covariates shows a dramatic decrease in SI and suicidal attempts as ELs increase (Carleton et al., 2018). He et al. explain that stress could be moderated. However, He et al. examined religiosity as the moderating variable. He et al. advises that other possible moderating factors should be examined for their effects and applied to different populations. My study on the moderating effects of EL on stress and SI fills the gap created in the He et al. study.

Chapter 3 presents the methodology used to help guide my study towards identifying EL as a moderating variable between stress and SI among the LEO population. My study will fill the gap left by the studies of Bauldry (2015), Carleton et al. (2018), and He et al. (2019) by examining through correlational analysis the interaction between stress and EL, EL and SI, and stress and SI. This will be conducted using regression analysis.

Chapter 3: Research Method

Introduction

In this quantitative study, I examined the moderating effects that EL has on stress and SI among LEOs. Past research (Acquadro-Maran et al., 2015; Burke, 2016; Gershon et al., 2002; Liberman et al., 2002; Violanti et al., 2016a) linked stress to maladaptive behaviors among LEOs. One of these maladaptive behaviors is suicide (Heyman et al., 2018). Steps leading to a successful act of suicide are depression, a feeling of hopelessness, a feeling of isolation, and SI (Violanti et al., 2016a). AT (Lazarus & Folkman, 1984) posits that an organism evaluates a situation based upon a cognitive appraisal of the situation. The theory (Lazarus & Folkman, 1984) presents the evaluation process in two essential steps: primary appraisal and secondary appraisal. Primary appraisal is the initial appraisal of the organism to determine the absolute value of the situation (i.e., enjoyment, threatening, exercise, etc.; Lazarus & Folkman, 1984). After the primary appraisal, the organism begins the secondary appraisal to determine whether it has sufficient resources to address the situation (Lazarus & Folkman, 1984). This current study posited that integral to the secondary appraisal, prior knowledge is essential. The prior knowledge in this explanation may be interpreted as a form of learning. Educational attainment theory (Mirowsky & Ross, 2005) posits that education is a lifelong process and increases the individual's socioeconomic status, health, and well-being. Chapter 3 contains introduction, research design and rationale, methodology, threats to validity, and summary sections.

Research Design and Rationale

This study had three variables: stress (IV), SI (DV), and EL (M). Three research questions were asked to achieve the purpose of this study:

RQ₁: Does stress decrease or increase SI among LEOs?

RQ₂: Does EL decrease or increase SI among LEOs?

RQ₃: Does EL buffer or enhance the effects of stress on SI among LEOs?

A research survey design with a hierarchical linear regression analysis was chosen to examine the moderating effects of EL on the relationship between stress and SI on a sample of the LEO population. Holding constant all other variables that may predict SI, the study focused on stress as the main predictor variable, making hierarchical linear regression the preferred methodology for statistical analysis. In hierarchical linear regression, three modeling samples were examined: the interaction of stress as the predictor of SI, the addition of the interaction of EL on SI, and then the addition of the combined interaction of stress and EL on SI. It was appropriate to answer these questions through hierarchical linear regression analysis methodology because there was an IV, a moderating variable, and a DV.

A constraint for this study was the issue of participant responses to the survey and questionnaire. Responses were required promptly to gauge the level of stress and SI as they developed. To address this constraint, I set a specific timeframe for the collection of data via survey hosting websites. If I did not obtain the required number of participants in the specified timeframe, I planned to extend the timeframe until the required number of participants was achieved and would continue recruiting from the listed websites.

Another constraint for this study was the availability of funds. I planned to acquire the privilege to use a survey hosting website such as Survey Planet (Survey Planet, 2021) where participants would access the survey. I anticipated that the cost for a premium service was a possible constraint. However, there was no cost for basic survey hosting at Survey Planet. If I could not recruit enough participants from Walden University's research participation community, then I would continue recruiting from other social media groups and referral methods until I had recruited enough participants.

The chosen research design was consistent with the sort of research that involves one IV, one DV, and one moderating variable. Example research (Baron & Kenny, 1986) taken as guidance for my study demonstrated the design of examining a moderating variable against an IV and a DV. A recent study (He et al., 2019) examined the moderating effects of religiosity on the relationship between traumatic events and suicidal behaviors. Scholars found a negative effect on suicidal behaviors when religiosity interacted with traumatic events (IV).

The design of my study followed the same methodology. The expected result would answer the research questions and advance the knowledge of clinical psychology about SI and the moderating effects of EL on stress.

Methodology

Population

The target population was LEOs holding active commissions, either with a municipality serving in the role of a police officer, with a county government serving in the role as a sheriff's deputy, with a state department serving in the role of a state trooper,

or with a federal agency that commissions persons with powers to make custodial arrests or a combination thereof. A priori population size for this study was estimated at 67 ($n = 67$) with an anticipated effect size (f^2) = 0.15, desired statistical power level = 0.8, number of predictors = 2, and a probability level = 0.05 (Soper, 2006).

Sampling and Sampling Procedures

This study used a simple random sampling (SRS) strategy (Creswell, 2009) to obtain the desired sample required. An SRS strategy was preferred because members of the population have an equal chance of being selected while limiting researcher bias and have a greater chance of generalizability to the population (Creswell, 2009). SRS design was chosen for this study because the participants would have equal opportunity to participate. The only criteria for participation were that members must be active duty peace officers. The participants were pulled from the online survey site Survey Planet which hosted the surveys for this study.

I solicited participation from LEO Facebook groups such as Fort Worth Police Department Friends and America's Blue Line Keepers. Due to the COVID-19 pandemic of 2020, this method was the logical alternative to the social distancing guideline recommended by medical/health authorities. I posted a message on the groups' webpages detailing the study and providing a link to the questionnaire at the survey hosting website, Survey Planet. When the number of participants matched the sampling size of 67 (Soper, 2006), the data collection would be complete.

Inclusion in the sampling frame required participants to be employed with an LEO department. Another criterion for inclusion was questionnaire results that identified

the participant as experiencing job-related stress. This was taken from the PSQ-Op (McCreary & Thompson, 2013). A positive score on the questionnaire for SI, the SBQ-R (Osman et al., 2013), was also a criterion for inclusion. Participants without a positive score on both questionnaires were excluded from the sampling frame.

The LEOs could be located across the United States because the data collection process was conducted online. This made it more convenient to reach more participants for the study.

Procedures for Recruitment, Participation, and Data Collection

Interested participants were greeted initially with the recruitment page. This first webpage contained information about the nature and purpose of the study, the confidentiality of participants, ethical issues, and the goals of the study. From here, participants choosing to proceed with the study could click a link located at the bottom of the page that would take them to the informed consent page. This informed consent page contained relevant information about the use and storage of participant information. The consent form required participants to check yes for approve consent or no for nonapproved consent. If the participant did not approve consent, the recruitment process would terminate for that participant, and they would not be allowed to advance to the questionnaire. Particular demographics information (Appendix A) preceded the PSQ-Op and the SBQ-R and contained questions such as age, gender, work hours, years of service, duty assignment, and education level.

Raw data were collected from the survey webpage, Survey Planet. This webpage compiled the data into a Microsoft Excel spreadsheet with responses from each of the

participants. The raw data were then sorted out by completed and uncompleted questionnaires. All completed questionnaires were kept, and uncompleted questionnaires were discarded. Completed questionnaires were then used for statistical analysis using SPSS.

Upon completion of the questionnaires, participants were provided with debriefing information and appreciation for their participation. The debriefing webpage stated that participant responses would help in understanding the moderating strength of EL on the relationship between stress and SI. Participants were given my contact email for any questions regarding the study that they might have. The debriefing page is attached to Appendix B.

There were no follow-up procedures for the participants apart from inquiries about the progress of the study. The contact information was provided on the consent form and the debriefing form (Appendix B).

Instrumentation and Operationalization of Constructs

Police Stress Questionnaire—Operational

The PSQ-Op was developed by McCreary and Thompson (2013). The PSQ-Op was first published in the *International Journal of Stress Management* (McCreary & Thompson, 2004). The PSQ-Op was developed specifically for detecting stress in the LEO population (McCreary & Thompson, 2004) and was suited for this study. Before the development of the PSQ-Op, researchers were limited to tools such as the Job Stress Survey (Vagg & Spielberger, 1999) that could not specifically identify factors of job-related stressors (McCreary & Thompson, 2004). Since the target population was LEOs,

it was logical to use a measurement that would measure stress arising from job-specific stressors such as the PSQ-Op. Explicit permission was given for the use and reproduction of the instrument for noncommercial research and education only. Published reliability and validity values relevant to their use for this study were stated in the instrument's initial publication (McCreary & Thompson, 2004). The PSQ-Op's reliability was assessed by two methods: Cronbach's coefficient alpha and corrected item-total correlations (McCreary & Thompson, 2004). Cronbach's coefficient alpha was .92, and the corrected item-total correlations ranged from .39 to .70 (McCreary & Thompson, 2004). Both methods provide evidence that the measurement possesses internal consistency and reliability to measure the construct (McCreary & Thompson, 2004). The PSQ-Op (McCreary & Thompson, 2013) was developed and tested for validity and reliability (McCreary & Thompson, 2004) over a course of four studies. The researchers conducted a reliability test for the first study, and validity testing was conducted during the second, third, and fourth studies (McCreary & Thompson, 2004). The studies were conducted in Canada with Ontario Provincial Police personnel (McCreary & Thompson, 2004). Reliability was established in the research sample for Study 1 by using a focus group to pinpoint the common stressors for the operation of policing (McCreary & Thompson, 2004). Studies 2, 3, and 4 were focused on validity (McCreary & Thompson, 2004). The researchers took the items from the focus group from Study 1 and presented them to research participants in the subsequent three studies (McCreary & Thompson, 2004). The researchers discovered that the PSQ items were perceived to be moderately stressful (McCreary & Thompson, 2004). The average stress level for PSQ-Op items was

3.47 on a scale of 1–7 (McCreary & Thompson, 2004). The correlational coefficient ranged from 0 to plus/minus 1, with the majority of the ratings closer to 1 (McCreary & Thompson, 2004). This indicated that PSQ-Op items appear to be moderately stressful and occur frequently (McCreary & Thompson, 2004).

Suicide Behaviors Questionnaire

The original Suicide Behaviors Questionnaire was developed by Linehan (1981) and contained 34 items (Rueda-Jaimes et al., 2017). The revised version was later developed by Osman et al. (2001) and contained four items (Rueda-Jaimes et al., 2017). The SBQ-R (Osman et al., 2013) was appropriate for this current study based on the brevity of several items and supporting research (Rueda-Jaimes et al., 2017). Permission to use the instrument explicitly states that the instrument may be used and reproduced without prior permission as long as it is used for noncommercial research and education only (Osman et al., 2013). Researchers found through statistical analysis that the instrument measured suicidality satisfactorily in the study population (Rueda-Jaimes et al., 2017). The SBQ-R was tested for reliability and validity in a group of psychiatric inpatients in Colombia (Rueda-Jaimes et al., 2017). Four hundred seventeen inpatients were recruited from a local hospital with a mean age of 30.1 years (Rueda-Jaimes et al., 2017). Four items reference the inpatient's past SI, current SI, and future SI (Rueda-Jaimes et al., 2017). The SBQ-R possesses sensitivity and specificity percentages of 93 and 95, respectively (Osman et al., 2001). This indicates that the tool does correctly identify participants with SIs (Osman et al., 2001).

Operationalization of Variables

The operational definition of stress has two bases: stimulus based and response based (Butler, 1993). A stimulus-based definition of stress refers to an external pressure exerting force on an individual (Butler, 1993). The second basis for a stress definition, response-based, is the definition that this current study borrowed for an operational definition. The response-based operational definition of stress refers to the response of an individual to a noxious or aversive stimulus (Viner, 1999). McCreary and Thompson (2004) describe stress as a factor that causes individuals to report lower overall health and well-being. The stress variable is measured from the final score on the PSQ-Op (McCreary & Thompson, 2013). Each item on the PSQ-Op is based on a 7-point Likert scale. The average mean for PSQ-Op items is 3.47, with *SD* of .92 (McCreary & Thompson, 2004). Participant means average above 3.47 would be considered stressful, while the mean average below 3.47 would be considered not stressful. An example item is “How stressful do you feel about shift work?”

The operational definition of SI was the pervasive thought of hopelessness and a feeling that life is not worth living (Larned, 2010). The SI variable was measured using the SBQ-R (Osman et al., 2013). Osman et al. (2013) describe SI as persistent thoughts of harming oneself. This instrument consists of four items with a 5-point, 6-point, or 7-point Likert scale (Osman et al., 2013). A recommended cutoff score of greater than or equal to 7 is considered a risk of suicide (Osman et al., 2001). An example of a test item from SBQ-R is “Have you ever thought about or attempted to kill yourself?”

Data Analysis

The data analysis plan included the use of Microsoft's SPSS software for the analysis process. Data cleaning and screening would entail the initial receiving of the raw data from the survey site, Survey Planet, and reviewing the completion of each questionnaire. Incomplete questionnaires would be discarded by deleting them from memory to maintain the participants' confidentiality. Questionnaires that were complete were included for data analysis.

RQ₁: Does stress decrease or increase SI among LEOs?

H₀₁: Stress does not decrease or increase SI among LEOs as evidence of the interaction between the IV and DV on the regression model.

H_{A1}: Stress does decrease or increase SI among LEOs as evidence of the increasing/decreasing interaction between the IV and DV on the regression model.

RQ₂: Does EL decrease or increase SI among LEOs?

H₀₂: There is no relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model.

H_{A2}: There is an inverse relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model.

RQ₃: Does EL buffer or enhance the effects of stress on SI among LEOs?

- H₀₃: There are no moderating effects of EL on stress for SIs among LEOs as evidence of the interaction between the M and IV for SI on the regression model.
- H_{A3}: There are moderating effects of EL on stress for SIs among LEOs as evidence of the interaction between the M and IV for SI on the regression model.

The statistical analysis plan to answer RQ1 requires using a linear regression method. A hierarchical linear regression analysis to examine the moderating effects of ELs on the relationship between stress and SI will be conducted using a sample of LEOs (n=67) within the United States. Law enforcement officers will be divided into three groups; those with high school diplomas and no college (n=X), those with high school diplomas and some college (n=Y), and those with college degrees or higher (n=Z). An PSQ-Op (McCreary & Thompson, 2013) and a SBQ-R (Osman et al., 2013) will be administered via an internet survey from the webpage Survey Planet. Data analysis should show a relationship between stress and SI based on the three defined groups. The hierarchical linear regression model will show a positive correlation between stress and SI for each of the three education levels. The statistical analysis plan to answer RQ2 requires using a linear regression method to demonstrate the interaction between EL and SI. To answer RQ3, the same linear regression method would also be used. No covariates or confounding variables will be included in the analysis. Interpretation of the results would be taken from the results of the data analysis on aspects of significance with $p=.01$ (Creswell, 2009). The expected procedure for demonstrating the interactions of all three

variables involves hierarchical linear modeling samples. The first modeling sample will demonstrate the predictive effects of stress on SI. The expected outcome will show a positive relationship as stress increases SI will also increase. The second modeling sample will include the addition of the moderating variable, EL. The second modeling sample outcome will show a negative relationship as EL increases SI will decrease. The third modeling sample will include the addition of the interaction of stress and EL and their effect on SI. The third modeling sample outcome will show that EL moderates the effect of stress on SI causing SI to decrease while EL increases. The hypothesis is that EL controls the effects of stress on SI through moderating effects.

Threats to Validity

Possible threats to external validity would include generalizability to other sectors of the LEO population. This threat is addressed by the inclusion of all LEO personnel in a different capacity within the department to gain a variance in the participant population. LEOs from divisions such as homicide, vice, or narcotics would be invited to participate. Stress may not be the same type for those LEOs while stress for routine patrol officers would be at a consistently higher level. Another possible threat to external validity is being able to generalize to the greater LEO population. This is a potential threat because the sampling will be conducted in clustering based on geographical location. To address this type of threat, members of various Facebook groups for LEOs will be solicited to participate. Ideally, the members of these Facebook groups will be located throughout the country.

Possible threats to internal validity include the timing of responses from participants. To address this threat, a specific timeframe would be set for receiving the responses from participants. Another possible threat to internal validity is a regression (Creswell, 2009). Over time, test results tend to regress towards the mean (Creswell, 2009). To address this potential threat, participants who do not have extreme scores would be a criterion for inclusion for data analysis.

Possible threats to construct validity are the improper use of operational definitions. This threat would be addressed by citing research literature that uses the term frequently. Statistical conclusion validity threats would be addressed by obtaining statistical assistance from the university research center.

Ethical Procedures

Adherence to the Institutional Review Board (IRB) is an essential process towards fulfilling this study. As required, IRB permission to collect data will be obtained before conducting the study and a copy of the IRB permission is located in Appendix C.

I will make an open invitation on various LEO's Facebook group web pages. Interested participants will have the opportunity to click on an electronic link listed within the invitation which will take them to the study's welcome page. Participants will review the consent form on the subsequent page before proceeding and click the appropriate response. Individuals electing not to consent to participate or early withdrawal from the study will have the opportunity to exit the survey/questionnaire at any time by selecting the "exit" button located on each of the survey/questionnaire pages. Upon early exit from the survey or questionnaire process, the participants will be taken to

the debriefing page that contains information for follow-up, my contact email address, and information for suicide helpline should a participant feel the need for such help. The treatment of human participants will be done with respect. Anonymity and confidentiality of participants will be controlled by my choice of not asking for names, birthdates, or unique identification information. I will be the only person with access to the responses ensuring the privacy of the data. Four weeks will be allotted for the collection of surveys and questionnaires. All data will be downloaded off the Survey Planet webpage and stored in a lock-protected thumb drive. The account with Survey Planet will be closed ensuring that the confidentiality of participants is maintained. A review of the surveys and questionnaires will be conducted by myself for completeness. If a survey or questionnaire is incomplete, it will be removed from the raw data collection and permanently deleted from computer memory. Another ethical issue may be the pressure to participate. This pressure may come from over-zealous members of a Facebook group wanting to ensure the completion of the study. To address this issue, an explanation of the goal and voluntary nature of the study will be written on the welcome page of the study. There would be no rewards or penalties for participating or not participating. The participant pool will be drawn from Facebook groups, Walden University's Research Participation Pool, referrals and this will limit any possible workplace issues. The omission of participant identities will negate any power differentials or conflicts of interest. As stated above, there will be no incentives offered for participation. The data collected will be permanently deleted from all known sources five years after the study is determined to be completed.

Summary

Chapter three elaborated on the design and methodology of the study. Law enforcement officers were invited to participate in the study via Facebook social groups such as; Fort Worth Police Alumni, Blue Line Keepers, and We Support Our Police. Interested members are provided a hyperlink where they begin the survey process. After the period for collecting the data has ended, the raw data is reviewed for completeness and the required number of surveys, 68 (Soper, 2006), is analyzed using SPSS. The analysis used is a hierarchical linear regression analysis that will examine the moderating effects of EL on the relationship between stress levels and SI. This design was chosen because it is consistent with the sort of research that involves one IV, one DV, and one moderating variable.

Chapter four will discuss the data collection process which was briefly explained in the methodology section of chapter three. Chapter four will conclude with the interpretation of the results.

Chapter 4: Results

Introduction

The purpose of this study was to examine the moderating effects of EL between stress and SI among LEOs. Three research questions were asked to support the purpose of the study. The first research question was the following: Does stress decrease or increase SI among LEOs? The null hypothesis was that stress does not decrease or increase SI among LEOs as evidence of the interaction between the IV and DV on the regression model. The alternate hypothesis was that stress does decrease or increase SI among LEOs as evidence of the increasing/decreasing interaction between the IV and DV on the regression model. The second research question was as follows: Does EL decrease or increase SI among LEOs? The null hypothesis was that there is no relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model, while the alternate hypothesis was that there is an inverse relationship between EL and SI among LEOs as evidence of the interaction between the M and DV on the regression model. The third research question was the following: Does EL buffer or enhance the effects of stress on SI among LEOs? The null hypothesis was that there are no moderating effects of EL on stress for SIs among LEOs as evidence of the interaction between the M and IV for SI on the regression model. The alternate hypothesis was that there are moderating effects of EL on stress for SIs among LEOs as evidence of the interaction between the M and IV for SI on the regression model.

SI is a common phenomenon among LEOs (Violanti et al., 2016a) due primarily to job-related stress. LEOs' risk of SI is 3 times greater than any other occupation in the

United States (Heyman et al., 2018), and suicide among LEOs steadily increased from 2016 through 2019 (Blue H.E.L.P., 2019). This is a systemic problem for the LEO community and consequently affects the general safety of the public that LEOs are tasked to protect (Heyman et al., 2018). Krause (2019) points out in his study that EL moderates stress among college students, while Mirowsky and Ross (1998) highlight the benefits of education for life satisfaction and overall health improvements. These studies, among others (Bauldry, 2015; Cunningham, 2006; Isopahkala-Bouret, 2017; Ma et al., 2016), emphasized the benefits of EL to moderate stress, depression, and trauma.

Data Analysis Change

Reevaluating the data analysis revealed that the initial selection of a hierarchical multiple regression was not the appropriate analysis for RQ3. The appropriate data analysis recommended through literature review (Field, 2009) was linear regression, and this was chosen in place of hierarchical multiple regression.

In this chapter, I review the research questions and hypotheses. I also present evaluations of statistical assumptions, statistical analysis and assumptions, and finally, analysis results and a summary.

Data Collection

Collection Timeframe

The procedure for sample collection entailed a simple random sampling strategy. I had planned to visit multiple LEO departments across North Texas to recruit participants for the study. Conditions changed that made simple random sampling impractical and restricted nonemergency movements statewide—specifically, the COVID-19 pandemic

occurred. An alternate solution was devised that resulted in a convenient, nonprobability sampling. This strategy involved soliciting participants from social media interest groups. This method was determined to be more cost-effective, nonbinding to movement restrictions, and convenient.

An initial request for IRB approval to begin data collection was made on April 16, 2021. Final approval to begin data collection was granted by the IRB (05-05-21-0582050) on May 5, 2021. Three LEO social media group administrators were contacted via instant messenger with a request for permission to post a recruitment advertisement for study participants on May 8, 2021. Permission was granted by the administrators the same day, and recruitment for study participants began immediately. The recruitment advertisement was left on the social media group page from May 8, 2021, through June 19, 2021, a total of 6 weeks. A total of 72 individuals responded to the request for participants within the timeframe. The response rate was 107%.

A previous study (Martelli et al., 1989) involving actual pen-and-paper surveys had a response rate of 53% with 99 participants out of 160. The Martelli et al. (1989) study was chosen for comparison because it had a similar number of participants to my study. Participants in the Martelli et al. study were given the survey, whereas participants in my study were invited to click on the survey web link. There could be no guarantees that the total number of participants would reach 67 (projected effect size) given the number of Facebook group members. The 107% response rate for my study versus the 53% response rate of the Martelli et al. study was impressive. No discrepancies were noted from the raw data as planned in Chapter 3.

Sample Characteristics

Sample characteristics included participant's EL, duty position, work hours, and sex. Participants rated their stress levels and SI via two questionnaires, the PSQ-Op (McCreary & Thompson, 2013) and the SBQ-R (Osman et al., 2013). The criteria for participation in this study indicated that each participant needed to be a currently commissioned officer working for a law enforcement department such as a sheriff's office, a municipal police department, a state's department of public safety, the U.S. Marshal Service, and so forth.

The total LEO population in the United States in 2019 was estimated to be 790,000 (Data USA, 2019). The number of participants ($N = 72$) collected for this study compared to the overall population of LEOs in the United States was significant.

Univariate analysis of IV shows a range of stress of 20 to 105 with a mean of 76.44 and a standard deviation of 18.06 (Table 5). All participants reported differing levels of stress. A simple linear regression analysis was conducted to evaluate the relationship between IV and DV to justify the inclusion of a covariate. A significant regression equation was found ($F(1,70) = .554, p = .459$). Participants' SI increased .089 for each unit of stress, indicating a reaction between stress and SI. Tables 9, 10, and 11 show the results of the simple linear regression analysis.

Results

Descriptive Statistics

The study sample ($N = 72$) consisted of active commissioned LEOs. Table 1 shows the participants in three categories based on their EL: high school only ($N = 17$),

high school education with some college courses ($N = 20$), and college graduate or more ($N = 35$). Table 2 lists participants' duty positions: admin ($N = 10$), detective ($N = 18$), patrol ($N = 31$), and special units such as SWAT ($N = 13$). The work hours for LEOs were days ($N = 39$), evenings ($N = 20$), and nights ($N = 13$), as shown in Table 3. The sex composition of the sample included females ($N = 8$) and males ($N = 64$), as shown in Table 4. The software SPSS (version 27) was used to calculate the means and standard deviations. Individual total SI ($N = 72$, $M = 2.93$, $SD = 2.27$) and stress level ($N = 72$, $M = 76.44$, $SD = 18.06$) are shown in Table 5. Participants' ages ranged from 28 to 67 with a mean age of 45.81 ($SD = 10.16$), and years of service ranged from 1 to 33 with a mean of 14.56 years ($SD = 7.65$); both statistics are shown in Table 6.

Table 1*Educational Level*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	High school	17	23.6	23.6	23.6
	Some college	20	27.8	27.8	51.4
	College degree	35	48.6	48.6	100.0
	Total	72	100.0	100.0	

Table 2*Job Duty*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Admin	10	13.9	13.9	13.9
	Detective	18	25.0	25.0	38.9
	Patrol	31	43.1	43.1	81.9
	Special	13	18.1	18.1	100.0
	Total	72	100.0	100.0	

Table 3*Work Hours*

	Frequency	Percent	Valid percent	Cumulative percent
Valid Days	39	54.2	54.2	54.2
Evenings	20	27.8	27.8	81.9
Nights	13	18.1	18.1	100.0
Total	72	100.0	100.0	

Table 4*Sex*

	Frequency	Percent	Valid percent	Cumulative percent
Valid Female	8	11.1	11.1	11.1
Male	64	88.9	88.9	100.0
Total	72	100.0	100.0	

Table 5*Descriptive Statistics*

	<i>N</i>	Minimum	Maximum	Mean	Std. deviation
Total SI	72	0	9	2.93	2.272
Total stress level	72	20	105	76.44	18.063
Valid <i>N</i> (listwise)	72				

Table 6*Statistics*

		Age	Year of service
<i>N</i>	Valid	72	72
	Missing	0	0
Mean		45.81	14.56
Median		46.00	14.00
Mode		44	14
Std. deviation		10.163	7.658
Range		39	32
Minimum		28	1
Maximum		67	33

Evaluation of Statistical Assumption

Two data analyses were used for the study: linear regression and one-way analysis of variance (ANOVA). There are seven assumptions associated with linear regression: (a) the dependent variable is measured on a continuous scale, (b) independence of observations, (c) data must be approximately normal, (d) linear relationship of variables, (e) homoscedasticity of variables, (f) residuals are approximately normally distributed, and (g) no significant outliers (Field, 2009). To address the first and third research questions, I used this data analysis method. To address the second research question, I used one-way ANOVA. One-way ANOVA has five assumptions associated with it: (a) the dependent variable is measured on a continuous scale, (b) the IV consists of at least two categorical, independent groups, (c) independence of sample observations, (d) normal distribution of DV among the sample groups, and (e) homogeneity of variances (Field, 2009).

Evaluation of Statistical Analysis and Assumption

The statistical analysis included two distinct methods to answer the three research questions. The first research question—Does stress decrease or increase SI among LEOs?—was a predictive measurement of the IV to DV that required linear regression analysis. Linear regression was chosen because the variables for this analysis were a continuous measurement, IV (stress), and DV (SI). The third research question—Does EL buffer or enhance the effects of stress on SI among LEOs?—required a linear regression analysis like the first research question. The third research question involved the examination of the moderating effect of one IV on a second IV to predict the DV. Both research questions involved the same assumptions and will be discussed as one. Seven assumptions were associated with simple regression analysis (Field, 2009). I will address each assumption individually in the following subsections.

First Assumption

The first assumption, that the DV is measured on a continuous scale, is met with a demonstration of the DV measurement in Table 5 above. SI is measured on a continuous scale from 0 to 19 ($M = 2.93$, $SD = 2.27$).

Second Assumption

Independence of observations was the second assumption. It could only be reasonably accepted that each participant submitted only one survey and that only one participant filled out one survey. This assumption cannot be guaranteed, given that this survey was conducted online.

Third Assumption

The third assumption was that the data must be approximately normal. A test for normality was conducted using the SPSS Q-Q plot feature. Results are shown in Figure 1 and Figure 2.

Figure 1

Q-Q Plot Test for Normality of Independent Variable, Stress Level

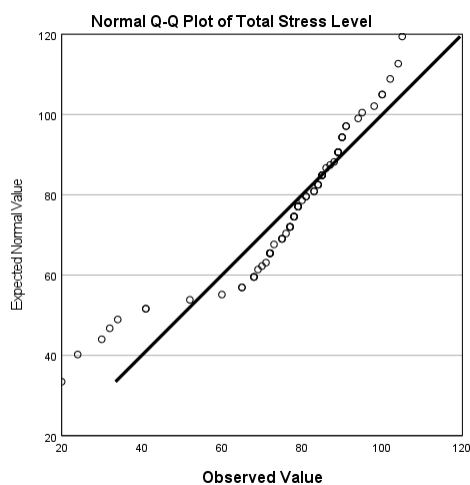
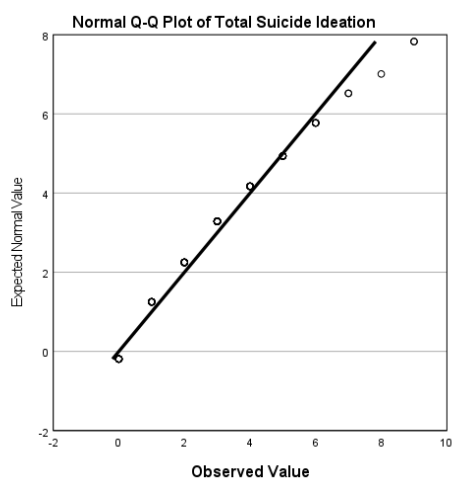


Figure 2

Q-Q Plot Test for Normality of Dependent Variable, SI



Fourth Assumption

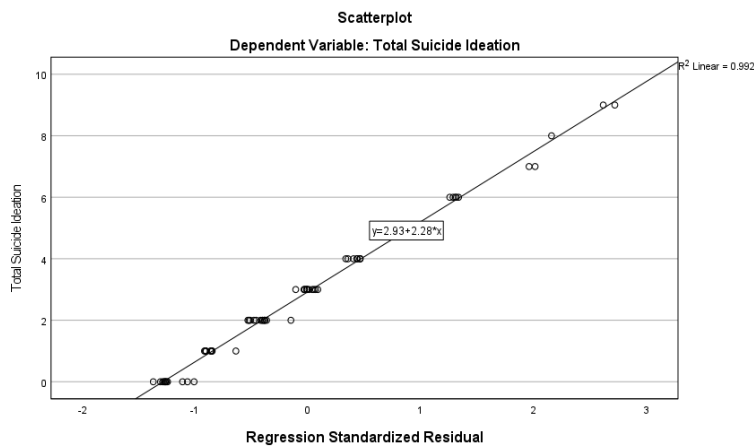
A linear relationship between variables was the third assumption that needed to be met. Total stress and total SI were found to be positively correlated, $r(70) = .08$, $p = .459$. Cronbach's alpha for stress is .80, and Cronbach's alpha for SI is .36.

Fifth Assumption

Homoscedasticity assumption was confirmed using SPSS linear regression modeling, as shown in Figure 3.

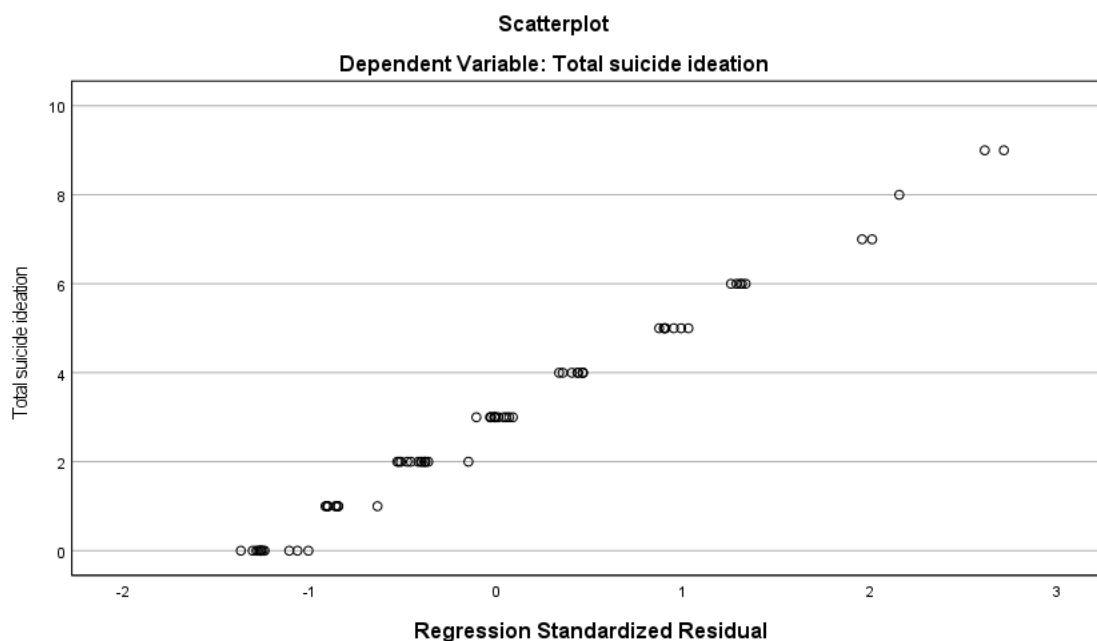
Figure 3

Scatterplot of Homoscedasticity



Sixth Assumption

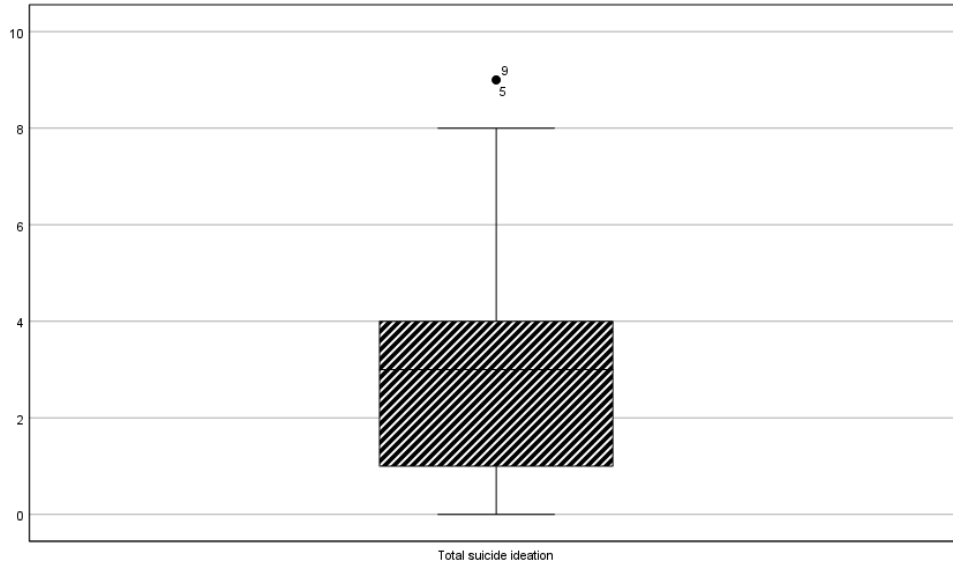
The sixth assumption was that residuals were approximately normally distributed. The residuals were calculated using SPSS scatterplot for DV and IV. Figure 4 shows the results of the test for residuals. The scatterplot has a symmetrical pattern and would suggest that the distribution of DV and IV is not normal.

Figure 4*Scatterplot of Standardized Residual****Seventh Assumption***

No significant outliers, the seventh assumption. Figure 5 shows the SPSS output for the test for significant outliers. There is one data point that is identified as an outlier. Hoaglin and Iglewicz (1987) state that calculation for the identification of outliers used in SPSS may be inaccurate. Researcher judgment is suggested.

Figure 5

Boxplot and Stem Leaf of Dependent Variable (SI) Outlier



The second research question requires a one-way analysis of variance (ANOVA). One-way ANOVA is chosen because the purpose is the comparison of means between three sample groups. Five assumptions are associated with a one-way ANOVA; 1) the dependent variable is measured on a continuous scale, 2) the IV consists of at least 2 categorical, independent groups, 3) independence of sample observations, 4) normal distribution of DV among the sample groups, and 5) homogeneity of variances (Field, 2009). The DV is measured on a continuous scale, ($M = 2.93$, $SD = 2.27$) and satisfies the first assumption. Table 1 above shows the participants in three groups: high school education only ($N = 17$), high school education with some college courses ($N = 20$), and college graduates or more ($N = 35$). This satisfies the second assumption. The third assumption, independence of sample observations, may be accepted that each participant took the questionnaires once. The fourth assumption of normality is conducted using the

Kolmogorov-Smirnov / Shapiro-Wilk test. The significance level of the Kolmogorov-Smirnov / Shapiro-Wilk test shows a $p < .05$ suggesting that the DV significantly deviates from a normal distribution. The results of this test are shown in Table 7 below.

Table 7

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total SI	.141	72	.001	.931	72	.001

^aLilliefors significance correction.

The last assumption, homogeneity of variances, was conducted using Levene's test. The significance level of Levene's test shows a $p < .05$ suggesting that the variances between the three groups significantly differ. The assumption of variance is not met for these samples. The results are shown in Table 8 below.

Table 8

Test of Homogeneity of Variance^a

		Levene	df1	df2	Sig.
		statistic			
Total SI	Based on mean	10.477	2	68	.000
	Based on median	9.302	2	68	.000
	Based on median and with adjusted <i>df</i>	9.302	2	47.122	.000
	Based on trimmed mean	10.448	2	68	.000

^aTotal SI is constant when EL = 55555. It has been omitted.

Statistical Analysis Findings

The first research question, “Does stress decrease or increase SI among LEOs,” was answered using linear regression analysis. The null hypothesis is that stress does not decrease or increase SI among LEOs while the alternate hypothesis is that stress does decrease or increase SI among LEOs. A simple linear regression was calculated to predict SI based on stress level. A significant regression equation was found ($F(1,70) = .554, p = .459$), with an R^2 of .008 meaning the null hypothesis is rejected. Participants' predicted SI is equal to $-5.884E-16 + .089$ (stress level) SI when stress is measured. Participants' SI increased by .089 for each unit of stress. Table 9, 10, and 11 shows the results of the simple linear regression analysis.

Table 9

Model Summary

Model	<i>R</i>	<i>R</i> square	Adjusted <i>R</i> square	Std. error of the estimate
1	.089 ^a	.008	-.006	1.00315666

^a Predictors: (Constant), Z score: Total stress level.

Table 10

Analysis of Variance

Model		Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
1	Regression	.557	1	.557	.554	.459 ^b
	Residual	70.443	70	1.006		
	Total	71.000	71			

^a Dependent variable: Z score: Total SI. ^b Predictors: (Constant), Z score: Total stress level.

Table 11*Coefficients*

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	Sig.
	B	Std. error	Beta		
1 (Constant)	-5.884E-16	.118		.000	1.000
Z score: Total stress level	.089	.119	.089	.744	.459

^a Dependent variable: Z score: Total SI.

A one-way analysis of variance (ANOVA) was conducted to compare the effect of EL and SI among LEOs. SI was the dependent variable and is measured on a continuous scale. EL was the independent variable and is measured on a nominal scale. The second research question asks, "Does EL decrease or increase SI among LEOs?" The null hypothesis is that EL does not decrease or increase SI among LEOs while the alternate hypothesis is that EL does decrease or increase SI among LEOs. An analysis of variance showed that the effect of EL on SI was significant, $F(2,69) = 17.08$, $p = .000$ meaning the null hypothesis cannot be rejected. Table 12 below shows the SPSS output of the one-way ANOVA.

Table 12*Analysis of Variance—Z Score: Total SI*

	Sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig.
Between groups	23.512	2	11.756	17.082	.000
Within groups	47.488	69	.688		
Total	71.000	71			

Linear regression analysis to examine the moderating effects of EL between stress levels and SI among LEOs was conducted using a sample of LEOs ($n=72$) on a social media group. Law enforcement officers were divided into three groups; those with high school only education ($n=17$), those with high school education and some college courses ($n=20$), and those with a college degree or higher ($n=35$). An EL question was asked of the participants as part of the demographics data and recorded on the datasheet. Two questionnaires obtained subjective reports of each participant in respect to their perceived stress level and SI. Data for perceived stress levels and SI were tabulated and standardized using the program SPSS.

A bivariate correlation analysis was conducted between the IV and DV using Pearson's correlation coefficient. Table 13 below shows the results of Pearson's correlation coefficient test.

Table 13

Correlations

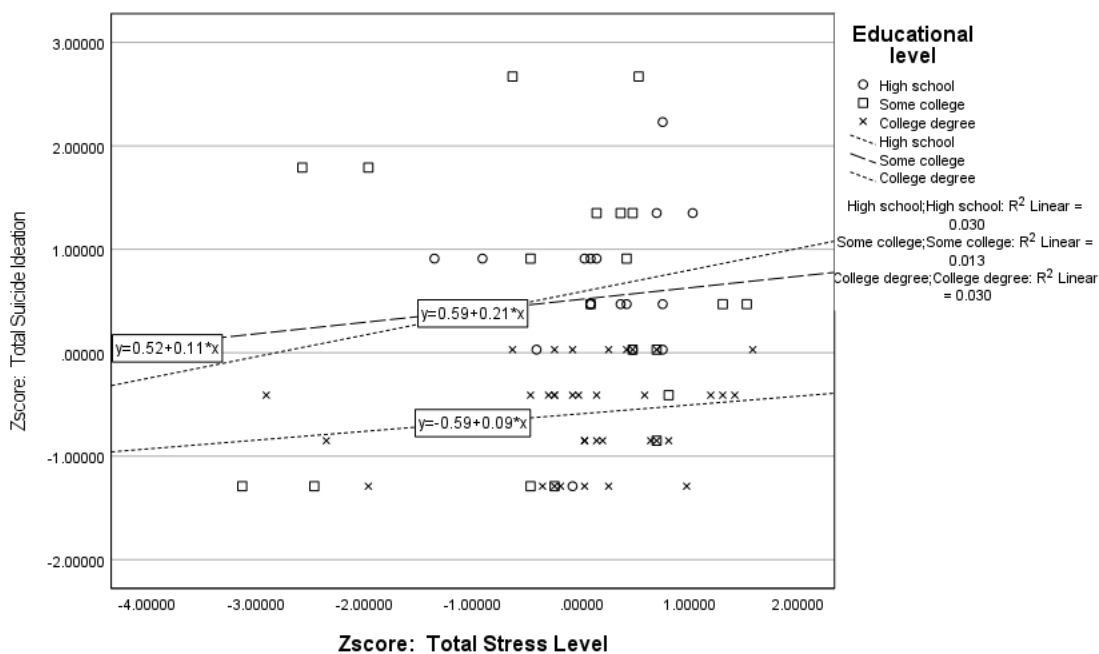
		Total stress level	Total SI
Total stress level	Pearson correlation	1	.089
	Sig. (2-tailed)		.459
	<i>N</i>	72	72
Total SI	Pearson correlation	.089	1
	Sig. (2-tailed)	.459	
	<i>N</i>	72	72

The result of the Pearson's correlation test indicated that there is not a significant positive relationship between stress and SI, $r(70) = .09$, $p = .459$ from the sample. To investigate the moderating effects of EL on stress and SI, a moderator analysis was

performed using linear regression. The outcome variable for analysis was SI. The predictor variable for the analysis was stress. The moderator variable evaluated for the analysis was EL. The interaction between stress and EL was found to be statistically significant ($B = -0.28$, 95% C.I. (2, 70), $p < .05$). The moderation of stress on SI showed corresponding results. A low moderation stress = 1.00, high school = .00, 95% C.I. (2, 70), $p < .05$. At middle moderation stress = 1.42, some college = .04, 95% C.I. (2, 70), $p < .05$. At high moderation stress = 41.65, college degree = .96, 95% C.I. (2, 70), $p < .05$. These results identify EL as a nonmoderator of the relationship between stress and SI.

Figure 6

Scatterplot of Moderating Effect of EL at Three Levels



Summary

Data analysis was conducted to answer the three research questions, “Does stress decrease or increase SI among LEOs,” “Do ELs decrease or increase SI among LEO,”

and “Does EL buffer or enhance the effects of stress on SI among LEOs?” A linear regression analysis was used to answer the first RQ. The assumptions were addressed, and the result was the rejection of the null hypothesis. The second RQ used one-way ANOVA to obtain the answer. Based on statistical results, the null hypothesis cannot be rejected. Finally, the third RQ used a linear regression analysis to obtain an answer. The result of the data analysis suggested that the null hypothesis cannot be rejected. Chapter 5 will discuss the interpretation of findings, study limitations, recommendations, implications, and conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to examine the moderating effects of EL between the IV and DV among LEOs. The reason for the study was that SI among LEOs has steadily increased over the past years (Heyman et al., 2018), and finding a variable that may help lower the rate of SI among LEOs would also help contribute to the safety of communities, thereby promoting positive social change.

The study found that the IV positively affected the DV. As stress increases, SI increases. The study found that the moderator (EL) did not affect controlling stress. This finding is substantiated by the data analysis in the results section.

Interpretation of Findings

The findings confirm that stress positively affects SI. This was examined in the Gomes et al. (2018) study identifying stress as one of the contributors to SI. Liberman et al. (2002) conducted their analysis based upon 733 police officers to distinguish between work environment stress to exclude duty-related traumatic stressors (critical incidents) as it leads to the development of posttraumatic stress disorder (PTSD). Their study confirmed that stress was a significant predictor of PTSD. Odunayo et al. (2015) examined the level of stress upon the Nigerian Police Force and separated the stressors into two categories, operational and organizational. Odunayo et al. expanded the work of Liberman et al. and identified organizational stressors as being more influential than operational stressors on the development of SI. The result of my study aligns closely with the findings of Odunayo et al. in that stress was found to be influential to the

development of SI. Wassermann et al. (2018) found stress to be the most significant factor in SI among police officers in their study, reinforcing the finding in my study. The findings of Liberman et al., Odunayo et al., and Wassermann et al. affirm that stress plays a significant role in the development of SI among police officers. In the process of answering the first research question, I am compelled to reject the null hypothesis. Stress does increase SI.

I was enthusiastic to test Research Question 2 given the numerous sources in the literature (Bauldry, 2015; Cunningham, 2006; Isopahkala-Bouret, 2017; Mirowsky & Ross, 2005) expounding the benefits of EL. Bauldry (2015) provided convincing evidence that EL protected against the effects of depression. I had hoped that the moderating effects of EL would sustain themselves against SI. Cunningham (2006) also advocated the benefits of EL for the betterment of society. Society would reap the benefits of better outcomes for the younger generation if their parents were college graduates with more leisure time and better life expectancies (Cunningham, 2006). The Krause (2019) study found that EL did buffer against the deleterious effects of stress among college students, but EL was found not to be effective among LEOs against SI. Mirowsky and Ross (1998) studied the benefits of EL in life satisfaction, and their study supports the study by Krause (2019), but again, EL was shown to be a nonfactor in my study. Based on my findings, I cannot reject the null hypothesis for RQ2; there is no relationship between EL and SI among LEOs, as evidenced by the interaction between EL and SI on the regression model.

Bishopp and Boots (2014) reported that SI was a maladaptive response to stress in their study. They examined the relationship between work-related stress and the development of SI in their quantitative study. In Bishopp and Boots's study, 13% of respondents reported having developed SI after becoming LEOs. The percentage of respondents with a college degree was 45%, 2% had only high school education, and 8% had some graduate education. In explaining their findings, Bishopp and Boots points to mediating factors that accounted for the increase in SI, such as depression, anger, burnout, and alcohol, to name a few. EL was not considered a moderating variable in their study and was suggested as such in their recommendation for future studies (Bishopp & Boots, 2014). This was the catalyst for my study to examine the moderating effects of EL on stress as it develops into SI. The data did not support the alternative hypothesis in RQ3. Considering the analysis findings for RQ3, I am compelled to accept the null hypothesis; there is not a moderating effect of EL on stress for SI among LEOs as evidence of the interaction between EL and stress for SI on the regression model.

The theoretical framework chosen for my study was AT (Lazarus & Folkman, 1984), which posits that stress is controlled by the availability of resources. The resource in this study was EL. The higher the EL, the greater the resources. In theory, the participants with college degrees ($N = 35$) would possess more resources than participants with only a high school diploma ($N = 17$). The data analysis showed that this was not the case. A factor that Lazarus and Folkman (1984) used to explain stress, which was not the focus of this study, was the coping ability of the participants. Coping is the ability of an organism to tolerate the presence of stress rather than eradicating the stress (Lazarus &

Folkman, 1984). It could be hypothesized that EL was not the primary adaptation that respondents chose to counter stress; rather, it was coping. Coping includes distraction techniques, physical exercises, thrill seeking, and so on. Jamieson et al. (2018) explained that coping strategies allowed the individual to “incorporate” stress as a part of their existence, thereby lessening the detrimental effects of the stressor. This explanation was elaborated by Homan and Sirois (2017). Homan and Sirois explain that self-kindness allows the individual to perceive adversities with acceptance. It is possible that the use of coping strategies was the solution that LEOs utilized to counter stress before it developed into SI rather than relying upon EL entirely.

Study Limitations

A limitation to generalizability and trustworthiness for this study centered on the availability of participants. As noted in Chapter 1, the number of LEOs willing to participate in the study was a factor in achieving the effect size ($N = 67$). The participants also needed to be employed with a law enforcement agency. To achieve validity, the requirements to participate in this study demanded that the participants acknowledge that they were currently commissioned officers. The questionnaires asked each participant to confirm that this condition was true before they were allowed to proceed further with the questionnaires. This goal was achieved. The required effect size was set at 67 and we received 72 participants. A 107% response rate was achieved from participants who were currently commissioned officers employed with a law enforcement agency. This criterion helped to achieve reliability. The second limitation of this study was the willingness of each participant to admit their experiences with SI. This could not be confirmed because

this was a subjective admission. It was plausible that some participants faked positive or negative SI. The ability to confirm this condition was not present and posed a limitation to validity.

Recommendations

I would recommend that future researchers expand the participation pool by recruiting participants from other law enforcement sources such as agencies outside the borders of Texas and perhaps the United States. The process of recruiting only LEOs from a social media group greatly limited the exposure of the study to a select few. The restrictions imposed by the COVID-19 pandemic made it necessary to solicit participants through convenient means, and social media groups were the logical solution. Perhaps in future studies, this restriction will not be a factor.

I would also recommend examining the effects of stress on gender among LEOs. Having a career and a family may affect different genders differently, and this is a factor that may yield information substantial to lowering SI among LEOs.

Implications

The potential impact of this study for positive social change for the individual involves the understanding of the relationship between stress and SI, and the moderating effects of EL. The findings did not support the alternate hypothesis that EL does moderate stress as it develops into SI to a greater degree. The effect that EL had was nonsignificant, but it was present. The individual could obtain this knowledge and use it to control stress and limit SI.

The family unit is the building block of society. When an event such as SI or the act of suicide affects an individual, it ultimately affects the family to which that individual belongs. It then becomes integral to preserving the family unit and consequently the unity of society to understand the moderating variables of stress and SI. A family could take the results of this study and formulate a plan to address stress in a positive way to limit its deleterious effects and thus control SI.

The organizational structure of the LEO community includes the men and women of society. These individuals come from families whose members may also be suffering from stress and contemplating suicide. The implications of this study for positive social change as it relates to the organization of LEOs reside in its potential to help efforts to control stress before it develops into SI. A policy that LEO organizations could adopt is the promotion of educational attainment for their personnel and the provision of help to lower suicide and SI rates. Stress is part of the fabric of society, and nobody is immune to it. Instead of ignoring the issue, as is the custom of many officers, LEO organizations could adopt a policy to help bring awareness of stress and SI to their personnel.

Theoretical implications include the understanding that stress and SI are factors in the appraisal process. Possessing the right resources will moderate stress and SI, but that moderating variable is still elusive given the results of this study. One can speculate that EL has limited effects on the LEO population, but as recommended earlier, it may yield different results according to differences in gender and perhaps working in urban versus rural environments.

Conclusion

Stress leads to SI if left untreated (Lieberman et al., 2002). The moderating factor to limit the effects of stress was centered on EL. The study showed a nonsignificant effect of EL on stress, but the study by Krause (2019) revealed the negative effects that EL has on stress among college students. Understanding the role that EL plays in limiting the effects of stress on SI may help to further efforts to lower suicide rates in society.

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Appendix B: Debriefing

You have just participated in a study requirement for the degree of Ph.D. in clinical psychology with Walden University. Your participation will help advance knowledge in the field of clinical psychology and ultimately help to lower suicide ideation and suicide among law enforcement officers. Understanding how higher education moderates stress on suicide ideation was the purpose of this study and your answers to the surveys will help achieve this purpose.

Questions about the study may be directed to the researcher. For any medical emergencies, you are advised to seek immediate medical help at your nearest medical provider. If you are feeling suicidal, you are encouraged to contact the National Suicide Prevention Lifeline 24/7 or visit Blue H.E.L.P.

Appendix C: Institutional Review Board Permission

Dear Sittipong Permsookjit,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Educational Level as a Moderator between Stress and Suicide Ideation among Law Enforcement Officers."

Your approval # is 05-05-21-0582050. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on May 4, 2022 (or when your student status ends, whichever occurs first). One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application document that has been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 10 business days of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained on the Tools and Guides page of the Walden website:
<https://academicguides.waldenu.edu/research-center/research-ethics/tools-guides>

Doctoral researchers are required to fulfill all of the Student Handbook's Doctoral Student Responsibilities Regarding Research Data regarding raw data retention and dataset confidentiality, as well as logging of all recruitment, data collection, and data management steps. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:

<http://academicguides.waldenu.edu/researchcenter/orec>