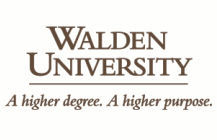

2018

Strategies to Reduce Occupational Injuries and Illnesses in Government Agencies

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2018

Abstract

Strategies to Reduce Occupational Injuries and Illnesses in Government Agencies

by

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MS, University of Baltimore, 2002

BS, Coppin State University, 2000

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

August 2018

Abstract

Despite regulatory efforts of the Occupational Safety and Health Administration (OSHA), 104 cases of nonfatal occupational illnesses and injuries (OIIs) per 10,000 full-time workers required time away from work in 2015. Although OII rates in private and public sectors are high, the rates among state and local government agencies were over 50% higher than private sector rates in 2015, especially in the healthcare industry. OIIs can lead to reduced organizational productivity and performance. Guided by the leader member exchange theory (LMXT) and risk homeostasis theory (RHT), the purpose of this single case study was to explore effective strategies that supervisors in a government agency in the mid-Atlantic region of the United States use to reduce OIIs. Data were collected from face-to-face semistructured interviews with 8 purposefully selected supervisors who had reduced OIIs and the review of company documents. Data were analyzed using inductive coding of phrases, word frequency searches, and theme identification. Four themes emerged: managing employee risk-taking behaviors reduced OIIs, communicating the importance of safety with employees decreased OIIs, having high-quality relationships with employees reduced and mitigated OIIs, and continuous education and training reduced OIIs. Both the LMXT and RHT were essential in exploring the role that education and training played in reducing OIIs. Findings may provide government agencies with valuable information that may lead to a healthier and safer work environment, increased productivity and profitability, and healthier lifestyles inside and outside of the workplace.

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Dedication

I dedicate this doctoral study to my mother, Mallie Montgomery, and son, Rhyshon Smith, who are no longer here with me. A special feeling of gratitude goes to my loving, kind, humble, and gentle-spirited mother who made me the person I am today. My son Rhyshon, whom I lovingly refer to as "Muppie," (one of my greatest accomplishments) was always there, rooting for me. I would not have made it this far without the love, support, and encouragement from them. Both of you are always with me and forever in my heart. I also dedicate this study to all of those (past and present) who sacrificed for justice and equality. I am forever thankful for the sacrifices that you made and want you to know that your efforts were not in vain. Your commitment, resilience, and dreams have afforded me the opportunity to achieve my goals. Most importantly, I want to thank God for being there for me during good and bad times throughout this doctoral process. The troubled times made me stronger, and the good times helped me understand why the bad times existed. Thank you, God, for allowing me to persevere regardless of the adversities that I was facing during this doctoral journey.

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Section 1: Foundation of the Study

Work-related accidents, injuries, and illnesses have negative consequences for workers and employers (Takala et al., 2014). The alarming rates of occupational fatalities, disabilities, and illnesses remain a public health concern for all stakeholders worldwide (Lopez-Ruiz et al., 2013; OSHA, 1970). Occupational health and safety experts stated that more than100 million occupational hazards occur each year resulting in missed time from work, productivity losses, reduced performance, lost time claims, and high medical expenses (Cantley et al., 2014; U.S. Bureau of Labor and Statistics [BLS], 2014). Globally, more than three million workers have suffered from the repercussions associated with occupational accidents and diseases, which resulted in trillions of dollars in economic losses for organizations (Polat, 2014; Takala et al., 2014).

Reducing, preventing, and managing OIIs in organizations are very important. The world suffers economically from the aftermath of OIIs (Lopez-Ruiz et al., 2013; Takala et al., 2014). Worldwide, millions of workers suffer from work-related diseases and work injuries, which have become a huge financial burden for business owners (Amponsah-Tawiah, Ntow, & Mensah, 2016; Takala et al., 2014). Each year, approximately 60,000 employees become permanently disabled or die from OIIs, which affects an organization's bottom line (Polat, 2014; Swanepoel, 2014). Williams and Geller (2016) proposed that preventing work-related injuries and fatalities require understanding the risks employee take. Understanding employee risk-taking behaviors can enable managers to better assess, manage, and reduce OIIs (Haines, Lee, O'Connell, McDermott, & Hoffmann, 2015; Williams & Geller, 2016). Researchers have also

discovered that positive relationships between employers and employees contribute to a safer work environment (Halbesleben, Whitman, & Crawford, 2014; Rashid, Nordin, & Salleh, 2014). Research addressing strategies that reduce OIIs is essential for supervisors in all agencies (Nandoskar & Srivastava, 2015).

Background of the Problem

The repercussions associated with OIIs can have a negative effect on organizational outcomes in all industries. Employees in private and public organizations encounter OIIs that interrupt business operations and hinder the visions and goals of business leaders (BLS, 2016a; Cantley et al., 2014). In 2015, the BLS reported that OII rates were significant in the private and public sector, with higher rates in the public sector. A reason for the differences in OII rates between private and the public sector is the fact that supervisors in some government agencies are unaware of what strategies work best in reducing and managing occupational risks (Hassan, Wright, & Yuki, 2014; Mooren, Grzebieta, Williamson, Olivier, & Friswell, 2014). Supervisors in both sectors need to reduce the cost of OIIs, provide employees with a healthy and safe work environment, minimize down time, and maximize productivity (Nandoskar & Srivastava, 2015).

Businesses leaders understand that providing a safe and healthy work environment increases productivity and profitability (Ramos, Arezes, & Afonso, 2013; Seddigh, Berntson, Danielston, & Westerlund, 2014). Researchers indicated that assessing occupational risks and developing good workplace relationships play a significant role in promoting workplace safety (Griffin & Hu, 2013; Haines et al., 2015).

One advantage is OSHA professionals assist employers with assessing and identifying work risks that cause accidents, injuries, and illnesses (OSHA, 1970). Developing quality relationships with employees can also help create a safer work environment (Rashid et al., 2014). Fostering strategies to identify risks and using the workplace relationship to promote workplace safety decreases OIIs (Haines et al., 2015; Rashid et al., 2014).

Problem Statement

Despite the regulatory efforts of the OSHA, data from the BLS (2016a) revealed that 104.0 cases per 10,000 full-time workers of nonfatal OIIs required time away from work in 2015. Although private industry employers reported slightly more than 3.0 million OIIs in 2015, the rates of OIIs among state and local government agencies were over 50% higher than the rates of OIIs in the private sector, especially in the healthcare industry (BLS, 2016b). The general business problem was OIIs have an adverse impact on organizational productivity, performance, and profitability. The specific business problem was supervisors in some government agencies lack strategies to assess risks and to facilitate relationships with employees to reduce OIIs.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies that supervisors in some government agencies use to assess risks and facilitate relationships with employees to reduce OIIs. The target population was supervisors from a government agency in the mid-Atlantic region of the United States who had developed strategies to reduce OIIs. The findings from this study may contribute to social change by informing

efforts to improve employee health and safety, organizational productivity, and organizational performance.

Nature of the Study

A qualitative research method was most feasible for exploring strategies that supervisors use to reduce OIIs and increase employees' safety and health, organizational productivity, and organizational performance. Researchers who use a qualitative method can conduct face-to-face interviews and collect pertinent data from individuals or groups on a particular research topic (Bailey, 2014; Silverman, 2016). Bailey (2014) noted that qualitative researchers study societal issues or problems in their natural setting, attempting to make sense of or interpret phenomena according to the meaning assigned by participants. The qualitative research process is a naturalistic, interpretive approach in which researchers explore a phenomenon using the experiences, knowledge, and perspectives of participants (Isaacs, 2014).

A quantitative or mixed-methods approach was not suitable for this study. In quantitative research, researchers collect data through sampling or experiments to test hypotheses and analyze numeric data statistically (Hartas, 2015). Quantitative researchers use an impersonal approach to draw conclusions or generalizations from statistical inferences (Sheperis, Young, & Daniels, 2016). Instead of using the personal input of others, like qualitative researchers do, quantitative researchers provide an objective measure of reality by testing the relationship among variables (Stage & Manning, 2015). Quantitative research is a numeric and statistical approach in which investigators seek to establish, confirm, or validate relationships and to develop generalizations that contribute

to theory (Marshall & Rossman, 2014). Marshall and Rossman (2014) highlighted that specific styles of inquiry employed by quantitative researchers include surveying and experimentation. A quantitative research method was not appropriate for this study because quantitative investigators seek a predictive, explanatory, and confirming outcome obtained through surveys or experiments (see Marshall & Rossman, 2016).

In a mixed-methods approach, researchers employ both qualitative and quantitative methods to enhance the strength of the study (Sheperis et al., 2016; Silverman, 2016). A mixed-methods approach involves the collection and analysis of numeric and narrative data to answer a research question, and mixed-methods researchers draw from strengths and minimize weaknesses using the two approaches (Bryman, 2015). A mixed-methods style of inquiry can provide a researcher with the ability to test and build theories (Bryman & Bell, 2015). I used an inductive style of inquiry consisting of open-ended questions to collect qualitative data; a mixed-methods approach was not suitable for this study.

Case studies, ethnography, and phenomenology are some of the approaches recommended by researchers to use when conducting qualitative research (Bryman, 2015; Silverman, 2016). I used the qualitative single case study design for this study. As articulated by Hancock and Algozzine (2015), qualitative researchers use a case study approach when they wish to explore a program, event, activity, process, or a single case bounded by time and place. Baskarada (2014) noted the data collection process involved in a case study involves multiple sources such as observations, archival documents, and interviews. When conducting a case study, the researcher endeavors to learn more about a

little known or poorly understood situation (Hancock & Algozzine, 2015). Although researchers use phenomenology to understand a particular phenomenon, I did not choose it. Researchers use a phenomenological design to understand a societal problem or issue through the lived experiences of participants while setting aside prejudgments on the subject (Bryman, 2015). I did not choose ethnography. Silverman noted the style of inquiry involved in ethnography includes observational data collected on an entire group that shares a common culture. The case study design was more suitable for this study because I conducted this study in a single organization.

Research Question

What strategies do supervisors in some government agencies use to assess risks and facilitate relationships with employees to reduce OIIs?

Interview Questions

1. What strategies do you use to reduce OIIs in your organization?
2. What method did you find worked best at reducing OIIs?
3. How did your employees respond to the techniques that you provided to reduce OIIs?
4. What types of risk-taking behaviors do some employees display that may lead to OIIs?
5. How do you predict or assess risk-taking behaviors of employees?
6. What type of relationship do you have with your employees?
7. What role does your relationship with your employees play in reducing OIIs?
8. In your opinion, what can help reduce OIIs?

Conceptual Framework

The two theories that provided the contextual framework for this study were the risk compensation theory (RCT) and the leader-member exchange theory (LMXT). Peltzman (as cited in Pless, 2016) used the RCT to argue that people compare the expected benefits and cost of risky and safe behavior, especially after the implementation of safety strategies. Wilde (1982) resurrected Peltzmans's idea by developing the risk homeostasis theory (RHT) that stated that each individual has a target level of risk influenced by how that person estimates the cost and benefits of risky or safe behavior. Wilde (as cited in Pless, 2016) used RCT and RHT interchangeably when discussing individual risk-taking behaviors. Individuals are aware of the negative consequences associated with engaging in risky and unsafe behavior (Gamble & Walker, 2016). However, some individuals are still willing to display risk-compensation behaviors (Feng & Wu, 2015). The RHT was applicable for this study to explain risky behavior and the levels that people perceive as acceptable or safe (see Wilde, 1982).

I used the LMXT as a second framework for this study. Graen (1976) proposed that forming a unique strategic alliance between leaders and members has a positive effect on organizational performance. Supervisors can decrease OIIs, accidents, and fatalities and improve organizational performance by developing a positive leader-member exchange relationship with their employees (Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016; Rashid et al., 2014). The LMXT was applicable to the current study because OIIs influence employee safety and health, organizational productivity, and organizational performance. Graens's theory aligned with my study by providing a means

for understanding strategies that supervisors in government agencies use to assess risks and facilitate relationships with employees to reduce OIIs. Both theories were effective analytical tools to use when exploring and organizing ideas involving employee risk-taking behaviors and employee-supervisor relationships.

Definition of Terms

Absenteeism: Absenteeism refers to employees who miss time from work because of a disability or illness (Harden et al., 2015).

Job burnout: Job burnout refers to a set of negative psychological experiences that wears out or takes a toll on the health of an employee because of prolonged exposure to the stress of providing services to people (Chong & Monroe, 2015).

Job strain: Job strain is a dangerous form of work-related stress that consists of high job demands and low job control (Fransson et al., 2012).

Physical health: Physical health refers to the human organism, external being, or body and its response to injuries and illnesses (Georgian & Lorand, 2014).

Presenteeism: Presenteeism refers to the reduced productivity and performance of employees who work while they are sick or injured (Gordeev, Maksymowych, Schachna, & Boonen, 2014).

Safety climate: Safety climate refers to the integration of safety practices, policies, and procedures into the culture of an organization (McFadden, Stock, & Gowen, 2015).

Safety culture: Safety culture refers to incorporating knowledge, beliefs, and attitudes about safety into the culture of the organization (Rashid et al., 2014).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are statements a researcher believes are factual but cannot verify or prove (Marshall & Rossman, 2016). One assumption was that participants provided truthful and unbiased responses to interview the questions about OIIs they had encountered. Another assumption was that participants played a direct role in reducing OIIs in their organization. All participants were excited to participate in this study, spoke openly about their experiences, and answered the interview questions. In addition, all participants were directly involved in reducing OIIs of the organization.

Limitations

Limitations are conditions beyond the control of the researcher that may affect the outcome of the study (Smith, 2015). One limitation was participants in this study were leaders from one company. I conducted this study at a single organization, which might prevent the application of the study findings to other governmental organizations.

Delimitations

Delimitations are boundaries of a study set by the researcher (Thomas, Silverman & Nelson, 2015). For this study, I invited only local government employees (located in the mid-Atlantic region of the United States. I used interviews and archival data to gather information.

Significance of the Study

The results from this study may help to fill a gap in the literature by providing stakeholders with a better understanding of why some business leaders fail to reduce OIIs in organizations. In 2015, employees missed 1,153,490 days of work because of OIIs (BLS, 2016a). Most organizational leaders depend on the resources provided by OSHA to ensure the workplace is a healthy and safe environment (OSHA, n.d.). Despite the efforts of OSHA, the BLS (2016a) reported that rates of nonfatal OIIs in the public sector has slightly increased from 5.0 in 2014 to 5.1% in 2015.

Researchers argued that productivity losses and low job performance are some of the repercussions of OIIs (BLS, 2016b; Van der Vorm, Nugent, & O'Sullivan, 2015). The indirect costs associated with OIIs, such as lost productivity, overtime, fines, employee retraining, and replacement, double and triple in cost (Nakayama & Jin, 2015). For those reasons, conducting a study that business leaders can use to reduce OIIs is of value to businesses. The information provided in this study may enhance business practices by shedding light on specific factors that reduce OII rates. Business leaders may use this information to educate themselves on ways to develop and implement strategies to reduce occupational hazards.

The results in this study may contribute to positive social change by improving employee health and safety, organizational productivity, and organizational performance. OIIs are a burden for employees and employers (Gazica & Spector, 2016). The findings from this study may encourage business leaders to take a proactive approach in reducing occupational hazards. Reducing OIIs is a way to help organizational stakeholders achieve

optimal performance, which helps secure competitive advantage. The information provided in this study may benefit organizations by encouraging employees to maintain healthier and safer lifestyles in and out of the workplace.

A Review of the Professional and Academic Literature

The objective of this study was to explore the literature addressing strategies that government supervisors use to assess employee risk-taking behaviors and facilitate workplace relationships to reduce OIIs. The importance of reducing the rates of OIIs in organizations prompted the central research question: What strategies do supervisors in some government agencies use to assess risks and facilitate relationships with employees that reduce OIIs? Researchers have conducted studies on the role that employee behavior and leadership play in occupational health and safety (Rashid et al., 2014; Wilde, 2013). A substantial amount of literature exists on the regulatory approaches used to reduce occupational accidents and diseases in organizations (BLS, 2016a; OSHA, 2009); however, even with the assistance of OSHA professionals, supervisors in some government agencies fail to reduce occupational hazards in organizations. I explored some of the techniques used by government supervisors to assess risk-taking behaviors and facilitate working relationships to reduce OIIs. My objective was to provide other professionals with a better understanding of strategies used to reduce OIIs. The information provided in this study may influence social change by illuminating factors in the work environment that lead to OIIs, which affect organizational productivity, performance, and profitability. Topics of discussion include RCT, RHT, LMXT, the

significance of OSHA, occupational risks (ORs), the effects of specific types of OIIs on business operations, and the direct and indirect costs associated with OIIs.

Literature Search

I used scholarly journal articles, seminal works, and government articles retrieved from the Walden University library and Google Scholar to gather information for this literature review. I used sources published between 1970 and 2018, and 90% were peer-reviewed articles published between 2013 and 2018. The remaining 10% of sources consisted of seminal works and government sources. Key terms used to identify relevant literature were *occupational injuries and illnesses*, *risk homeostasis and workers*, *risk compensation in the workplace*, *LMX and workplace safety*, *occupational health and safety*, *occupational health and safety and employee turnover*, *the economic cost of occupational injuries and illnesses*, and *workplace safety*. I used data from specific government health agencies to verify the types of occupational accidents and health-related issues of employees.

Risk Homeostasis Theory

Most work-related injuries and fatalities occur because of risk-taking behaviors exhibited by employees (Feng, Zhao, Wu, & Xia, 2013; Swanepoel, 2014). Experts asserted that some employees engage in risky or unsafe behaviors that increase the chances of accidents, injuries, and illnesses in the workplace (Karakhan & Gambatese, 2018; Wilde, 2013). Williams and Geller (2014) indicated that employees may engage in risk-taking behaviors such as using improper lifting techniques, which can strain their backs; choosing not to wear safety glasses, which may result in eye injury; or deciding

not to wear a safety harnesses when working at extreme heights, which can lead to death on the job. Individuals who take part in unsafe actions place themselves and others at risk (Broman-Fulks, Urbaniak, Bondy, & Toomey, 2014). Business leaders understand that running a successful and productive organization requires providing employees with a healthy, safe, and hazard-free work environment (Ramos, Arezes, & Afonso, 2014; Seddigh et al., 2014). To reduce or prevent OIIs, business leaders also need to understand why employees engage in risks (Williams & Geller, 2014). Haines et al. (2015) noted that employers cannot manage or reduce risks without properly assessing risks.

Most of the safety research conducted by professionals in the past addressed risk-taking behaviors such as driving without a seatbelt or speeding (Jamroz, 2013; Wilde, 1982). Peltzman (as cited in Pless, 2016) developed the RCT to provide safety advocates with a better understanding of individual behavior changes that occur after the implementation of safety strategies. Westercamp, Agot, Jaoko, and Bailey (2014) defined *risk compensation* as an increase in risky behavior in response to the perceived risk reduction following an intervention. In a study conducted on traffic deaths, Peltzman (as cited in Pless, 2016) stated that offsets (from risk compensation) were virtually complete, so regulations had not decreased highway deaths. Peltzman (as cited in Pless, 2016) also argued that risk compensation offsets safety measures and providing safety regulations does not decrease highway accidents.

Wilde (1982) resurrected Peltzmans's idea by developing the RHT, stating that each individual has a target level of risk influenced by how that person estimates the cost and benefits of risky or safe behavior. Wilde (as cited Pless, 2016) used RCT and RHT

interchangeably when discussing individual risk-taking behaviors. Wilde (1982) asserted that people are willing to engage in risky and unsafe behaviors such as speeding or driving without a seatbelt. Wilde (2013) indicated that individuals determine accepted levels of risk based on four factors: (a) the expected benefits associated with engaging in risky behaviors (e.g., getting to work more quickly by speeding), (b) the expected cost associated with engaging in risky behavior (e.g., speeding tickets or other penalties), (c) the expected benefits of engaging in safe behavior (e.g., no accidents or tickets), and (d) the expected cost associated with safe behavior (e.g., arriving to work late or being uncomfortable from wearing personal protective equipment). Wilde hypothesized that all people have a level of risk they find tolerable, and they adjust their behavior to maintain that level.

Researchers often use Wildes's RHT to evaluate and investigate risk-taking behaviors in various industries and settings (Deschinger, 2015; Feng & Wu, 2013). Haimes (2015) stated that using a modeling system is the best way to manage and assess risks. Scholars and risk managers refer to Wildes's general principles when studying risk-taking behaviors of employees (Feng et al., 2013; Swanepoel, 2014). Swanepoel used Wildes's RHT as a framework to argue that accidents and injuries in the workplace result from the unsafe acts of employees or unsafe working conditions.

Swanepoel (2014) stated that unsafe behavior was the main cause for 85% to 95% of work-related accidents. Feng et al. (2013) agreed with Swanepoel's assertion that unsafe actions of employees contribute to work-related accidents. Feng et al. used a case study approach to examine the existence of risk compensation behaviors (e.g., laziness,

workers' satisfaction, and taking shortcuts) that contributed to risk-taking behaviors of construction workers. Feng et al. discovered that construction workers were willing to engage in risk compensation behaviors, especially when employers implemented safety measures. Researchers have asserted that employee behavior is a major contributor to the number of accidents and fatalities that occur in the workplace (Swanepoel, 2014; Williams & Geller, 2014). In some cases, risk compensation behaviors depend on the employee's job experience level and personal experiences with a previous work-related injury (Feng et al., 2013).

Contrary to the findings of Feng et al. (2013), Oppong (2015) stated that employee perceptions of risk play a role in organizational accident rates. Slovic (2016) developed risk perception theory (RPT) stating that people's different perceptions of risk are often determined by their personality, experiences, values, and beliefs. Mohammadi (2014) posited that individual risk perception is a critical antecedent of risk behavior. Understanding how workers perceive occupational risks is necessary for conceptualizing and managing risks (Portell, Gil, Losilla, & Vives, 2014; Zhang, Lingard, Blismas, Wakefield, & Kleiner, 2014). Using the RHT and RPT, Oppong asserted that some employees refuse to adhere to safety measures and assume they can avoid accidents without interventions. Oppong suggested that reducing organizational accidents requires understanding the individual's accepted levels of risk and risk perceptions of employees.

Portell et al. (2014) added that an array of psychological, social, institutional, and cultural factors influences risk perceptions. In a study conducted on 313 Spanish health care workers, employees perceived risks differently from risk managers and

underestimated the dangers associated with work-related risks. Problems arise when stakeholders (e.g., employers, employees, safety managers) view occupational risks differently (Portell et al., 2014). In some cases, employee perceptions of risk influence risk-taking behaviors (Oppong, 2015; Portell et al., 2014). Huang et al. (2013) also noted that numerous factors influence the way individuals perceive risks.

In China, scholars found that members of the public had different perceptions of the dangers associated with risks of nuclear power plants (Huang et al., 2013). Huang et al. (2013) argued that factors such as career, education, and gender influence the ways in which residents of China perceive risks. Ignorance plays a role in how some individuals perceive risk (Huang et al., 2013; Portell et al., 2014). Some people fail to consider the chronic effects or consequences (e.g., accidents, injuries, illnesses) associated with certain risks and perceive they are more knowledgeable than experts about occupational risks (Oppong, 2015; Portell et al., 2014). Researchers suggested that effective risk communication and management require understanding what influences risk perceptions and what risks employees perceive as acceptable (Haimes, 2015; Williams & Geller, 2014).

Other theorists have provided a system of ideas to explain risky behaviors, risk perceptions, and risk tolerance levels of individuals (Feng, Teo, Ling, & Low, 2014; Pless, 2016). Sleet and Shaw (2016) posited that experts differ on the extent to which risk compensation operates. Some theorists contest or have little use for Wilde's RHT and use different approaches or systems of ideas to examine risk-taking behaviors of workers

(Inouye, 2014; Rudin-Brown & Jamson, 2013). Pless (2016) stated that RCT initially was and remains an unproven theory.

Rogers (as cited in Tsai et al., 2016) developed protection motivation theory (PMT), which researchers have used to study individual behavior patterns. Rogers's PMT includes two constructs: perceived severity and perceived vulnerability (Abedini, Morowatisharifabad, Enjezab, Barkhordari, and Fallahzadeh, 2014). Abedini et al. (2014) noted that perceived severity includes understanding of medical consequences (e.g., death, disability, pain) and possible social consequences (e.g., effects of the medical condition on work, family, life, social relations) as well as the person's estimation of the severity of the disease. Perceived vulnerability refers to an individual's viewpoint or perception of contracting a particular disease or medical condition (Abedini et al., 2014). Abedini et al. studied behavior patterns, risk perceptions, and risk tolerance levels using a convenience sample of 30 nurses with low back pain (LBP). Using the PMT, Abedini et al. found that nurses suffering from LBP engaged in risk-taking behaviors that led to a range of errors that affected their jobs. Concerns with job security and how employers and workers viewed their back pain influenced risk-taking behaviors of nurses with LBP (Abedini et al., 2014). In a study conducted on occupational noise pollution and hearing protection in selected industries, Mohammadi (2014) asserted that ways in which people perceive their exposure to risk influences risk-taking behaviors. Using the PMT, Mohammandi found that perceived severity and perceived vulnerability of occupational noise pollution played a role in the use of personal hearing protective devices among industrial employees (Mohammadi, 2014).

Feng et al. (2014) used Adlerian theory to explore the interactive effects of safety investments, safety culture, and project hazard on safety performance. Feng et al. observed that people have a strong desire to master their environment and control chance events. People tend to think they have control over the consequences associated with risks (Oswald, Sheratt, & Smith, 2014). By having this mindset, they are willing to engage in more risks (Feng et al 2014).

Researchers posited that Wildes's RHT helps employers understand risk-taking behaviors and perceive acceptable levels of risk among employees (Benova, 2013; Feng et al., 2013; Swanepoel, 2014). Wilde (2013) used RHT in a study on novice drivers and found that novice drivers display a higher level of willingness to take risks. According to Wilde, novice drivers are at risk for accidents because of lack of experience, overconfidence, and increased accepted level of risk. Benova (2013) used Wildes's RHT to predict accepted levels of risk for 140 professional drivers. Using a mixed-methods approach, Benova revealed that professional drivers are willing to engage in risk-taking behaviors when encountering slow traffic movement and time anticipation. Using both qualitative and quantitative approaches, Feng and Wu (2013) indicated that construction workers exhibited risk compensation behaviors such as improperly using protective gear, rushing to complete tasks, and ignoring safety rules. Both Benova and Feng et al. (2014) agreed that employees will engage in risky and unsafe behaviors to avoid getting in trouble at work.

Polat (2014) raised the question of risk compensation in low-safety environments in developing countries. In contrast to Feng and Wu's (2015) findings, Polat suggested

that institutional risk factors, firm heterogeneity, and working conditions contributed to high industrial accident rates in Turkey. Excluding low wage earners, Polat highlighted that fatal risk compensation increased with higher wages. Longer working hours contributed to accident rates of low and high earners (Polat, 2014).

The purpose of the current study was to explore strategies that government supervisors use to reduce OIIs. In the workplace, efforts to prevent and reduce OIIs are very important. Researchers used Wilde's RHT to understand and predict risk-taking behaviors of employees (Deschinger, 2015; Karakhan & Gambatese, 2018). Burt (2015) used RHT to predict risk perceptions of new employees. Wilde's RHT helped employers assess and predict behavior patterns of potential employees (Burt, 2015). Wilde's method is useful to stakeholders studying negative employee-behavior patterns (Feng et al., 2014; Swanepoel, 2014). Most OIIs result from risky and unsafe behavior among employees (Feng et al., 2013; Feng & Wu, 2015). Individual risk-taking behaviors and perceived accepted levels of risk displayed by individuals are among the major contributors to accidents (Wilde, 1982). Although, Wilde's RHT is useful for scholars exploring OII reduction strategies, understanding workplace relationships may also help employers develop a safety climate (Griffin & Hu, 2013). In addition to assessing risks, researchers have discovered that positive relationships between employers and employees contribute to a safer work environment (Halbesleben et al., 2014; Rashid et al., 2014).

Leader-Member Exchange Theory

I included an evaluation of LMXT about strategies used to facilitate relationships with employees to reduce OIIs. Dansereau, Graen, and Haga (1975) originally developed

the vertical dyad linkage approach, which began as an alternative to average leadership styles. Graen (1976) further elaborated and increased awareness about the LMXT in the *Handbook of Industrial and Organizational Psychology*. Graen indicated that LMX is a transactional theory of leadership used to study the dyadic relationship between leaders and subordinates. Researchers use Graens's LMXT to explore the quality of the leader-member exchange relationship. Based on Graens's philosophy, leaders' success depends on the quality or nature of their relationships with followers.

The dyadic relationship between employers and employees are either high or low quality (Rashid et al., 2014). Martin et al. (2016) noted that as the quality of the leader-member exchange relationship increases, levels of mutual respect, trust, and commitment among employees also increase. In contrast, when low-quality relationships are present, strain occurs and employees are less committed to the organization (Erdogan & Bauer, 2014). Business leaders understand that forming a unique strategic alliance with employees decreases OIIs, accidents, and fatalities in organizations (Nayani, Nielsen, Daniels, Donaldson-Feilder, & Lewis, 2018; Rashid et al., 2014). Understanding workplace relationships are essential in the development of OHS strategies and interventions that reduce work-related incidents (Griffin & Hu, 2013). The fundamental concepts developed by Graen provide business leaders with a better understanding of the quality of the LMX relationship and OIIs.

Employers are concerned with the link between the dyadic relationship and workplace safety (Kaufman, Krista, Gibbons, & Johnson, 2014). Rashid et al. (2014) conducted a study on the relationship between safety communication, safety

commitment, and leader–member exchange relationships. Using the LMXT as a conceptual framework, the authors found that the quality of the LMX relationship played a moderating role between safety commitment and safety communication (Rashid et al., 2014). Positive LMX relationships enhanced several important organizational factors (communication satisfaction, organizational commitment, safety communication, safety commitment, and accidents) that promote workplace safety (Rashid et al., 2014).

Wegge, Shelema, and Haslam (2014) declared that leaders have a substantial impact on every aspect of employees' lives at work and even their health. Using a five-pathway model of theories (task-oriented, relationship-oriented, change-oriented, and passive/destructive leader behavior), the authors indicated the quality of the LMX relationship moderated the impact of work-related factors that affect employee well-being (Wegge et al., 2014). Relationship-oriented leader behaviors have an indirect influence on the health of employees (Wegge et al., 2014). Wegge et al. concluded that good LMX relationships positively affect employee health and well-being.

Karanika-Murray, Bartholomew, William, and Cox (2015) disagreed with the assertion of Wegge et al. (2014) that the quality of the LMX relationship positively affects employee health. Although Graens's LMXT indicates that positive and high-quality dyadic relationships influence a range of individual, group and organizational outcomes, the leader-employee relationship also affects the psychological health of employees. Data collected on 3,337 manual workers revealed the effects of LMX on employees depend on the leadership hierarchy of line managers (LM) and senior management (SM) teams (Karanika-Murray et al., 2015). Karanika-Murray et al. (2015)

emphasized that positive work outcomes do not always depend on the quality of the relationship. In some cases, work-related outcomes depend on leadership hierarchy levels and the psychological mindset of the employee.

Other researchers oppose using Graens's LMXT as a framework when studying leadership strategies used to promote OHS. Rashid et al. (2014) stated that Graens's LMXT differs from other leadership theories because Graen mainly focuses on the quality of the dyadic relationship. Avram, Ionescu, and Mincu (2015) used the social capital theory (SCT) to investigate the link between perceived safety climate, organizational trust, and job satisfaction. Coleman (1988) indicated in the SCT that a series of social dimensions (trust, norms, and networks) in the work environment alters a person's behavior and perceptions at work (Zheng, Li, Wu, & Xu, 2014). Avram et al. hypothesized that high levels of job satisfaction lead to high levels of trust. Using a transversal, predictive intragroup correlation type design, the authors found job satisfaction as a partial mediator between safety climate and organizational trust (Avram et al., 2015). A safety climate derives from employees who have positive attitudes about their jobs and trust in the organization (Avram et al., 2015).

Vohs and Baumeister (2007) developed the Self-regulations theory (SRT) and proposed that individuals expend effort in control of what we think, say and do, trying to be the person we want to be, both in particular situations and in the longer-term (Vohs & Baumeister, 2016). Griffin and Hu (2013) asserted that leaders display different safety behaviors when motivating safety compliance and safety participation. Vohs and Baumeister stated that leaders have three specific leadership behaviors such

as safety inspiring, safety monitoring and safety learning (Griffin & Hu, 2013). Griffin and Hu suggested that safety inspiring and safety monitoring positively and specifically relates to safety participation and compliance, especially when learning is high.

Hystad, Bartone, and Eid (2013) used Taylors's organizational behavior theory (OBT) to test factors that may affect safety climate in critical safety organizations (SCOs). Champoux (2016) indicated that Taylor designed the OBT to help people understand their behavior and the behavior of others in an organization. In 1920, the Hawthorne Electric company used Taylors's OBT, to study how changes in environment and design changed the productivity of their employees (Champoux, 2016; Shafritz, Ott, & Jang, 2015). Hystad et al. used a conceptual model of authentic leadership and psychological capital drawn from the concepts in the OBT. Hystad et al. found that authentic leadership and psychological capital influences a positive safety climate. The processes found in authentic leadership encourage positive leader-follower exchanges beneficial to the safety climate (Hystad et al., 2013).

Graens's LMXT is essential when studying the link between the dyadic relationships in the development of a safety culture (Kaufman et al., 2014). Many researchers rely on the general principles found in Graens's LMXT when studying OHS (Kaufman et al., 2014; Kouabenan, Ngueutsa, & Mbaye., 2015; Rashid et al., 2014). The LMX relationships between supervisors and employees help business owners develop a safety climate or culture (Nayani et al., 2018; Nielsen, 2014). The concepts and ideas found in Graens's LMXT are applicable in a study conducted by a researcher seeking to explore strategies that supervisors use to reduce OIIs.

Role of OSHA in Preventing OIIs

The aim of OSH professionals is to prevent harmful factors, such as OIIs, that negatively affect workers' health (Lotfalian, Emadian, Riaki Far, Salimi, & Sheikh Moonesi, 2012). To protect employees, officials began to push for legislation to have more power to enforce employers to provide a safer and healthier work environment (Kabir, Watson, & Somaratna, 2018; OSHA, 2009). In 1970, legislators passed the OSH Act, which provided workplace protection against hazards to prevent employees from death or serious harm (Bhatia, Gaydos, Yu, & Weintraub, 2013; Kabir et al., 2018). After that time, Bhatia et al. indicated that employers had to adhere to workplace standards that protected employees from biological, chemical, and physical exposures.

The OSH Act led to the creation of OSHA, which is an agency governed by the Department of Labor (OSHA, 1970). Lotfalian et al. (2012) stated that OHS laws protect and secure the body and mind of workers in all occupations and help with maintaining workers' well-being in the best possible manner. Although OSH administrators' goals are to protect employees from harm, employers benefit from their concept as well (OSHA, 2009; Ramos et al., 2014). Nandoskar and Srivastava (2015) indicated that OSH services reduces the cost of potential OIIs, ensures safety, minimizes down time, and maximizes productivity.

OSHA officials enforce federal, state, and local labor laws to ensure that organizations are engaging in OHS practices (Bhatia et al., 2013). Almost every employee encounter physical, psychosocial, or organizational factors that can attribute to work-related injuries or illnesses (Cantley et al., 2014; Sundstrup et al., 2013). Lotfalian

et al. (2012) posited that OHS administrators assure that employers provide an appropriate working environment that suits the mental and physical needs of workers while matching the job with workers. Meeting OHS needs of employees is an investment for a good business (Osman, Awang, Hassan, & Yusof, 2015). Employers depend on the performance efforts of their employees to achieve profitability, which requires a healthy work environment (Seddigh et al., 2014).

Bhatia et al. (2013) posited that adopting, monitoring, and enforcing labor laws help stakeholders promote public health. Although, labor laws are in place to protect and promote social, economic, and physical determinants of health of employees, some employers and employees still fail to complying with OHS regulations for various reasons (Bhatia et al., 2013; Feng et al., 2013). Some organizations focus more on profitability than worker safety (Bhatia et al., 2013; Osvaldova & Petho, 2015). In a study conducted by Bhatia et al. the authors found that vulnerable workers, such as immigrants, people of color, low wage earners, and unionized workers, did not fully benefit from labor laws. Researchers argued that vulnerable workers are more at risk for exposure to life threatening and unsafe working conditions than those in higher paid occupational positions (Landsbergis, Grzywacz, & LaMontagne, 2014; Osvaldova & Petho, 2015).

Low to medium income workers constitutes more than half of the workforce (De Navas-Walt & Proctor, 2014). In a study conducted by Xiang, Bi, Pisaniello, and Hansen (2014), low to middle income workers, such as farmers, construction workers, firefighters, and miners, experienced work related injuries and illnesses from excessive exposure to heat in the workplace. In Ethiopia, risk factors in the work environment

caused the hospitalization of 62.2 % of low-income iron and steel workers because of work injuries (Kifle et al., 2014). However, some workers are willing to engage in unsafe actions at work out of fear of getting in trouble even with safety interventions implemented (Benova, 2013; Feng et al., 2013).

One method to reduce OIIs in various organizations is through education and training. As an ongoing effort to promote OSH in the workplace, OSHA professionals educate organizations and their employees on workplace safety standards (OSHA, 2013). To complete OSHA's mission of reducing hazards and incident cost, organizations need well-trained individuals to provide the proper OSH education and training (Nakayama & Jin, 2015; Ramsay, Sorrell, & Hartz, 2015). Researchers have shown the benefits of education and training when promoting workplace safety. In Romania, educators developed an occupational safety and health curriculum to promote a safe and risk preventive culture (Rusu-Zagar & Rusu-Zagar, 2015). Rusu-Zagar and Rusu-Zagar (2015) speculated that teachers and children could learn from each other how to live and work safely. Teaching young children about the importance of living healthy and safe can install future OSH values and limit risks (Rusu-Zagar & Rusu-Zagar, 2015). Loeppke et al. (2015) agreed that education plays an important role in improving workplace safety as the findings of their research revealed that safety research and education decreased injury and illness rates by 67% since the development of OSHA in 1970.

Management plays a significant role in promoting workplace safety (Ramos et al., 2014; Rashid et al., 2014). Zhang and Li (2015) noted that if management emphasizes the importance of safety and care for their employees' and their wellbeing, employees' will

be more obligated to comply with safety rules and procedures. Safety training is important because it helps promote social exchange relationships applicable to safety management (Zhang & Li, 2015). Zhang and Li noted that social exchange relationships involve reciprocity that engenders individuals' personal obligations, gratitude, and trust. Employers must display behaviors that promote safety of other employees, follow safety rules, and assure that safety training is current (Probst, Jiang, & Grasso, 2016).

OSHA 10-hour training is a program developed by officials that helped save lives and prevented workplace accidents and exposures of employees in the building and construction industry (Ruttenberg, 2014; Taylor, 2015). Ruttenberg (2014) conducted a survey on a sample of 195 workers that showed OSHA 10-hour training promoted safer work practices. Interviews conducted on trainees and trainers revealed that OSHA 10-hour training reduced the injuries of workers that carried work material on ladders from 75% to 26%, and 37% of the trainees reported checking their frameworks increased from 37% to 79% (Ruttenberg, 2014). Taylor (2015) added that injury rates are lower in states that offer mandatory OSHA 10-hour training sessions. In the United States, business leaders require supervisors to attend OSHA 30-hour training sessions to ensure that safe management of construction sites (Hardison, Behm, Hallowell, & Fonooni, 2014). Osman et al. (2015) posited that offering safety training by trained safety personnel is one way to prevent work related incidents. Education and training helps illuminate the importance of OHS and lead to compliance (Nakayama & Jin, 2015; Osman et al., 2015).

In contrast to Osman et al. (2015) findings, Teck et al. (2015) noted that training has minimal effects on safety in some underdeveloped countries. In Malaysia, OSH

professionals deliver training in a traditional low engaging manner through lectures and manuals (Teck et al., 2015). Podgorski (2016) noted that OSH training requires a large investment in time, training, and preparation. Most underdeveloped countries lack the resources to provide employees with long hours of extensive training. Chang, Wang, Laio, Cheng, and Wang (2016) conducted a qualitative study on blue-collar workers, suggesting that some workers receive more hours of OSH training than others do. Chang et al. found that additional OHS training time offered foreign employees a better understanding of OHS practices. Training programs need to be adaptable and revised regularly to ensure OHS (Sámano-Ríos, Ijaz, Ruotsalainen, Verbeek, & Pérez, 2014; Teck et al., 2015).

OHS is a worldwide problem that affects all stakeholders. Issues with accidents, illnesses, and injuries hinder the success of organizations globally. Reducing OHS hazards in organizations is a worldwide concern and remains a public health concern in developing countries (Artvinli, 2016; Lopez-Ruiz et al., 2013). The world economically suffers from OIIs. In South Africa, 3.96 billion employees missed time from work because of injuries and illnesses (Grobler & Smith, 2014). The cost of sick leave (SL) for employees in Sweden totals $17 billion dollars annually (Yung, 2016). Takala et al. (2014) posited that rates of work related injuries and illnesses recorded globally are bigger than estimated. Most employees and employers underreport the amount of work-related injuries and illnesses that occur (Muhsen & Khadam, 2015; Taylor Moore, Cigularov, Sampson, Rosecrance, & Chen, 2013). Takala et al. indicated that over 2.0 million workers globally suffer from work related diseases and 3.0 million from work

injuries. As a result, approximately 2.3 million workers die from occupational accidents and diseases, costing organizations over trillion dollars in economic losses (Polat, 2014; Takala et al., 2014).

Similar to OSHA, the National Health Service's (NHS) goal is to ensure that employees and patients in the United Kingdom are healthy and safe (Griffith, 2014). Griffith (2014) stated that work accidents cost over a billion pounds yearly. Globally, the same types of OIIs occur in organizations. The International Labor Organizations (ILO) develops standards that reduce workplace hazards, risk, and ergonomics, work organizational risk factors that affects the OHS of employees (Lopez-Ruiz et al. 2013; Takala et al., 2014). Takala et al. (2014) suggested that adopting a concept and philosophy such as the vision zero could help gradually reduce harm at work. Lopez-Ruiz et al. noted that 582,591 work injuries resulted in at least a workday loss. Similar to NIOSH, ILO seeks to develop strategies to help reduce OIIs. To address this issue, some international health and safety organizations have relied on the Preferential Action Plan (PAP) to evaluate occupational injury prevention programs (Lopez-Ruiz et al., 2013). Lopez-Ruiz et al. (2015) found that PAP is a successful tool to use when seeking to prevent occupational injuries in organizations with high incidences.

OHS is a universal issue for businesses that play an essential social and economic role in the world. Over 40 years, OSHA has been successful in its plight to promote workplace safety. OSH officials have helped employers keep the work environment healthy and safe from accidents and diseases since the implementation of the OSHA Act in 1970 (Kabir et al., 2018; OSHA, 2009). NIOSH continuously provides research on

practices, up to date trends, innovative methods, and practices that can help to promote OHS in organizations (OSHA, n.d.). Educating others on the importance of OSH is fundamental in reducing OIIs and preserving organizations. Since the enactment of the OSH Act in 1970, OIIs have declined by 67% (Loeppke, 2015). Loeppke et al. (2015) stated that risk assessments, medical surveillance examinations, safety training, improved protective equipment, better mechanical safety engineering, and other physical changes in the workplace were factors that improved safety. Although rates have decreased, occupational accidents or occupational diseases still kill over 55,000 workers yearly and leaves 60,000 workers permanently disabled (Swanepoel, 2014). In this respect, a 2–3% decrease in OIIs only scratches the surface. There is a need to reduce OIIs and universally share knowledge on ways to promote OHS practices worldwide.

Occupational Risks and OIIs That Affect Business Operations

ORs or work-related risks (WRRs) compromise the health and safety of employees, employers, and customers (Fox et al., 2018; Sun, Pan, Z, & Ma, 2014). Torchiaro (2014) classified ORs as an agent or situation that triggers a hazard in the workplace. In the workplace, employees and employers are primarily the first individuals affected by ORs (Haynes & Robinson, 2015; Sun et al., 2014). ORs in the workplace can expose employees to an array of health problems, life-threatening diseases, and increase the chances of work accidents (Baron et al., 2014; Fidanci & Ozturk, 2015). WRRs are important because they have a negative influence on the mental and physical well-being of employees, business performance, and society (Leka, Jain, Lavicola, & Di Tecco, 2015).

Employers often overlook factors that lead to ORs which contribute to work related accidents, injuries, and illnesses (Bhatia et al., 2013). Even though employers are aware that ORs sometimes lead to adverse outcomes, most of them tolerate or bear the consequences associated with ORs to meet organizational needs (Casale, 2014; Jacques, 2014). Findanci and Otzturk (2015) stated that an estimated total of 350,000 employees die from occupational accidents and 1,700,000 die from occupational diseases yearly worldwide. In the United States, nearly 3 million nonfatal OIIs occurred in 2015, requiring employees to stay home from work (BLS, 2016a). Out of the 3 million OIIs, 2.9 million (4.9%) were injuries and illnesses (BLS, 2016b). Business leaders benefit more from developing ways to prevent, identify, and manage ORs (Fishwich et al., 2015; Williams & Geller, 2014). Employers need to understand why ORs occur to properly manage or reduce WRRs (Fox et al., 2018; Haines et al., 2015).

One step involved in reducing ORs is to assess and identify some of the hazardous, deleterious, and strenuous factors that cause WRRs (Gormy, 2014; Haines et al., 2015). By assessing risks, business leaders can develop ways to correct or reduce ORs (Gormy, 2014). Researchers have identified musculoskeletal disorders (MSDs) and occupational stress (OS) as two major types of OIIs that employee encounter (Mohite, Gulavani & Shinde, 2014; Madeline, Vangsgaard, Andersen, Ge, & Arendt-Nielsen, 2013). MSDs and OS suffered by employees negatively affect business operations such as productivity and job performance and decrease employees' work ability (Khaniyan, Foroughan, Hosseini, & Bigarian, 2013; Van de Vijfeijke et al., 2013). Most injuries, accidents, and occupational diseases result from the nature or job duties required to

complete work tasks the job (Sanchez Morejon, 2015). Many manual labor jobs require employees to use repetitive motions and uncomfortable body postures while they work. Some job duties that employees have exposes them to work-related risk factors that could lead to MSDs. Schulz et al. (2013) noted that performing an array of similar or repetitive tasks is a main causes of work-related musculoskeletal disorders (WRMSDs). WRMSDs caused by ORs places employees at risk for developing OS, which makes them more vulnerable (Barzideh, Choobineh, & Tabatabaee, 2014; Roh, Lee, & Kim, 2014).

At some point and time, people find themselves exposed to some type of stress. Mohammad Mosadeghrad (2014) stated that job related, individual, organizational, and environmental factors influence employee stress. Job stress causes poor health outcomes and contributes to unhealthy behavior (Darden, 2014). Psychosocial risk factors at work can lead to undesirable physical and mental health conditions that effect employee performance (Mohammad Mosadeghrad, 2014; Newton & Teo, 2014). Employees encountering job stress are subject to make errors, bad decisions, and wrong choices on the job that lead to accidents or injuries (Mohite et al., 2014; Tappura, Syvanen, & Saarela, 2014). Newton and Teo (2014) asserted that OS results in productivity losses, stress related lawsuits, healthcare expenses, and if unmanaged increases risk of morbidity and mortality.

In most cases, occupational health conditions are co-occurring (Robert, Green, & Kadam, 2014). Robert et al.(2014) stated that co-occurring diseases in the same individual with an index condition are comorbid. For example, individuals may experience two occupational illnesses at one time. On the other hand, one OII may

enhance the symptoms of another disease or injury. Co-occurring or comorbid conditions compromise workplace safety even more.

Musculoskeletal Disorders (MSDs)

MSDs are a problem for both employees and organizations. Health conditions that affect the muscles, nerves, and tendons are MSDs (OSHA, n.d.). MSDs accounted for 31% of all worker injuries and illness cases in 2014 (BLS, 2016a). WMSDs (ergonomic injuries) cause a majority of physical OIIs that result in lost or restricted work time (Cantley et al., 2014; OSHA, 2000). Hundreds of million people worldwide experience long-term pain and disability because of MSDs (Li, Li, & Crag, 2018; Muralidharan, Fareed, & Shanthi, 2013). The economic cost associated with WMSDs range from $45–$54 billion dollars annually (Helwig et al., 2016; Sinha, Chaitanya, Ahmed, Runu, & Kumar, 2016). The most common types of WRMSDs are (a) carpal tunnel syndrome, (b) tendinitis, (c) rotator cuff injuries, (d) epicondylitis, (e) trigger finger, (f) muscle strains, and (e) low back injuries (OSHA, 2014; Sinha et al., 2016). Many job tasks and work-related duties involve using some part of the musculoskeletal system (Etemadinezhad, Ranjbar, & Gorgi, 2013; Li et al., 2018).

WRMSDs increase the chances of developing different types of OIIs (Cheung, Szeto, Lai, & Ching, 2018; Madeline, Vangsgaard, Andersen, Ge, & Arendt-Nielsen, 2013). Sinha et al. (2016) indicated that WMSDs affect the back, lower limbs, upper limbs, and neck. Scholars have noted that lifting heavy items, bending, reaching, and pushing and pulling heavy loads are some of the factors that cause WRMSDs (Schulz et al., 2013; Sinha et al., 2016). Schultz et al. (2013) proposed that rapid work pace and

repetitive motions attribute to many upper body musculoskeletal injuries. In the poultry industry, managers require employees to work at a certain pace. Effectiveness and efficiency depended on workers who work at high rates of speed and for long hours without breaks (Shultz et al., 2013). Schultz et al. highlighted that employers in the poultry industry expect employees to adhere to insufficient recovery times, heavy lifting forceful manual efforts, non-neutral body postures, mechanical pressures concentrations, partial or whole-body vibrations, and local or whole-body exposure to cold.

Cantley et al. (2014) agreed that work tasks contribute to WRMSDs. Cantley et al. indicated that a wide range of physical, psychosocial exposures, and work organizational and individual factors increase the risk of occupational injury and MSDs. In addition, Cantley et al. found that forceful efforts, awkward postures, repetitive motions, contact stress body vibrations, and exposures to temperatures were strongly associated with injuries. In a study conducted by Sundstrup et al. (2013), a high degree of repetitive and forceful upper limb movements exposed slaughterhouse workers to musculoskeletal pain in the shoulder, arm, and hand. Sundstrup et al. added that single work, limited job control, poor self-efficacy, and low social support were associated with various MSD.

Researchers have conducted numerous studies on the effects of various health problems on work productivity. One prevalent disorder that reduces productivity is MSDs (Hayes, Smith, & Taylor, 2013; Van der Vorm et al., 2015). Hayes et al. (2013) revealed that daily work task places dental practitioners at high risk for MSDs. Dentistry is a demanding occupation that consists of many biomechanical and psychosocial risk factors that result in MSDs (Hayes et al., 2013). A dental hygienist is at risk of losing income

because of decreased practice productivity from the development of WRMSDs (Hayes et al., 2013). Junior, Pereira, and da Silva (2015) agreed with Hayes et al. assertion that physical, biomechanical, and organizational factors contribute to MSDs. Junior et al. added that high repetition, high strength, and cognitive impacts related to higher end work attributes to MSDs. Madeline et al. (2013) indicated that WRMSDs affected the ability of computer users to fulfill company productivity requirements. Using structured web-based questionnaires, Madeline et al. found a complex interplay between various factors, such as anthropometrics, workability, productivity, and pain perceptions of employees. However, the outcome differed between men and women (Madeline et al., 2013).

Challenging the argument, Van der Vorm et al. (2015) proposed that improving the quantity and quality of productivity is achievable by using industrial exoskeletal technology. Rather than focusing on factors that contribute to MSDs, firms benefit financially by investing in new innovative methods and tools that reduce MSDs, such as an exoskeletal device (Van der Vorm et al., 2015). An exoskeletal device (e.g., the Robot Mate project) is a user-guided robot or device worn by employees that aids in improving work quality (Van der Vorm et al., 2015). Van der Vorm et al. asserted the exoskeletal device works by augmenting the functions on an employee's musculoskeletal system, which is more beneficial to employees and employers.

Similar to Van der Vorm et al. (2015) findings, Mohd Nawi, Md Deros, Ab Rahman, Sukadarin, and Nordin (2015) posited that employers benefit by using new machines and technologies versus manual tools to reduce ergonomic injuries. Using a

cross sectional survey on palm oil plantations, Mohd Nawi et al. theorized that developing up to date ergonomic designs contributes to a comfortable and safer work environment. Optimal use of ergonomic deigns reduces WMSDs and enhances productivity (Joshi, Dahal, Poudel, & Sherpa, 2014). Kalkis (2015) added that cultivating strategies to address ergonomic issues and assessing cost increases productivity. Formulating ergonomic interventions programs and educating workers help reduce WRMSDs that affect productivity (Estemadinezhad et al., 2013; Hurtado, Dumet, Greenspan, & Rodriguez, 2018).

Occupational Stress

Stress is a condition that affects a person's body and state of mind. Mohite et al. (2014) stated that stress affects a person physically, psychologically, emotionally, or spiritually. Kivimaki et al. (2013) noted that negative or harmful forms of work-related stress are a concern for employers. Researchers have documented the high cost associated with OS worldwide (Hermeneutic, 2015; Newton & Teo, 2014). Work stress, anxiety, and depression contribute to an estimated 12.8 million lost working days a year in Britain (Khaniyan et al., 2013). Stress can also lead to an array of adverse work outcomes, which in turn, affects organizational efficiency (Havermans et al., 2018; Nayani et al., 2018). Chronic stress causes employees to make errors, wrong decisions, bad choices, acquire injuries, and increase turnover (Mohite, et al., 2014). Despite the increasing knowledge available and amending laws on OS, OIIs caused by OS still remain a problem for many organizations (Havermans et al., 2018; Khaniyan et al., 2013). Stakeholders are starting to consider the repercussions associated with OS on their employees. Organizational

leaders and managers understand the importance of developing ways to identify and minimize ORs associated with factors such as OS (Newton & Teo, 2014).

Researchers asserted that various factors contribute to OS (Mohammad Mosadeghrad, 2015; Mohite et al., 2014). Work-related or OS result from a combination job related, individual, organizational, environmental factors and an imbalance of demands, skills, and social support at work (Mohammad Mosadeghrad, 2015; Ruotsalainen, Verbeek, Marine, & Serra, 2015). Mohammad Mosadeghrad (2015) identified several factors that contributed to the harmful effects of OS on employees' health and well-being. Using a cross sectional research design, Mohammad Mosadeghrad found a connection between job related, organizational, interpersonal relations, and working environmental factors and OS. In Iran, high levels of OS increased physical injuries, negative behaviors, and physical and mental health problems of hospital employees (Mohammad Mosadeghrad, 2015). Prasad, Vaidya, and Anil Kumar (2015) agreed with Mohammad Mosadeghrad assumption that various factors (job related, organizational, individual, and physiological) negatively affect employee health and performance. Based on a survey of 232 employees, Prasad et al. concluded that OS moderately affected employee health and performance. Some employees developed chronic physical health problems from job related factors (Prasad et al., 2015).

In contrast to Mohammad Mosadeghrad (2015) and Prasad et al. 2015, Akalp et al. (2015) proposed that exposure to chemical, biological agents, physical factors, ergonomic conditions, allergens, and a broad range of psychosocial risks have a negative influence on the performance of workers. Some workers are more concerned with the

direct consequences of ORs on their health and well-being. In a study conducted on a sample of 1750 women, Akalp et al. revealed that women had positive perceptions of occupational risk factors, safety culture, and perceptions of safety awareness. Employees that feel safe exhibit lower levels of OS. Factors that contribute to high level of OS may vary depending on the work environment.

Many experiences in the work environment lead to physical and mental health problems because of OS. Researchers have indicated OS increases the chances of injuries, illnesses, and accidents that adversely affect job performance (Khaniyan et al., 2013; Muralidharan et al., 2013). Employees have developed health problems such as hypertension, cardiac disease, obesity, and mental exhaustion from stress (Tanwar, 2014). Ganster and Rosen (2013) used the allostatic load (AL) model as an organizing framework in their study to identify primary (stress, anxiety, and tension), secondary (e.g., resting blood pressure, cholesterol, body mass index), and tertiary endpoint diseases (e.g., cardiovascular disease, depression, mortality) associated with psychosocial stressors in the workplace. Newton and Teo (2014) posited that consequence of stress can be life threatening. Psychological risk factors at work can lead to stomach problems, burnout, cardiovascular morbidity, and mortality (Newton & Teo, 2014). Employee experiencing OS suffer from chronic fatigue, eating disorders, headaches, alleviated blood pressure levels, and pain (Mohammad Mosadeghrad, 2015). Khaniyan et al. (2013) conducted research that revealed long-term stress leads to inefficient job performance. OS contributes to illnesses; such anxiety, depression, and tension increase the chances of harmful accidents or dangerous situations at work (Khaniyan et al., 2013). Khaniyan et

al. found that OS attributed to physical and mental disturbances that enabled rehabilitation staffer from filling their job duties. OS affects employees' attitudes and behaviors causing them to have negative feeling about performing their jobs (Khaniyan et al., 2013; Newton & Teo, 2014).

Personal factors or feelings usually influence employee attitudes and behavioral changes. Misis, Kim, Cheeseman, Hogan, and Lambert (2013) asserted that attitudes that correctional officers have toward their jobs affects their stress levels. Committed and dedicated correctional officers experience lower levels of stress and perceive that manageable inmates cause lower levels of stress while amiable inmates increase stress levels (Misis et al., 2013). Vazi et al. (2013) indicated that environmental and personal factors are two major contributors to teacher stress. Using three models consisting of the person-environment fit and subjective and psychological well-being, Vazi et al. argued that both factors negatively affect the psychological wellbeing of teachers. The association between stress and environmental factors aligns with role problems and personal factors (Vazi et al., 2013). However, personal factors had more of a negative effect on the psychological well-being of teachers (Vazi et al., 2013). Employees who believe that managers do not care about or appreciate them are less committed. Mohite et al. (2014) disagreed with Vazi et al.'s assertion that role problems and personal factors contribute to stress. Mohite et al. asserted that understanding the link between OS and job satisfaction improves employee well-being and performance. Using a descriptive study design with an exploratory approach, Mohite et al. found that nurses with high levels of job satisfaction experienced lower levels of stress. Mohite et al. contended that high

levels of job satisfaction must be associated with various job-reinforcing factors to alleviate stress. However, in some occupations, OS is higher regardless of high job satisfaction or positive work attitudes.

At some point in time, the exposure to some type of unique situation or event will cause stress. Employees that witness or experience tragedy, death, serious injuries, unpredictable work conditions, and threatening situations are more at risk for developing higher levels of stress (Adriaenssens, DeGucht, & Maes, 2013; OSHA, n.d.). Developing OS in certain occupations (e.g., health care, law enforcement, and emergency services) are inevitable. The exposure to stressful events at work faced by emergency responders and other workers can strain their ability to function properly (OSHA, 2016). Correctional officers and jailers deal with stressful events daily, which led to 10,590 cases of OIIs in 2014 (BLS, 2014). Police officers are at risk of developing mental disorders that affect how they work (Garbarino, Cuomo, Chiorri, & Magnavita, 2013). Garbarino et al. found that psychosocial risk factors increase the chances of employees developing health problems. Adriaenssens et al. found that emergency room (ER) nurses experienced higher levels of burnout from acute and traumatic stressors and unpredictable working conditions. ER nurses exposed to broader and more severe ranges of stressors considered leaving the job, which in turn increases turnover (Adriaenssens et al. 2013). However, workers in any industry can encounter critical or high forms of stress.

Employees experiencing work stress are unable to complete the normal work task. At some point in time, the exposure to some type of unique situation or event will cause

stress. In the workforce, some jobs are more stressful than others are. In other words, developing OS in certain occupations (e.g. health care, law enforcement, emergency services) are inevitable. Employees react to workplace stressors in different ways which effects job performance. Prasad et al. (2015) conducted a study on the effects of various factors (job, organization, individual, physiological) on employee performance. Based on a survey of 232 employees, Prasad et al. asserted that OS affected the performance levels of employees caused by psychosocial risks factors. Akalp et al. (2015) disagreed that only psychosocial risk factors cause OS. Akalp et al. proposed the exposure to chemical, biological agents, physical or ergonomic conditions, allergens, and a broad range of psychosocial risk have a negative influence performance of workers. However, employees should meet organizational performance goals under normal constraints with available resources (Afzali, Arash Motahari, & Hatami-Shirkouhi, 2014).

Muschalla and Linden (2013) conducted a study on the association between different work-related strains and anxieties in different professions. Data collected from a convenience sample of 71% of women in the department of psychosomatic medicine revealed that office, service, and healthcare workers experience different forms of social anxiety, insufficiency, and workplace phobias. Correctional officers and jailers had 10,590 cases of OIIs in 2013 (BLS, 2014). In a study conducted by Misis et al. (2013), the authors indicated that some correctional officers encounter increased level of stress. Correctional officers perceive that stress levels depend on the nature of the work environment and the behaviors of inmates (Misis et al., 2013). Interviews with rehabilitation staffers revealed they experience high levels of stress (Khaniyan et al.

2013). Khaniyan et al. (2013) found that 47% of occupational therapist and 29% of physiotherapist experienced OS that affect performance levels.

Comorbid Conditions

Researchers have studied the effects of comorbidity on productivity. The experiences of multiple conditions at the same time have more effects on productivity than a single health problem (Goetzel et al., 2018). Diabetes is a condition that affects an employee's ability to work (Krstović-Spremo, Račić, Joksimović, & Joksimović, 2014). Krstović-Spremo et al. (2014) noted that most of the people with diabetes have some other type of disability. A comorbid condition that diabetics have is hypoglycemia (Lopez, Annunziata, Bailey, Rupnow, & Morisky, 2014). Lopez et al. (2014) found that work productivity decreases more in those that have diabetes in conjunction with hypoglycemia.

Back pain is the leading cause of disability globally and is often associated with sleep disorders (Sadosky, DiBonaventura, Cappelleri, Ebata, & Fujii, 2015). In China, a combination of lower back pain (LBP) and sleeping disorders decreased productivity (Sadosky et al. 2014). Psoriasis increases productivity loss and illicits other physical and mental health problems (Korman, Zhao, Pike, Roberts, & Sullivan, 2015). Information shown from a data base analysis revealed that itching, pain, and scaling associated with psoriasis attributed to an array of disorders (hypertension (HBP), anxiety, depression, obesity) that negatively impact work productivity (Korman et al., 2015). Most comorbid conditions result from the mismanagement of a main condition. Pain levels also promote comorbidity.

Sadosky et al. (2014) theorized that reduced work productivity results from employees experiencing severe back pain and that severe back pain lead to sleeping disorders. Wilkie, Hay, Croft, and Pransky (2015) agreed that pain intensity attributes to other problems such as depression and sleeping disorders. Severe pain has more of an effect on productivity than the other disorders (Wilkie et al., 2015). Although, comorbidities are present in each stage of Psoriasis (mild, moderate, and severe), moderate to severe cases effect productivity the most (Sadosky et al., (2015). In a study conducted on rheumatoid arthritis (RA), cross sectional data revealed that personal, work related, and clinical factors contributed to at work productivity loss (Van Vilsteren et al. 2015). Van Vilsteren et al. (2015) asserted that mental health problems, physical role limitations, and pain levels decreased work productivity in employees with RA.

Commodity affects the work ability of employees. Work ability (WA) refers to an employee's ability to cope with the mental, physical, and social demands of work (Knezevic, Milosevic, Golubic, Russo & Mustajbegovic, 2011; Reeuwijk, Robroek, Hakkaart, & Burdorf, 2014). Some co-occurring conditions affect both the mental and physical health of workers (Reeuwijk et al. 2014). For example, experiencing back pain and depression. The exposure to different health problems decreases employee WA (Lindegard, Larsman, Hadzibajramovic, & Ahlborg, 2014; Smith, Hughes, DeJoy, & Dyal, 2018). Decreased or poor WA leads to long-term or sick absences, productivity loss, early retirement and work disability or pension (Reeuwijk et al., 2014; Van de Vijfeijke et al., 2013). WA ability is strongly associated with the mental and physical well-being of employees (Lindegard et al., 2014).

Researchers asserted that several physical and mental health disorders reduce employee WA (Lindegard et al., 2014; Reeuwijk et al., 2014). Lindegard et al. (2014) posited that WA correlates with other factors such as work impairment (WI), work performance (WP), and productivity. In addition, Lindegard et al. conducted a study on the link between stress, MSDs, WA, and WP. Exploring the effects of stress and MSDs on WA and WP both separately and in combination, Lindegard et al. found that MSDs and perceived stress highly influenced decreased WP and WA. Pain associated with MSDs was the main factor that reduced WP and WA rather than stress (Lindegard et al., 2014).

Reeuwijk et al. (2014) shared the same school of thought as Lindegard et al. (2014) and posited that MSDs, cardiovascular disorders (CVDs), and Mental disorders (MDs) decreases work impairment (WI) and WA. In other words, when an employee suffers from a mental and physical ailment it can affect their ability to work. Reeuwijk et al. used data collected from questionnaires in their cross-sectional study on the association that work impairment (WI) and reduced WA has on healthcare use of those with MSDs, CVD, and MDs. Reeuwijk et al. concluded that MSDs, CVD, and MDs leads to WI and reduced WA of employees, which increases the use of health care.

Challenging the argument, Knezevic et al. (2011) argued that not acquiring the resources available to complete the physical, mental, or social demands of the job does contribute to job stress; however, has little effect on WA. Knezevic et al. proposed that being exposed to multiple stressors can affect the work ability of midwives. Incidentally, Knezevic et al. highlighted that prolonged exposure to psychological stress negatively

effects employee health, work ability, and patients care. Applying the Occupational Stress Assessment Questionnaire and Work Ability Index, Knezevic et al. found that lack of resources, limited staffing, poor organization, communication issues with superiors attributed to work stress but had limited effects on WA.

Leijten et al. (2014) conducted on employees aged 45-64 suggesting that health problems decreased work ability, productivity, sick absence, and led to employees exiting from the labor force. Leijten et al. used three linear aggression models to assess the outcome of circulatory disorders, diabetes, MSDs, and psychological disorders problems on WA and productivity in one year, the preceding year, and in the same year. Leijten et al. stated that diabetes decreased WA by 0.2% and 0.6 %, circulatory disorders by 1.4 % and 1.8%, and psychological disorders, 9.5 %, 5.9%, and 8.5%. However, MSDs and psychological disorders had more of effect on WA and productivity than any other chronic illness (Leijten et al., 2014).

From another perspective, Van de Vijfeijke et al. (2013) suggested that WA and different coping styles plays a different role in mental and physical health of employees. Although, MSDs, CVD, and respiratory problems highly affect WA, Van de Vijfeijke et al. emphasized the effects of MDs on WA are more significant for it affects all age groups. Using hierarchical regression analysis to analyze the data collected on mental and physical health, coping and WA, the researchers found that employees used active and avoidance coping methods which negatively affected employee WA (Van de Vijfeijke, 2013). One can assume that evaluating employee WA depends on the person and the

severity of the disorder. Various health conditions can decrease WA and hinder organizational success.

Organizations' Direct and Indirect Costs Associated With OIIs

Providing a safe and healthy workplace is a key in encouraging a successful and prosperous business (Ramos et al., 2013). Business leaders desire to provide a safe productive work environment while reducing liability and hidden bottom line losses (Amponsah-Tawiah et al., 2016). Work related injuries and illnesses are a financial burden and additional price tag for business owners costing $2.8 trillion worldwide (Amponsah-Tawiah et al., 2016). Ramos et al. (2014) noted that stakeholders are responsible for a substantial portion of the social cost associated with OIIs. Failing to reduce OIIs, leads to compensatory and punitive consequences that affect business operations. In addition, not complying with OHS labor laws adversely effects organizational leaders and managers (Bahn & Barrat-Pugh, 2014; Carr, 2014). OSH officials can impose high fines and penalties on organizations that fail to comply with safety regulations (Bahn & Barrat-Pugh, 2014; Carr, 2014; Surasak Buranatrevedh, 2015). High OIIs rates negatively affect a company's bottom line (Bramberg et al., 2018; OSHA, n.d.).

Business owners suffer because of the direct cost associated with missed time from work, productivity losses, reduced performance, lost time claims and high medical expenses from work-related injuries and illnesses (BLS, 2014; Cantley et al. 2014). The indirect cost associated with employee recruitment, turnover, accident prevention, and equipment repair because of OIIs are large as well (OSHA, n.d.). The indirect costs

associated WMSDs are $45-$54 billion dollars yearly (Helwig et al., 2016). Over 2.3 million diseases and 474 accidents occur annually costing an estimated 4% of global gross product (Pillay, 2015). Prasad et al. (2015) indicated that OS cost up to 10% of a countries GNP. Australia spends an estimated 4.6 billion dollars on MSDs annually (Hayes et al. 2013). Many employees suffer from illnesses and injuries that require them to take SL and the cost of SL is very high (Lidwall, 2015; Yung, 2016).

Sick leave. Most organizations offer SL to employees when they are sick or injured. SL is time away from work that employees use when experiencing an illness (Lehnert, Sonntag, Konnopka, Riedel-Heller, & Konig, 2013). For example, employees can use SL for illnesses as simple as common colds, fatigue, minor injuries, and headaches. The availability of SL is important as sick employees often make other employees sick (De Perio, Wiegand, & Brueck, 2014). SL is in place for employees to use to deal with physical and mental health conditions. Some health conditions can be more severe and require employees to use more SL.

Physical, psychosocial, and organizational factors in the workplace exacerbates existing health problems and increases the development OIIs (Cantley et al., 2014; Griffith, 2014), leading to the use of SL. In the UK, 1.1 million people suffer from illnesses caused or made worse by their work (Vijendren, Yung, & Sanchez, 2015). The high cost associated with SL has become a concern for employers because it results in lost productivity (Sultan-Taieb et al., 2013; Van Dongen et al., 2013). In South Africa, SL costs employers billions of dollars yearly (Grobler & Smith, 2014). The use of SL

creates an economic burden on individuals as well as the organization, and it places the mental strain on the sick person, colleagues, and so on (Kjellgren & Westman, 2014).

Calvo-Bonacho et al. (2014) indicated that SL cost associated with cardiovascular (CV) diseases results in productivity loss. In Spain, employers recorded over 5 million SL episodes that costed organizations over 6000 million dollars annually (Calvo-Bonacho et al. 2014). Sultan-Taieb et al. (2013) asserted that work stress is a major concern and important economic issue for many organizations. Work stress is important because it causes an array of other physical and mental health conditions such as cardiovascular disease, psychosomatic symptoms, depression, sleeping problems, and cigarette smoking that requires employees to take SL. (Sultan-Taieb et al., 2013). In a study conducted on the duration and cost associated with CV and non-CV SL, an incidence of SL caused by work-related accidents was lower than SL because of common non-CV diseases (Calvo-Bonacho et al., 2014). However, stress related symptoms are common reasons for using SL (Kjellgren & Westman, 2014).

Sultan-Taieb et al. (2013) found that CVDs and mental disorders increased the cost of SL by 74-77%. Some conditions are in conjunction with others that cause the use of more SL (Sultan-Taieb et al., 2013). More than one health condition may result in the use of more SL. Wedegaertner et al. (2013) agreed with Sultan-Taieb et al.'s assertion that most conditions are comorbid, and that MDs increases the use of sick leave. In a study conducted by Wedegaertner et al. the authors revealed anxiety and depression as two conditions that cause employees to take more SL. MDs require inpatient or outpatient treatment. The amount of SL used may vary making SL cost hard for organizations to

estimate. Business owners suffer from the repercussions associated with the cost associated with employees using SL.

Tang (2015) disputed that cost associated with SL is the problem for organizations. Tang asserted that coming to work sick exceeds the cost of using SL (Tang, 2015). Yaphe (2015) agreed with Tang's assertion that working while sick is more damaging than using SL for an illness. Yaphe asserted that coming to work suffering from back pain, joint pain, and headaches results in billions of dollars more in productivity losses than using SL. People in pain have a harder time focusing and completing work tasks. Employers bare the cost of employees abusing SL or choosing not to use it when needed.

Workers' compensation. Employees hurt or injured while on the job are eligible for workers' compensation (WC). The direct cost of WC alone is one billion per week (osha.gov). WC is a no-fault system (supported by statutes) that provide medical services to employees injured or those who developed a disease in the workplace at the employer's expense (Burton, 2013; Van de Bittner, 2013). Depending on the severity of the injury, employers are responsible for providing temporary or permanent disability compensation (Van de Bittner, 2013). Although, there is money put aside to cover work-related injuries and illnesses, the cost associated with WC are substantial. Sengupta and Baldwin (2015) stated that WC covered an estimated 129.6 million US workers in 2013 paying out 63.6 billion dollars in payments. In the construction industry, the cost associated with OIIs estimated at $125 -155 $ billion dollars in which 38.7 billion with toward WC claims (Pillay, 2016). WC laws vary from state to state and some injuries

obtained by employees are reoccurring (Galizzi, 2013). In MD employers filed 1292 medical claims and WC cases in August of 2015; however, the WC board denied 609 of them (Maryland Workers' Compensation Commission, 2016).

Many researchers have studied the economic consequences of WC on organizations. WC laws help ensure that employers pay for the medical expenses of employees injured at work and prevent employees from suing employers for those injuries (Van de Bittner, 2013). The cost and laws associated with WC differ from state to state. Organizational leaders in each jurisdiction or state pay their required portion into the WC fund (Burton, 2013; Mustard et al., 2015). In 2015, the BLS reported there were 1, 153, 490 days away from work cases in the private, state, and local government and 356, 910 cases were because of MSDs. Mustard et al. (2015) highlighted that MSDs are a major contributor to disability among adult workers in Canada. Mustard et al. noted the direct and indirect costs associated with MSDs are approximately $500 million per million workers and that 48.2 % resulted in lost time WC claims. Accidents are very costly to organizations regarding insurance, equipment, and goods (OSHA, n.d.). Organizations should not take the economic consequences that WC poses on them lightly. Galizzi (2013) declared that 56 % of OIIs result in WC claims and 37 % of employees that have been involved in one accident and report at least one additional injury in the future. Various personal and organizational factors influence OIIs and increase WC payments.

Alternatively, employees are starting to work longer and retire later in life. Although employees are retiring later, some employers are concerned that older workers

could financially affect the organization by increasing WC claims (Guest, Boggess, Vilijoen, Duke, & Culvern, 2014; Lasilla, 2015). Besen, Young, Gaines, and Pransky (2016) used random effects models to test the relationship between age, tenure, and disability duration. Using 361,754 administrative WC claims, Besen et al. found that age and tenure play a role in disability duration of workers. Guest et al. (2014) used routinely collected data to examine age-related injuries and compensation claim rates of Australian heavy industry workers. Guest et al. hypothesized that older workers are less likely to increase injuries and compensation claims. The declining physical and endurance of aging workers raised health and safety concern for some employers (Guest et al., 2014).

Employees aged 45 years and older have increased by 49 and constitute 44% of the workforce (Lasilla, 2015). Older employees experience mental and physical changes as they age. Guest et al. (2014) noted that aging affects the physical capacity, vision, and can lead to other perceptual problems. Aging increases complications with MSDs, limiting repetitive motions and leads to other illnesses and diseases (Anderson & Chung, 2014; Guest et al., 2014). However, Guest et al. found that younger employees aged 30 and under had the highest injury rates, which generates more WC claims.

Restrepo et al. (2013) disputed Guest et al. (2014) conclusion that younger employees have more accidents that influence WC claims. When assessing implications of WC cost associated with safe lifting programs in long-term facilities, Restrepo et al. argued the cost of WC associated with older workers differs from that of younger workers. Back pain is a major contributor to WC claims (Restrepo et al., 2013), lifting and moving patients in a long-term facility is riskier for older workers. Anderson and

Chung (2014) found it harder for older employees to complete task using repetitive motions to fold and price goods. Implementing the safe lift index consisting of policies, training, preferences, and barriers regarding the use of mechanical power lifts, Restrepo et al. hypothesized that safety depends on the implementation of an effective, safe lift program.

Age is not a major factor for the amount of WC claims that organizations have (Besen et al., 2016; Guest et al., 2014). In most cases, WC claims depend on the individual employee. Using both prevalence and incidence data to forecast WC benefits may be beneficial to all stakeholders. Indeed, the cost associated with WC depends on the nature and severity of the injury or illnesses. Reducing OIIs would result in a large reduction of medical payments and WC cost.

Turnover. Employee turnover is a common practice that takes place in many organizations. Turnover is a process in which an employee voluntarily leaves a job or organization (Roche, Duffield, Homer, Buchan, & Dimitrelis, 2015). Some employees leave a job because of improper staffing, safety concerns, and fear of carrying the workload of absent employees (Amponsah-Tawiah et al., 2016; Mazurenko, Gupte, & Shan, 2015; Mohite et al., 2014). The exposure to ORs that contribute to OIIs increases employee turnover (Amponsah-Tawiah et al., 2016; Mohite et al., 2014). Al Sayyed and Al Braiki (2015) stated that turnover cost for many organizations are very costly and affects the economic performance of a company or organization. The cost of turnover has motivated management into adopting a combination of safety investments (Alexander,

2016). Gonzalez-Delgado et al. (2015) stated the cost of nonfatal and fatal OIIs reflect negatively on businesses because of increased turnover.

Researchers have studied the effects of turnover on businesses and employees. Amponsah-Tawiah et al. (2016) cited that industries, especially those in developing countries, enormously suffer from the economic and personnel cost associated with OIIs. In Ghana, high labor turnover rates occurred in the mining industry (Amponsah-Tawiah et al., 2016). The exposure to many ORs increases turnover intentions of miners (Amponsah-Tawiah et al., 2016). However, turnover rates vary from manufacturing to the service sector (Alsayyed & Al Briaki, 2015). Roche et al. (2016) conducted a study on the rates and cost associated with nurse turnover in the Australian Capital Territory (ACI), Western Australia (WA), and New South Wales (NSW). Data collected from 62 nurses from 11 hospitals revealed that $68,621 ACI, $58, 260 WA, and $26,199 NSW went toward turnover cost (Roche et al., 2016). Roche et al. found that turnover affected hospitals budget and health expenditure costs. Health concerns, exposure to falls, medication errors, and nurse sensitivity led to turnover of nurses in Australia (Roche et al., 2016).

Mazurenko et al. (2015) agreed that turnover sets back healthcare organizations bottom line. Turnover increases recruitment and replacement cost (Mazurenko et al., 2015). Turnover, recruitment, and retention are a major concern in the direct care industry (McCaughey et al., 2015). Replacing employees is costly to organizations and destructive to service delivery (Alam, 2015). In the United States, turnover rates of registered nurses (RNs) are 16.5% and rising (Mazurenko et al., 2015). Applying binary

logistic regression analyzes, Mazurenko et al. posited that nurses who left complained of factors not limited to work disability or illnesses, high-stress levels, and burnout. Turnover increases the workload of the remaining nurses placing them at risk for job stress and burnout, which causes them to leave the profession (Mohite et al., 2014; Mazurenko et al., 2015).

In contrary to Mazurenko et al. (2015) findings, Wang and Yen (2015) contended that safety climate negatively relates to turnover. Wang and Yen found that safety concerns in the work environment increased turnover intentions. TV reporters exposed to dangerous situations placing them at risk for injuries considered leaving the job (Wang & Yen, 2015). Employees that feel unsafe will consider leaving a job. Zinseer and Zinseer (2016) used a case study approach to explore the psychosocial safety climate of preschool teachers. Based on data collected from focus groups and interviews, Zinseer and Zinseer revealed that the psychosocial safety climate of preschool teachers led to high stress and burnout resulting in negative emotions and high turnover. The nature of safety climate influences employee turnover. Poghosyan et al. (2015) conducted a study on 291 nurse practitioners (NPs) from Massachusetts and 291 NPs from New York. Using a cross sectional survey design, the authors found that inadequacies in the practice environment increased turnover (Poghosyan et al., 2015); enhancing the safety climate reduces OIIs, which in turn lower rates of turnover (Hammer et al., 2016; Wang & Ten, 2015).

Conclusion

The problem with reducing OIIs in organizations is nothing new for business leaders. Although a substantial amount of OHS literature is available, a still gap remains

because some supervisors fail at to understand how to assess employee behaviors and facilitate working relationships that help reduce OIIs. Individuals are willing to engage in unsafe or risky behaviors at some point in life. Understanding the behaviors patterns of employees helps supervisors assess and predict unsafe behaviors that lead to OIIs. For this reason, Wildes's RHT theory is valuable to use when studying human behavior. Also, the dyadic relationship plays a major role in the promotion of a safety climate or culture. In addition to the RHT, the LMXT is good to use to understand the position the employee-supervisor relationship has in creating a healthy and safe work environment.

OSH professionals use regulatory approaches to ensure the workplace is healthy and safe. However, OSHA efforts alone cannot effectively reduce OIIs in organizations. More collaboration between OSHA professionals and organizations could help promote OHS practices that help reduce OIIs. Understanding the link between ORs and OIIs can be beneficial to supervisors. Supervisor could start by learning about occupational stress and ergonomics, which are two of the major contributors to OIIs. OIIs affect both employees and organization. Beyond understanding the catalyst between ORs the influence specific OIIs, OIIs affects organizations by reducing productivity, job performance levels, and decreases employee work ability. OIIs also affect organizational performance financially. The cost associated with OIIs because of SL, WC, and turnover affects a company's bottom line. Organizational leaders aim to secure competitive advantage. Increasing productivity and reducing overhead cost helps business leaders achieve their organizational goals. In an organization, reducing OIIs is one process involved with running a successful firm, beneficial to employees and employers.

Transition and Summary

In Section 1, I provided a synopsis of the foundation of study followed by information on the background of the research topic understudy regarding strategies used to reduce of OIIs in organizations. Going further, I introduced a problem statement, focusing on the general and specific business problem associated with the research topic. The general problem is OIIs have an adverse impact on organizational productivity, performance, and profitability, and the specific problem is some business leaders lack specific strategies (risk assessment & the facilitation of working relationship strategies) to reduce OIIs. The purpose of the study was to explore effective strategies that supervisors in some agencies use to assess risks and facilitate relationships with employees that reduce OIIs.

After evaluating various research methods and design, I chose a qualitative single case study approach for this study in section 1. The research and interview questions aligned with the specific problems noted in the problem statement. Wildes's RHT and Graens's LMXT severed as contextual frameworks. Section 1 also consisted of definition of terms and explanations of assumptions, limitations, and delimitations. In conclusion, section 1 ended with the significance of study and a review of academic literature consisting of research studies within the last five years.

Section 2 included a reiteration of the problem statement, along with a more in depth discussion of the research method and design. In addition, I provided explanations and descriptions of my role the researcher, the study participants, population and sampling methods, and ethical research standards. Also, a discussion of various methods

and techniques such as, data collection instruments, data collection, data organization, and data analysis. Last, Section 2 ended with an analysis of reliability, validity, and data saturation.

Section 2: The Project

In this study, I focused on understanding strategies that supervisors use to assess risks and facilitate working relationships with their employees to reduce OIIs in government agencies. Section 2 includes an explanation of the purpose of the study and a description of processes used to explore and interpret successful OII reduction strategies in a government agency. I describe several aspects of the study such as my role as the researcher, selection of participants, research method and design, population and sample, ethical research, data collection instruments, data collection techniques, data organization techniques, and data analysis techniques. Section 2 concludes with an explanation of how I ensured reliability and validity and reached data saturation.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies that supervisors in some government agencies use to assess risks and facilitate relationships with employees to reduce OIIs. The target population consisted of supervisors of a government agency in the mid-Atlantic region of the United States who developed strategies to reduce OIIs. The findings from this study may contribute to social change by informing efforts to improve employee health and safety, organizational productivity, and organizational performance.

Role of the Researcher

In qualitative research, the researcher is the data collection instrument and serves as a participant observer throughout the data collection process (Fusch & Ness, 2015; Hall, 2016). Yin (2013) stated that a researcher's role is to develop questions, conduct

field research, engage with participants, collect and analyze the data, and disseminate the results of the study. As the researcher, I engaged in the data collection process by collecting, organizing, and categorizing data and by identifying ethical issues in the study.

My exposure to high numbers of OIIs at my place of employment led to my work on this project. While I worked for the State of Maryland for over 15 years, many work-related injuries and illnesses took place. From my experiences at work, I gained firsthand knowledge of the effects that OIIs have on employers and employees.

There are many ethical principles to consider when planning and carrying out research. Ethical concerns may arise when conducting research (Alby & Fatigante, 2014). Researchers must adhere to ethical principles and regulations when conducting research (Beskow, Check, & Ammarell, 2014). The information found in the Belmont Report (1979) provides researchers with the ethical principles and guidelines for the protection of human subjects of research. Researchers must minimize harm, respect autonomy, and protect the privacy of all research participants (Wertheimer, 2014). I followed all ethical guidelines and principles specified by the Belmont Report and Walden University to protect the rights of participants.

During a qualitative study, researcher bias should be minimized (Cope, 2014). Bias can lead to false conclusions and misleading results that affect the integrity of the study (Noble & Smith, 2015). Fusch and Ness (2015) noted that researcher bias exists in all social research and the researcher must mitigate potential biases that could affect data collection and analysis. I used member checking to mitigate biases, in alignment with

Harvey's (2015) recommendation that researchers use member checking to ensure the findings are true, accurate, and transparent.

An interview protocol is a guide for researchers conducting interviews (Castillo-Montoya, 2016; Ortiz, 2015). Sin, Talib, Norishah, Ishak, and Baki (2014) stated that an interview protocol is a form designed by the researcher that contains instructions for the interview process, the questions asked, and spaces to write notes regarding the interviewee's responses. Researchers use an interview protocol to gather specific information related to the aims of the study (Castillo-Montoya, 2016; Sin et al., 2014). Researchers use interview protocols to develop inquiry-based conversations with participants about a particular topic (Castillo-Montoya, 2016). I used an interview protocol that consisted of semistructured open-ended questions. Ortiz (2016) noted that an interview protocol is appropriate for novice researchers planning to conduct semistructured interviews.

Participants

For this study, I selected participants employed by a government agency in the mid-Atlantic region of the United States who had been in a supervisory or managerial position for at least 5 years, who had direct or indirect knowledge of employee safety and health policies and procedures, and who had experience in reducing OIIs. Selecting the right participants is crucial to the success of a study (Kriglstein & Pohl, 2015; Zhang, Xiong, Wang, & Chen, 2014). My goal was to select participants who had specific knowledge and experiences regarding strategies used to reduce OIIs, in alignment with

Palinkas et al.'s (2015) recommendation that researchers should select participants who are knowledgeable about or experienced with the phenomenon of interest.

I used online and offline strategies (phoning and e-mailing) to recruit participants for this study. Researchers sometimes use sometimes Internet-based methods to recruit participants (Hirsch, Thompson, & Every, 2014). Researchers also use traditional or offline methods such as flyers, posters, direct mail, and newspaper and magazine advertisements or articles to recruit participants (De Gee, Verdurmen, Bransen, de Jonge, & Schippers, 2014; DiSogra, & Callegaro, 2015). Many use a combination of offline and online methods (Mbugua, Waiganjo, & Njeru, 2015; Schilbach, 2014). After searching the Internet for a potential agency suitable for my study, I contacted the representative from a local government agency in the mid-Atlantic region of the United States by phone requesting permission to conduct research at the agency and e-mailed a letter of cooperation (LOC) as shown in Appendix A. Before researchers are allowed to conduct research at an organization, they must provide proof they are authorized to do so by providing a LOC (Castro, 2013). The agency representative signed and returned the LOC and provided me with contact information for eight participants who met the selection criteria.

Researchers understand the importance of establishing a working relationship or building rapport with their participants (Jones, 2015). To develop a working relationship with participants, I contacted all eight potential candidates by phone and e-mailed each a copy of the consent form (see Appendix B). Establishing rapport with participants helps secure trust and increases participants' willingness to talk openly and honestly (Nehls,

Smith, & Schneider, 2014; Vallano & Schreiber Compo, 2015). I established a working relationship with participants through communication and referencing the consent form (see Appendix B).

Research Method and Design

I chose a qualitative single case study design to explore strategies used to reduce OIIs in a government agency. Qualitative research is an inductive style of inquiry that allows individuals or groups of participants to share their viewpoint on societal problems or issues (Bryman, 2015; Marshall & Rossman, 2016). Many qualitative researchers rely on the case study design when conducting a study. By using a case study approach, a researcher can better understand an event or issue in its real-life context (Yin, 2017). A qualitative research method with a case study design was appropriate for this study because I used an inductive style of inquiry to explore the phenomenon in one agency.

Research Method

Researchers use qualitative, quantitative, or mixed methods when conducting research. Given the nature of the research problem and the purpose of this study, I chose a qualitative method. Qualitative researchers seek to understand how individuals or groups ascribe meaning to social problems or issues (Marshall & Rossman, 2014). The qualitative research process can be dynamic and complex. It involves various forms of data collection ranging from interviews to document review (Bryman, 2016). Researchers use an inductive style of inquiry to identify emerging themes based on the data gathered from participants (Silverman, 2016).

Qualitative researchers can gain an in-depth understanding of human behavior, emotions, attitudes, and experiences by allowing participants to share their personal viewpoint on a particular phenomenon (Stage & Manning, 2015). Researchers can use qualitative methods to explore a wide range of experiences and perspectives of participants on a particular societal problem or issue (Lewis, 2015). Researchers can also use the qualitative method to generate new frameworks or models, identify literature gaps, develop studies, and provide evidence for the development, implementation, and evaluation of strategies that may address social issues (Yin, 2015). Qualitative research sometimes includes a personal, hands-on approach to examine environmental or contextual details. The qualitative approach can be inductive or rational, pluralistic, or relative, and involved in the object of research (Marshall & Rossman, 2016).

Quantitative researchers use a statistical approach to test the relationship between variables (Davies & Hughes, 2014). Some researchers view quantitative research as an indifferent or indirect approach. Researchers use quantitative inquiry to collect data through sampling or experimental means to test theories and hypotheses and to statistically analyze numeric data (Hartas, 2015). Quantitative researchers seek to provide an objective measure of reality by testing the relationship between variables (Davies & Hughes, 2014; McNabb, 2015). In quantitative studies, the researcher collects the data deductively and data consists of closed questions (Bryan & Bell, 2015). I did not choose a quantitative method because testing hypotheses and exploring relationships between variables was not the purpose of this study.

Researchers use qualitative and quantitative methods when conducting a mixed-methods study (Hartas, 2015). When using a mixed-methods approach, the researcher tests hypotheses and collects narrative data (Bryman & Bell, 2015). This approach is more suitable for researchers who want to enhance the overall strength of the study or use large population samples (Bryman, 2016). A researcher is able to test and build theories when using a mixed-methods style of inquiry (McNabb, 2015). I did not choose a mixed-methods approach because quantitative data were not needed to answer my research question.

Research Design

I used a qualitative single case study design for this study. Hancock and Algozzine (2015) stated that researchers use a case study design to explore a program, event, activity, process, or a case bounded by time and place. The case study approach is an increasingly popular research design used by qualitative researchers (Bryman & Bell, 2015). Hyett, Kenny, and Dickson-Swift (2014) noted that qualitative case studies consist of a paradigm, study design, and selection of methods, and that case studies in the published literature vary. Case study research is a stand-alone qualitative approach (Yin, 2017).

Case studies are more flexible than other qualitative research approaches such as grounded theory and phenomenology (Hyett et al., 2014). Hyett et al. (2014) stated that researchers design case studies to suit a case and research question, and the researcher's goal is to learn more about a little known or poorly understood situation (Yin, 2017). Some qualitative researchers use a phenomenological approach to understand a particular

phenomenon. Researchers use a phenomenological design to understand a societal problem or issue through the lived experiences of participants (Marshall & Rossman, 2014), which was not the purpose of the current study. Ethnography is another research design that qualitative researchers use (Silverman, 2016). Silverman (2016) noted that ethnography involves the exploration of the culture of an organization or social group in a natural setting through interaction and observation by the researcher. Researchers use ethnography to understand the mind-set of a culture-sharing group (Case, Todd, & Kral, 2014); I did not choose an ethnographic design because my purpose was not to study a culture-sharing group. A case study design was suitable for exploring strategies that supervisors in some government agencies use to reduce OIIs.

Fusch and Ness (2015) asserted that failing to meet data saturation affects the quality of the research. Data saturation is complete when there are no new themes, insights, perspectives, or information revealed during data collection (Fusch & Ness, 2015; Rodas-Moya, Kodish, Manary, Grede, & de Pee, 2016). Tichagwa (2016) indicated that data saturation involves bringing new participants continuously into a study until the data become redundant or replicable. I continued to interview participants until no new information was reported.

Population and Sampling

Qualitative researchers use nonprobability sampling methods to select their sample population of participants (Christensen, Johnson, & Turner, 2014). Christensen et al. (2014) stated that nonprobability sampling includes theoretical, purposive, convenience, criterion, snowball, or volunteer techniques. For this study, I used a

criterion-based sampling strategy to recruit eight supervisors who had reduced OIIs in a government agency in the mid-Atlantic region of the United States. Researchers use criterion-based purposive sampling to select participants based on predetermined criteria (Welch et al., 2014). Researchers who use criterion-based sampling screen and select a certain number of qualified participants with similar knowledge and experience on the research topic (Christensen et al., 2014; Sancar-Tokmak, Surmeli, & Ozgelen, 2014). Selecting a population of participants who supervised employees in a government agency in the mid-Atlantic region of the United States and reduced OIIs in the organization was feasible and aligned with the purpose of this study.

I worked with a representative from the agency to recruit eight participants for this qualitative single case study. The company representative provided the email addresses and phone numbers of potential participants for this study. A qualitative case study can comprise of a limited number of participants with similar interest or characteristics and requires the use of more than one data collection method (Hancock & Algozzine, 2015; Yin, 2017). Young, Kraglund-Gauthier and Foran (2014) stated that a qualitative case study is not number-dependent; rather, a case study depends on participant engagement. In addition, the sample size depends on the researcher ensuring data saturation (Fusch & Ness, 2015; Gibbins, Bhatia, Forbes, & Reid, 2014). Fusch and Ness (2015) proposed that a sample size (large or small) does not assure data saturation. Data saturation occurs when that data collected from several participants becomes redundant which researchers achieve through multiple data collection methods (Cope,

2014; Morse, 2015). I ensured data saturation by conducting semistructured interviews and collecting company OSH data.

When interviewing, researchers need to pick a private place, free of distractions (Eklund, 2015). I conducted semistructured interviews face to face and asked the participants to choose the interview setting. Researchers benefit from using semistructured face-to-face interviews in a setting that allows participants to speak freely (Rossman, et al., 2014). Providing a secure and comfortable environment allows participants to share more information because they do not feel restricted or uncomfortable (Kristiansen, Kessing, Norredam, & Krasnik, 2015). All of the participants had their own offices and chose to engage in the interview process there.

Ethical Research

Researchers must provide participants with informed consent. Informed consent plays a pivotal role in protecting the rights of human subjects (Das et al., 2014). During the informed consent process, the investigator provides pertinent information about procedures, risks, benefits, and responsibility of all parties involved in the study (Hidlebrand et al., 2016; Tait & Voepel-Lewis, 2015). Along with being a required ethical standard, researchers use informed consent to promote trust and voluntary participation from research participants (Boyd, 2015). Participants had the freedom of choice to participate or withdraw from a study at any time, which is a required research ethical principle (Da Rocha, 2015). Consent involves information, comprehension, and voluntariness (NIH, 2015). Researchers must protect the rights and respect the autonomy of participants (Da Rocha, 2015; Rui, 2015). I followed all of the ethical standards

required to conduct research (IRB# 06-19-17-0315483). The participants signed a voluntary consent form (see Appendix B) agreeing to participate. In addition, participants had the right to withdraw from this study at any time (see Appendix B).

Researchers could provide participants with incentives for participating in a study; however, ethical concerns arise to those that provide large or financial ones (Mita & Ndebele, 2014; Van Campen, Therasse, Klopfenstein, & Levine, 2015). Van Campen et al. (2015) asserted that large incentives may influence prospective participants to join a study or forgo undue risks. Offering incentive must not involve inducement, exploitation, undue influence, coercion, and biased enrollment (Mita & Ndebele, 2014; Resnik, 2015). I offered all participants a $10 gift card to Starbucks or Subway. A $10 gift card is not excessive and less likely to persuade participants into joining the study, which is permitted when conducting research (see Mita & Ndebele, 2014).

Protecting participant's identities and private information are some of the essential components involved conducting research (Tullis, 2014). Researchers must assure participant confidentiality and maintenance of the research data (Morse & Coulehan, 2015; Safari & Rashida, 2015). I used "P" for supervisors followed by a number from 1-8 to identify participants and the organization used in the study to ensure confidentiality. Another way to protect participants' confidentiality is to store all raw data in a secure place safely and sustainably for five years (Low et al. 2016; Takase, Teraoka, & Kousuke, 2015; Visagie, 2014). I retained the raw data collected in a secured locked file cabinet for five years and will shred the data after that time.

Data Collection Instruments

I was the primary data instrument in this qualitative single case study. In qualitative research, the researcher is usually the data collection instrument and develops the interview questions, conducts the interview, observes participants, collect and analyze the data collected (Fusch & Ness, 2015; Hall, 2016; Yin, 2017). Researchers use two data collection strategies when conducting a case study (Baskarada, 2014; Thomas, 2015). A few ways to collect data for a case study are through surveys, interviews, documentation review, observations, and physical artifacts (Hancock & Algozzine, 2015). My two data collection strategies consisted of using semistructured interview questions (see Appendix C) with an interview protocol (see Appendix D) and reviewing public company OSH documents such as OSH safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other documents to explore strategies that supervisors used to reduce OIIs.

Before gaining IRB approval, I contacted a representative by phone at a prospective local government agency in the mid-Atlantic region of the United States to request permission to conduct research at the site and emailed a LOC, in alignment with Castro (2013) statement that researchers must provide a LOC to show proof of authorization to conduct research at an organization (Castro, 2013). After receiving the LOC, the agency representative provided a list of 8 potential participants that met the criteria of the study. Using a criterion-based sample of participants assures that participants are qualified and have similar knowledge and experience on the research topic (Christensen et al., 2014; Sancar-Tokmak, Surmeli, Ozgelen, 2014). After

contacting each potential participant by phone, I emailed those that agreed to participate a copy of the consent form (see Appendix B) describing the ethical principles involved and the details of the study. Researchers must obtain informed consent from all research participants before conducting research (Boyd, 2015). I started data collection after receiving IRB approval. All eight participants agreed to participate and provided a signed copy of the consent form (see Appendix B) before data collection began.

I used an interview protocol (see Appendix D) as a guide to conduct semistructured interviews (see Appendix C) and reviewed company OSH documents such as OSH safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other documents as secondary supporting sources for data collection to extract information from participants on OII reduction strategies. Sin et al. (2014) noted that an interview protocol contains the instruction for the interview, the interview questions, and the section for taking notes of the interviewee's responses. Researchers use interview protocols to initiate an inquiry style conversation with participants (Castillo-Montoya, 2016). When conducting research, some researchers use an interview protocol as an interview guide, which plays a key role in implementing the research method (Padilla & Benitez, 2014).

Qualitative interviews are structured, unstructured, or semistructured in nature (Marshall & Rossman, 2016; Yin, 2015). I used semistructured interviews as recommended by Wilson (2016), which allows researchers more flexibility and contains a set of guiding questions to keep the interview on track. Company or archival data serves as a data collection method used in case study (Jetzek, 2016; Reinmoeller, & Ansari,

2016). Similar to Helms, Loock, and Bohnsack (2016), I used interviews and company data to support the findings in this study.

Providing trustworthy and accurate research is essential to a researcher. Researchers recommend the use of member checking to help increase honesty in qualitative studies (Standal & Rugseth, 2014). Yin (2015) noted that qualitative researchers use member checking to improve accuracy, credibility, and validity of the interview data collected. Member checking allows the participants or interviewees to review the information they provided during the interview (Morse, 2015). I used members checking to enhance reliability and validity of the data collection instruments by allowing participants to review the data collected.

Data Collection Technique

I used semistructured interview questions (see Appendix C) and company OSH documents such as safety audits, evaluations, incident logs, reports, and memorandums as data collection techniques for this qualitative single case study. When conducting a qualitative case study, researchers collect data in two or more ways (Hancock & Algozzine, 2016; Yin, 2017). Conducting interviews provide researchers with first hand (primary) data and are a significant source of providing information for research (Ajagbe, Sholanke, Isiavwe, & Oke, 2015). Ajagbe et al. (2015) noted the feelings and thoughts of participants through interviews offer more richness on a phenomenon than other methods such as observations and questionnaires. Interviews provide a researcher with solid and vital information on a research topic (Nielsen & Lyhne, 2016). Amorim and Silva (2014) stated that interviews provide basic data for undertaking and understanding the

relationship between social actors and their situations, with the objective of understanding the beliefs, attitudes, and motivation on the behaviors of individuals in a specific social context in detail. The evidence found in the qualitative interviews provided valuable information regarding strategies that supervisors in this organization used to reduce OIIs.

Researchers use company documents or archival data as a secondary source to support a primary data (Jetzek, 2016; Reinmoeller & Ansari, 2016). When conducting a qualitative case study, some researchers use document and archival analysis as a data collection measure. Merriam and Tisdell (2015) indicated that researchers use observations in conjunction with interviews and document analysis. I used company OSH documents such as safety audits, evaluations, incident logs, reports, and memorandums as secondary sources provided by each participant to support the interview data. All participants allowed me to review one of each documents from 2013-2016. The data collected from semistructured interviews corresponded with the company documents.

Before the interview process started, I reviewed the consent form (see Appendix B), and interview questions (see Appendix C) with the participants. In the consent form, I requested permission to audio record the interview (see Appendix C). Each participant signed and turned in the consent form (see Appendix C) before start of the interview. At the beginning of the interview, I prepared my Samsung audio recorder for recording and had a notepad available to take notes. Researchers have used audio recording and note taking as a means to collect research data (Andreasen, Nielsen, Schroder, & Stage, 2015; Bell, 2014). Bell (2014) stated that good note taking is time-consuming but can save

hours and days of work later. In addition to note taking, researchers audio record interviews to play them back to make notes and have them transcribed verbatim (Kennetly et al., 2015; Male, 2015). I took various notes of the information provided from the interviews in conjunction with recording interviews, in alignment with, Bell's statement that using an audio recorder and taking notes can provide a better understanding of the data collected. The interviews took place in a semiprivate comfortable setting in each participant's office, which they chose. Allowing participants to choose the interview setting was beneficial. Participants are willing to share more information when the interview process is convenient and comfortable for them. I enhanced my working relationship with the participants by carefully listening to their responses to the interview questions and occasionally took notes. I allowed each participant to review the notes taken during the interview and listen to their recorded interview responses to assure accuracy for member checking. At the end of the interview, I thanked each participant and gave them a $10 gift card for participating.

Conducting face to face interviews helps build a rapport between the researcher and participant (Nehls et al. 2014). Building a good rapport with participants promotes a secure and trusting relationship with the researcher (Oleary, 2014). Participants are more open, honest and willing to share valuable information during the interview when comfortable with the researcher (Jones, 2015; Nehls et al., 2014). All of the participants stated they enjoyed participating and shared a lot of information valuable to this study. As a disadvantage, conducting and transcribing interviews are time consuming (Male, 2015; Schwaighofer, 2014). Face-to-face, in-depth individual, or interviews collected for

a study particularly require more time to conduct (Birch, 2014; Povee & Roberts, 2014). Pietkiewiicz and Smith (2014) stated that a semistructured interview allows the interviewee to ask questions in a convenient order, which may differ from one interview to the other. Some participants needed more time to elaborate on specific interview questions and skipped a few questions which consumed more time.

Bailer (2014) noted that reliability and validity of data therewith generated is difficult to ascertain. Researchers use member checking to increase the reliability and validity in the different aspect of a study (Marshall & Rossman, 2016). When conducting a qualitative study, a researcher can conduct member checking during the data collection process and compare data interpretations (Morse, 2015). Simpson and Quigley (2016) cited that member checking is a form of validation used to seek the views of members on accuracy of data gathered, descriptions, or even interpretations. I asked each participant to review the audio recording and notes taken after interviews were complete. In addition, I provided an email of the transcripts for participants to check for errors, inconsistencies, or missing information. Although the participants had five days to respond, all responded within three days confirming accuracy of all interview data and interpretations.

Data Organization Techniques

Toga and Dinov (2015) emphasized the importance of protecting the rights of human subjects and storing and securing the research data during research. Researchers protect the data provided by participants and avoid unauthorized use of the research data (Denny, Silaigwana, Wassenaar, Bull, & Parker, 2015; Safari & Rashida, 2015). When conducting a study, researchers must organize and label the data collected to maintain

confidentiality of all participants' information (Galewski, 2013). I used a labeling system and stored electronic data on a password protected personal computer and a flash drive as a backup. No one had access to the research data, and I changed computer password every 90 days to safeguard the participant's information.

Storing all raw research data in a secure place for five years assures confidentiality, anonymity, and other ethical concerns (Bell, 2014; Takase et al., 2015). A researcher's duty is to provide safe sustainable storage of raw data (Visagie, 2014). I stored the raw data collected and flash drive in a secured file cabinet for five years and will disregard the data using a shredder after that time. In addition, I will erase all of the computerized data after five years of storage.

Data Analysis Technique

Data triangulation, methodological triangulation, theoretical triangulation, investigator triangulation and analysis triangulation are five of the triangulation methods used when conducting a qualitative case study (Hussein, 2015). The most suitable method used in this qualitative single case study was methodological triangulation. Methodological triangulation is a hybrid approach in which a researcher uses more than one method to collect data (Kim, 2014; Wilson, 2014). In the data analysis process, researchers use methodological triangulation to help increase the validity of the results (Wilson, 2014).

Many researchers rely on data generated from both qualitative interviews and secondary sources to increase the quality of their research (Braun, Clarke, & Terry, 2014; Shekhar Singh, 2014). Secondary data or sources refer to previously collected

information that another researcher can use to support their study (Ajagbe at al. 2015; Hyett & Kenny, 2014). Ajagbe et al.(2015) indicated that some secondary sources consist of books, journals, earlier research, personal records, and electronic documents that researchers collect on and offline. I used methodological triangulation to analyze the data collected from semistructured interviews (see Appendix C) and OSH company documents such as OSH safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other documents as secondary sources.

Qualitative researchers follow several steps to understand and make sense of the data collected during the data analysis phase (David, Londt, & Wilson, 2015). Data analysis involves three main phases of preparing, organizing, and reporting the results (Elo et al., 2014). A qualitative researchers primary goal in the data analysis phase is to explore, describe, organize, explain, and predict the results of the data collected (Miles, Huberman, & Saldana, 2014; Oguz, 2016). As recommended by David et al. (2015) I prepared and transcribed the data collected, identified themes related to the research questions, coded the data, elaborated on themes more closely, and removed duplicate and repetitive words found in the data to understand and interpret the data collected from semistructured interviews (see Appendix C) and company OSH safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other documents.

Researchers transcribe, analyze, and report the knowledge produced from qualitative interviews (Brinkman, 2014). The first step involved in qualitative data analysis is organizing the transcribed data (Oguz, 2016). Saragiotta, Yamato, and Lopes

(2014) noted that investigators often place transcribed data from semistructured qualitative interviews into thematic units of words and phrases that describe themes presented from the participants answers. Thematic analysis of the transcribed data allows an in-depth understanding of themes and concepts revealed from the interview questions (Gray & Orrick, 2014). I reviewed the transcripts of the semistructured interviews (see Appendix C) to organize the data into thematic units and categories.

The next step involved in analyzing qualitative data is identifying and developing specific themes linked to the research questions (David et al., 2015). Sarkar and Corrigan (2014) suggested that reading qualitative data several times helps a researcher organize and understanding the data collected. Re-reading, familiarizing, and comprehending the data found in semistructured interviews offers researchers a better understanding of the data and aids in identifying themes, categories, statements and phrases essential to the research (Pitout, 2014; Taylor, Park, & Pfeiffer, 2014). I thoroughly read the transcribed data to extract ideas and themes that emerged from the data that supports the research questions.

Researchers organize, sort, and group qualitative data together according to similarities and differences in experiences during data analysis (Boursnell, 2014). Some researchers use major themes such as charting, indexing, and mapping to organize data (Pappas, Mc Allister, & McLeod, 2016). Zembat and Yasa (2015) organized their data by assigning each respondent a code based on their responses. Ajagbe et al. (2015) recommended that researchers organize and place the transcribed data into different computer files and folders based on participant sites and keep duplicate copies of all

forms. I assigned a folder to participants using their first and last initial and an acronym for their department to store all the categorized data.

Coding is another essential stage involved in the data analysis process, in which a researcher develops overarching theoretical schemes to explain a phenomenon (Male, 2015; Ortega, Lyubansky, Nettles, & Espelage, 2016). Ajagbe et al. (2015) indicated that coding is the process of segmenting and labeling text to form descriptions and broad themes into the data. Researchers read the text, underlining passages that may be potentially important and relevant to the research questions when coding (Yuksel, Karantininis, & Hess, 2016). During the coding process, researchers find it appropriate to abstract and reduce unneeded data (Elo et al., 2014; Orguz, 2016). While taking notes during interviews, I underlined important and relevant passages that corresponded with theresearch questions as noted by Yuksel et al.(2016). Next, I reviewed the transcribed data to look for repetitive words, jargon, personal quotes, and terms. After extracting irrelevant information, I separated the data and place the pertinent data into different sections, specific categories, or codes.

Many researchers rely on computer assisted qualitative data software (CAQDAS) programs such as Atlas.ti, NVivo, HyperRESEARCH, and MAXqda to help code, mind-map and identify themes (Lewis, 2015; Ortiz, 2015). In addition to data coding, researchers use CAQDAS to help reduce unneeded data (Lewins, 2015). I used NVivo 11 to systemically code the data, identify specific patterns, develop overarching themes, and create keywords given in the interview. NVivo is a data analysis software program that covers some of the essential concepts involved in the data analysis process such as data

sourcing, coding, and linking (Dost, 2015; Lewis, 2015). Researchers refer to NVivo as a popular CAQDAS tool used to manage and code data collected from interviews and other sources (Dost, 2015). In this study, I found NVivo 11 useful and effective during data analysis and would recommend that novice researcher use it.

Researchers provide a report of the results in the final stage of data analysis (Groisman, Egalite, & Godard, 2015; Lindsay & DePape, 2015). In addition to reporting the results, the researcher offers possible and plausible explanations of the analyzed data (Elo et al., 2014; Miles et al., 2014). Knaifel and Mirsky (2015) stated that reporting the results as thick descriptions guarantees the text adheres to contexts and that readers can assess the researchers' interpretations. I used member checking to enhance reliability and validity of the transcribed semistructured interviews and research findings. Researchers rely on member checking to assure trustworthiness of their interpretations (Harvey, 2015; Wesley, 2014). Arriaza, Nedjat-Haiem, Lee, and Martin (2015) asserted that researchers can use the member checking process to clear up any misunderstandings and misinterpretations found during the interviews and data analysis. All participants confirmed that I understood and interpreted the data collected correctly after reading the notes taking while conducting interviews, listening to the audio recording, and reviewing the interview transcripts.

I used the concepts and ideas found in Wildes's (1982) RHT and Graens's (1976) LMXT as contextual frameworks for this study. Researchers use Wildes's RHT to explain reasons why people engage in risky and unsafe behavior (Wilde, 1982). While scholars rely on the principles found in Graens's LMXT to explore the role the dyadic

relationship between the employees and supervisor plays in the workplace. Davis (2014) noted that identifying key themes provides a theoretical foundation for future research. Qualitative researchers identify and articulate inter-relations between key themes revealed during coding that supports their research goal (Brett et al., 2014; Lomas, Cartwright, Edginton, & Ridge, 2015). Booth, Prevost, Wright, and Gulliford (2014) stated that focusing on key themes and practice points are valuable to researchers using current literature. I compared, contrasted, and connected the key themes found during coding with Wildes's RHT, Graens's LMXT, and current literature.

Reliability and Validity

Reliability and validity are two concepts that researchers refer to when assessing the quality of their research (Bryman, 2016). In qualitative research, researchers use strategies to test authenticity and integrity of the analysis to enhance reliability and validity of the findings (Noble & Smith, 2015). Rigor is a term used by scholars when evaluating qualitative research reliability and validity (Elo et al. 2014; Silverman, 2016). Qualitative rigor is a method that researchers employ to establish the integrity of the researcher findings (Elo et al. 2014). Ensuring the research data is authentic and the analysis trustworthy are two main strategies used to promote research quality and rigor (Lewis, 2015). Dependability, credibility, transferability and confirmability are four assessment tools used to evaluate honesty and the quality of qualitative research (Elo et al., 2014; Morse, 2015).

Reliability

Qualitative researchers enhance reliability of their research methods and findings by ensuring dependability. Dependability refers to stable and consistent in similar conditions research findings (Cope, 2014). Marshall and Rossman (2014) noted that dependability is a way to promote the replicability or repeatability of research. For example, researchers ensure dependability by providing research findings with stable results, consistent findings, and several researchers can repeat using the same research method or design (Marshall & Rossman, 2014; Yin, 2014). I used an interview protocol to assure dependability, in alignment with Henderson, Carjuzaa, and Ruff (2015) who found that researchers establish dependability by using a consistent interview protocol. An interview protocol is as a guide that researchers use to conduct semistructured interviews (Castillo-Montoya, 2016; Ortiz, 2015). Researchers have noted that member checking, or respondent validations are ways to ensure dependability of the research findings (Buvik & Rolfen, 2015; Harvey, 2015). Member checking or respondent validation allows participants to review the transcripts of the data to check for inconsistencies and errors (Bryman, 2016; Zamanzadeh, Valizadeh, Lotfi, & Salehi, 2015). I therefore asked the participants to review the transcribed interview data, created, and referred to an interview protocol to ensure dependability.

Validity

Qualitative researchers access credibility, transferability, and confirmability to ensure validity of their research (Morse, 2015). Validity refers to the accuracy of the data, research instruments, and research results (Noble & Smith, 2015). Establishing the

research data collected is true, accurate, and trustworthy ensures credibility (Flick, 2014; Marshall & Rossman, 2014). Researchers must identify and provide an accurate portrayal of those participating in research to establish credibility (Elo et al. 2014). I used methodological triangulation of semistructured interviews and company OSH documents such as safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other documents to address credibility, in alignment with, Wilson's (2014) recommendation to use within-method and between methods of triangulation. Morse (2015) stated that methodological triangulation increases the validity of the research.

Transferability is the degree to which the findings or methods of a study apply or fit into other contexts, settings or situations (Bonner, Marbley, Evans, & Robison, 2015; Harvey, 2016). For example, transferability measures how the results or techniques used in one study are applicable to other studies, individuals, and issues. Ensuring transferability requires a researcher to provide detailed thick descriptions of the research to help readers decide if the findings are transferable to other groups or settings (Graham, 2015; Ruiz, 2015; Sarma, 2015). I provided thorough descriptions of the research context for participant to read to improve transferability.

Researchers accomplish confirmability after achieving dependability, credibility, and transferability (Mulder, Saunders, & Tosey, 2015). Sutton and Austin (2015) defined confirmability as the extent to which the respondents shape the findings of a study excluding researchers bias, motivation, or interest. Confirmability depends on the transparency of representation, in addition to how others verify, support, or confirm the

results of the research, which reduces researcher bias (Brott, 2015; Steele & Beitman, 2015). Researchers can establish confirmability by using an audit trail (Morse, 2015). I used an audit trial, in alignment with, Cope (2014) statement that an audit trail is a collection of materials and notes used in the research process in which a researcher documents their decisions and assumptions. Individuals can offer a better understanding of a researcher's conclusions by utilizing an audit trial to document each aspect of the research process (Hadi & Closs, 2015). Maintaining and documenting a detail audit trail of a researcher's perspectives, experiences, and values contributes to trustworthiness of a qualitative report (Baillie, 2015; Hoover & Morrow, 2015). I kept track and recorded all my decisions and thoughts related to the research project to address confirmability. In addition, I used the CAQDAS NVivo program to analyze raw data for themes to enhance confirmability.

I took several steps to ensure data saturation, which is critical in producing valid qualitative research (Fusch & Ness, 2015). Researchers use multiple sources and perspectives to ensure their study results demonstrate validity through data saturation (Fusch & Ness, 2015). Data saturation occurs when the data collected from interviews becomes redundant or no new concepts emerge during the interview process (Jones & Alony, 2014; McHugh, Swain, & Jenkinson, 2014; Simpson, Post, & Tashman, 2014), and not necessarily tied to the sample size (Morse, 2015; Young et al., 2014). To ensure data saturation, I had additional participants available for interviews and would have increased my sample size until observing data saturation. This action aligns with Smith

and Noble's (2014) recommendation for recruiting participants until no new or other information emerges to reduce threats to validity in qualitative research.

Transition and Summary

In Section 2, I provided a reiteration of the purpose of the study and a more in-depth description of the research method and design. In addition, I elaborated on several aspects of the study such as my role as the researcher, selection of participants, population and sample, ethical research, data collection instruments, data collection techniques, data organization techniques, and data analysis techniques. Also, an explanation of how I ensured reliability, validity, and reached data saturation concluded this section.

In Section 3, I concluded the study with providing an overview of the purpose of the study, stated the research question, and presented the findings of data collection. In addition, in this section I included application of my research to professional practice, implications for social change, recommendations for action and further research, and reflections.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative single case study was to explore strategies that supervisors in some government agencies use to assess risks and facilitate relationships with employees to reduce OIIs. I conducted individual face-to-face semistructured interviews with eight supervisors who have worked in a government agency for over 5 years in the mid-Atlantic region of the United States. All participants had knowledge and experience in reducing OIIs.

To enhance validity and reliability, I also examined company OSH documents such as safety literature, employee safety surveys, safety memorandums, incident logs and reports, and other OII documents. Data analysis revealed that managing employee risk-taking behaviors reduced OIIs, communicating the importance of safety with employees decreased OIIs, developing high-quality relationships with employees mitigated and reduced OIIs, and educating and training employees about safety reduced OIIs in this agency.

Presentation of the Findings

The research question in this qualitative single case study was the following: What strategies do supervisors in some government agencies use to assess risks and facilitate relationships with employees to reduce OIIs? To answer the research question, I conducted semistructured interviews with eight supervisors who have worked in a government agency for over 5 years in the mid-Atlantic region of the United States. During data analysis, a consistent pattern of themes emerged that related to the research

question and conceptual framework. Four themes emerged from the triangulated and coded data:

- managing employee risk-taking behaviors reduced OIIs,
- communicating the importance of safety with employees decreased OIIs,
- developing high-quality relationships with employees mitigated and reduced OIIs, and
- continuous safety education and training reduced OIIs.

Theme 1: Managing Employee Risk-Taking Behaviors Reduced OIIs

Managing employee risk-taking behaviors reduced OIIs was the first theme that emerged during the analysis of participants' responses and a review of company safety documents such as audits, evaluations, incident logs, reports, and memorandums. This theme aligned with Haines et al.'s (2015) assertion that supervisors cannot manage or reduce risks without properly assessing them. Most participants (P1, P2, P3, P5, P6, and P7) said supervisors played an essential role in managing employee risk-taking behaviors. P2, P3, P5, and P6 noted that supervisors are responsible for controlling the risk-taking behaviors of employees that could lead to work-related accidents and injuries. Other participants indicated supervisors aimed to make the workplace as safe as possible for everyone (P2, P3, P4, and P6). Some participants noted that some employees were good at adhering to safety standards and some were not, and participants reported that it was important to know which ones did not comply with safety rules (P3, P5, and P7). P1 asserted that supervisors strive to ensure a safe and hazardous free workplace for employees. P3 said, "I understand the importance of reducing work-related risks in the

workplace; it benefits me, my employees, and the agency." All eight participants acknowledged the importance of supervisors properly managing the risk-taking behaviors of employees to reduce OIIs.

The findings that supervisors can reduce OIIs by managing employees' risk-taking behaviors aligned with the findings reported by Clarke (2016) and Reason (2016). Clarke reported that leaders are essential in ensuring workplace safety by managing occupational risks, while Reason revealed that leaders play an important role in managing the risks of organizational accidents. Reason further stated that human errors cause most accidents. The theme of managing risks aligned with Wilde's (1982) assertion that people are willing to engage in risky and unsafe behaviors despite knowing the possible negative outcomes. Managing employee risk-taking behaviors requires understanding why people engage in such behaviors (Williams & Geller, 2014).

Some participants articulated that managing employees' risk-taking behaviors by watching the types of risk employees take reduced OIIs by enabling supervisors to take a proactive approach to safety (P1, P2, P3, P6, and P7). A few participants indicated that managing the risk-taking behaviors of employees required observing employees while they worked and reviewing incident logs (P1, P2, P3, and P7). P2 and P3 stated that on several occasions they observed employees completing tasks in the wrong type of shoes. P3 further stated he was unaware of this unsafe act and did not notice it until he watched the employees work. Watching employees revealed what types of risks they were taking (P2, P3, P4, and P8). Some participants noted that most employees were uncomfortable with breaking safety rules, but still did (P5, P6, and P7). P4 shared that she observed

employees rushing and using improper lifting techniques on a regular basis. P5 indicated that some employees took shortcuts. Cutting corners leads to many incidents (P2). P2, P3, and P5 expressed that supervisors cannot manage risks if they do not know risks exist.

The finding that supervisors benefit from observing employees aligned with Peng, Teo, Woo, Lee, and Yushu's (2015) assertion that one way to identify whether a staff member is experiencing high levels of stress that may lead to accidents is by observing his or her behavior. Ketelaar, Nieuwenhhuijsen, Frings-Dresen, and Sluiter (2015) noted that observing and monitoring employees for potential mistakes helps with detecting employee errors. Lee and Green (2015) posited that risk managers might benefit from taking a more holistic view of risks by exploring theories such as risk compensation and risk homeostasis that explain why individuals engage in risky behaviors.

Six participants articulated that the main goals of a supervisor were to do things that discourage unsafe work behavior (P1, P2, P3, P6, P7, and P8). P1 and P3 expressed that some employees are complacent and display a number of unsafe behaviors at work. P3 further stated some employees forget they are at work and engage in unsafe behaviors like they do at home, which can lead to accidents. After identifying the unsafe behaviors, supervisors can work on ways to better manage and discourage risky and unsafe behaviors that result in OIIs (P1, P2, P3, and P7). P2 and P3 stated that most supervisors like to see employees change their unsafe behavior patterns after warning them about the repercussions of those behaviors. Some participants reported that employees usually change bad work behaviors when supervisors call attention to them (P1, P2, P4, and P5). P6 and P8 noted that employees work more safely when they feel that managers are

watching them. P6, P7, and P8 stated that some employees will continue to do things wrong even after getting caught but will eventually get tired of the consequences. In some cases, employees believe that management is responsible for ensuring that employees are safe and will therefore take more risks (P1, P2, P3, P5, and P7).

The findings from the current study aligned with those reported by Ghosh and Ghosh (2017) that managers must be vigilant and timely in discouraging pro-organizational behaviors that can lead to unsafe actions. Tappura and Nenonen (2014) found that discouraging negative behaviors is a key factor in successful safety interventions and improving safety performance. Wilde (1982) asserted that risk compensation behaviors are more prevalent when safety interventions are in place, which causes people to feel more comfortable with engaging in risky or unsafe behaviors (Feng, Wu, Ye, & Zhao, 2017; Pless, 2016). A review of company safety memorandums from meetings that occurred at the participants' agency from 2013 to 2016 revealed upper management held supervisors responsible for reducing employees' OII rates. At every safety meeting, supervisors had to elaborate on what they did to discourage employee risk-taking behaviors. According to company safety reports, supervisors used a form of progressive discipline, 60% used a proactive approach, and 40% used communication to reduce OIIs from 50% to 30% in 2015. The findings from the participants' interviews and company data showed that discouraging unsafe work behaviors decreased the number of OIIs in the organization.

Concerning the strategies that worked best for reducing OIIs, some participants shared that unannounced visits positively influenced safety practices (P1, P2, P3, and P5).

P6 indicated that recording employees on the job was effective at reducing accidents. P4 stated, "Governing the behavior patterns of employees in seasonal times reduced risks from being repeated." P2 shared that surprise or unannounced visits were one way to manage employees' risk-taking behaviors. P2 further stated:

> There are many ways to ensure worker safety; however, the first way is to know what you are dealing with. The only way to know what a person is truly doing is to see it for yourself. Knowing you are coming will determine their behavior and they will be doing their best to be safe. However, if you surprise them or they are unaware that you are coming, you are likely to see all kinds of safety rules broken. I have observed employees do things as simple as not wearing a seatbelt to not wearing personal protective equipment (PPE). Nothing surprises me when I do my pop-ups. What worked best for me was doing random visits. After a few of them, you definitely see a decrease in OIIs.

P3 shared, "I caught an employee breaking a safety rule and when he saw me, he immediately changed it." P7 talked about "sneaking up" on workers and startling them, and said the next time he saw them, they were wearing their PPE. P3 and P7 indicated that employees work safer in an environment with unannounced visits.

Based on the responses from the participants, supervisors at this organization managed employee risk-taking behaviors by conducting unannounced visits, which eventually reduced OIIs. This finding was similar to the finding of Van der Molen and Frings-Dresen (2014) that unannounced visits helped reduce employees' safety violations. Other researchers discovered that unannounced visits influence PPE

compliance and lead to fewer accidents and workplace injuries (Mulcahy et al., 2013). Conducting frequent safety inspections is one way to influence workplace safety and safety compliance (Subramaniama, Shamsudinb, & Alshuaibic, 2017). A review of company documents related to safety audits and incident logs from 2013 to 2016 showed the OII rates changed from 65% to 50% in 2014, 50% to 30% in 2015, and 30% to 25% in 2016 after implementation of random unannounced visits, as shown in Figure 1.

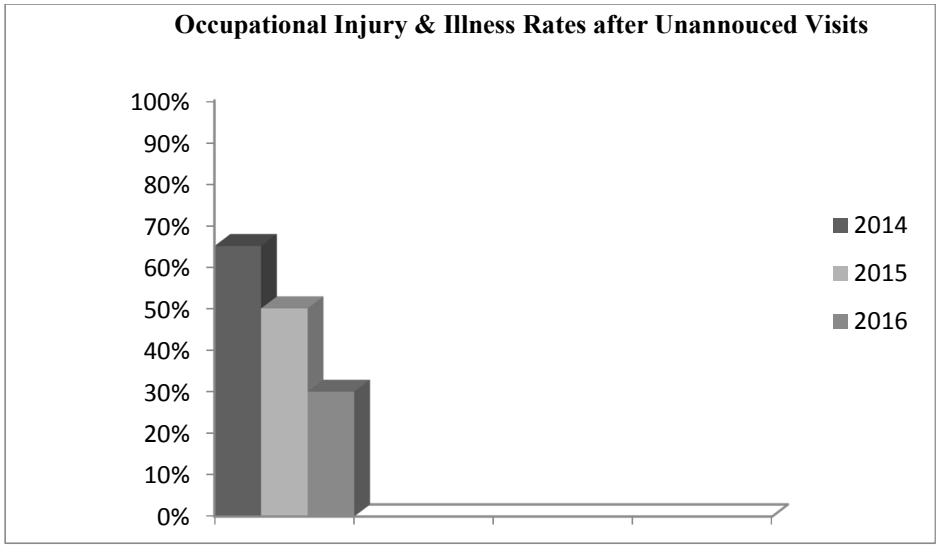

Figure 1. Occupational injury and illness-rates after unannounced visits.

P2, P3, and P7 shared that tracking and logging incidents helped reduce OIIs by revealing what types of risks need managing. P2 indicated that tracking or logging the occurrence of injuries, which he referred to as "frequency of severity reports," reduced work incidents, and looking at current incidents allowed managers to prevent future issues. Two other participants expressed that incident rates decreased after the implementation of a new surveillance system that helped log and track incidents (P6 and P8). P2 said, "The surveillance system consisted of a camera that recorded employees

while they worked and was very effective because employees knew they were on the radar." P3 stated risky and unsafe behaviors decreased because some employees feared looking foolish or wrong for breaking safety rules. Cantley et al. (2015) indicated surveillance databases contain information on work-related injuries for all employees. Surveillance systems encourage employees to work in a safe manner because they know that employers are watching and recording their actions (P2, P3, P5, and P7).

Based on the participants' responses, supervisors can identify negative safety behavior patterns by observing employees. A review of company documents, including incident logs and reports from 2014 to 2016, showed a significant decrease in accidents and risk-taking incidents of employees who were observed by supervisors. Company documents revealed slip and fall incidents decreased from 42% in 2014 to 36% in 2015 to 25% in 2016; back injuries decreased from 45% in 2014 to 40% in 2015 to 31% in 2016; MSDs slightly decreased from 52% in 2014 to 50% in 2015 to 43% in 2016, as shown in Figure 2.

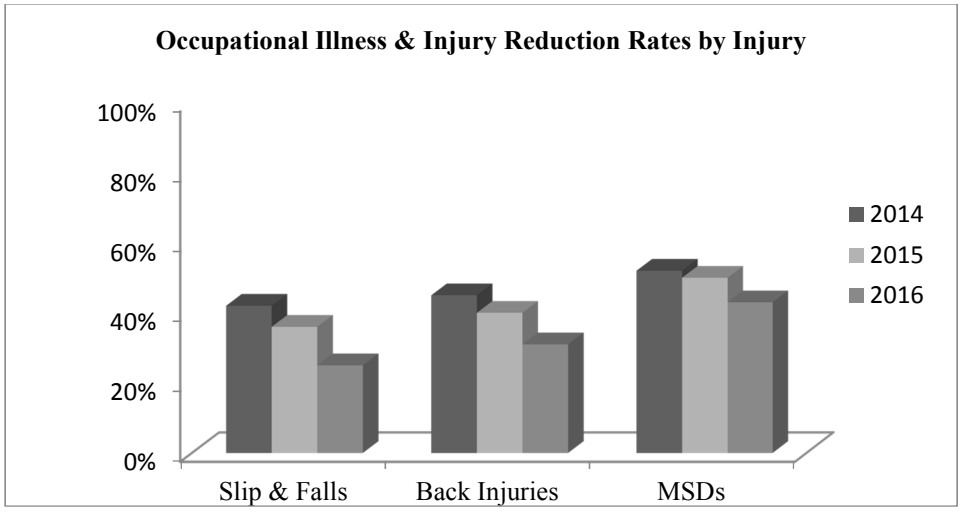

Figure 2. Occupational injury and illness reduction rates by injury.

A few of the participants reported that managing employees involved addressing behavior problems that contributed to unsafe actions (P1, P3, P5, and P7). Two participants noted that unsafe actions or behaviors of employees lead to most accidents, which makes managing risks difficult (P3 and P4). This finding was consistent with Geller's (2016) finding that an organization's safety performance will not improve without addressing employees' behaviors and attitudes. Other participants emphasized that using a behavior-based safety (BBS) approach helped managers better understand employee behaviors, which led to a reduction of OIIs in their agency (P2, P4, P5, and P6). Several participants stressed that managing risk-taking behaviors of certain employees is harder because of different attitudes (P1, P2, P3, P5, and P7). When trying to manage employee risk-taking behaviors, managers encounter different types of behaviors (P2, P4, and P6). Feng et al. (2017) found that psychological factors influenced some of the risk compensation behaviors displayed by construction workers. P4 said, "I try my best to deal with employee attitudes, and that helps me with managing risks." Most participants shared the same belief that BBS approaches played an essential role in reducing OIIs in their agency (P1, P2, P3, P5, P6, and P7).

The findings are similar to those of Li, Lu, Hsu, Gray, and Huang (2014) and Choudhry (2014). Li et al. found BBS an effective approach to use when managing employee safety issues. Choudhry asserted that BBS management positively influences employee safety practices. Subramaniama et al. (2017) stated that behavior modification management encourages others to behave in a desired way and discourages undesirable behaviors. A review of OSH company documents related to safety audits and incident

logs from 2014 to 2016 from this agency revealed OIIs mitigated and decreased from 50% in 2014, to 40% in 2015, and to 35% in 2016 by supervisors who used BBS methods to manage employees' risk-taking behaviors as shown in figure 3. Based on a thorough analysis of participant interviews and company OSH documents related to safety audits and incident log findings, supervisors in this agency reduced OIIs by using BBS management strategies.

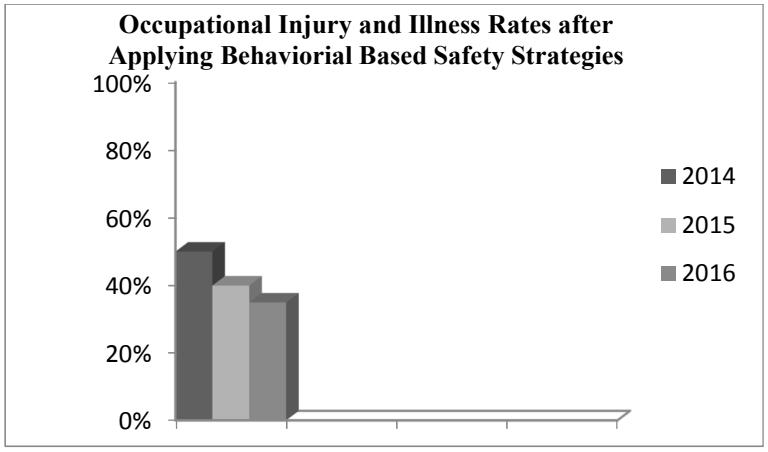

Figure 3. Occupational injury and illness rates after applying behavior-based safety strategies.

Several participants noted that supervisors need to take into consideration factors other than behavior problems when managing employee risk-taking behaviors (P1, P2, P3, P5, P7, and P8). Some participants mentioned the amount of work experience and age of an employee could hinder the proper management of employee risk-taking behaviors (P2, P3, P5, P6, and P7). This concept aligns with the assertions made by Feng et al. (2013) and Wilde (2013) that both older and younger employees willingly engage in risk-taking behaviors. A majority of the participants stressed that developing ways to manage the safety behaviors of all employees is most effective at reducing OIIs (P1, P2, P5, P6,

and P8). P2, P3, and P7 indicated that the behavior patterns of older or veteran employees are more difficult to oversee because those employees are more experienced and knowledgeable about how to break certain safety rules on the job. In a study conducted with novice drivers, Wilde found that lack of experience, overconfidence, and having higher willingness to take risks increased work accidents.

In contrast to Wilde (2013), P1 indicated new employees usually complied with safety rules and regulations compared to old employees. Others emphasized that managing the behavior patterns of new employees is easier because most employees learn negative behaviors over time (P1, P2, P3, and P8). P7 shared that he observed younger employees taking more risks. P7 further stated, "Generally, younger employees have a higher willingness to engage in risk-taking behaviors than more experienced level employees do, and you can predict that by the companies they are associated with, if that makes any sense."

A few participants said they managed new employees' behaviors by keeping them separate from other employees for the first few weeks (P2, P6, and P7). P2 indicated he learned to properly manage new employees' behavior patterns by watching how they worked without older employees around. P6 noted that separating new employees enabled him to properly manage and address unsafe behaviors without the interference of other employees. P8 said, "I give the older employee some responsibility and team them up with a new one. Older employees understand the importance of training new employees how to do the job safely, which limits work accidents." P3 mentioned using

safety evaluations and reports to monitor and review the workplace hazards of new and old employees that helped decrease future incidents.

An analysis of the responses provided by participants and documents from this agency, including employee safety evaluations and reports, showed that managing the risk-taking behaviors of new and old employees reduced OIIs in this government agency. In 2016, the data revealed employees hired in 2015 had fewer accidents compared to those hired in 2014. The results showed two out of the 10 new employees hired in 2015 had slip and fall accidents compared to four out of the 10 employees hired in 2014.

Four participants asserted that some employees were unaware of their actions and needed to know about their bad behaviors (P2, P3, P4, and P7). P4 observed employees who did not know they were doing anything wrong and said they were rushing, lifting the over the required amount, and making bad safety decisions. P7 stated, "Informing employees of their unsafe actions can promote safety awareness, which in turn reduces OIIs." In a similar fashion, all eight participants expressed that most accidents and injuries occurred because of human behavior. Employees cause a majority of work-related accidents from their unsafe behaviors (Swanepoel, 2014). P1, P2, P3, P5, P6, and P7 expressed that one big safety problems in their organization was with PPE; this was similar to Feng et al.'s (2013) case study that revealed that risk compensation behaviors such as laziness, workers' satisfaction, lack of wearing PPE, and taking shortcuts of construction workers. P6 and P7 emphasized the importance of not letting unsafe and risky behaviors become uncontrollable. P1 through P7 asserted that managing employees' risk-taking behaviors was essential in reducing OIIs. Based on participants'

responses and the review of company data from incident logs, safety audits, safety evaluations, and safety reports supervisors in this agency reduced OIIs by managing the risk-taking behaviors of employees.

Theme 1 relates to Wildes's (1982) RHT, which experts use to evaluate and investigate the risk-taking behaviors of individuals in various industries and settings (Deschinger, 2015; Feng & Wu, 2015). Scholars consider Wildes's RCT useful, supportive, and influential when conducting occupational safety research (Feng et al., 2017; Mwangi, 2017). Wilde (2013) proposed that everyone has a target level of risk influenced by how that person estimates the cost and benefits of risky or safe behavior. However, managing employees that engage in risk taking behaviors such as taking short cuts and not wearing PPE correctly helps minimize incidents (Feng et al., 2017; Haines et al., 2015). Although employees are willing to engage in risk-taking behaviors at times, supervisors can benefit from using effective strategies to discourage such behaviors.

Theme 2: Communicating the Importance of Safety with Employees Reduced OIIs

Communicating the importance of safety with employees reduced OIIs was the second theme that emerged through the analysis of participants' responses and a review of company documents from safety meetings and safety memorandums. Liao, Lei, Fang, and Lui (2014) stated that safety communication involves sharing and exchanging valuable information about how to obtain and maintain safety. Several participants articulated that communicating the importance of safety with employees (safety communication) helped reduce OIIs by providing a better understanding of what supervisors need to ensure safety in the workplace (P1, P3, P5, P6, and P7). P2 indicated

that effectively communicating the importance of adhering to safety policies and procedures had a positive impact on the OII rates in the organization. P3 expressed, "Safety communication is an effective strategy that supervisors use to influence safety practices, but only if presented in a positive manner." P1, P3, and P6 noted that "openly communicating" with employees, reduced tension in the workplace and employees responded better to criticism. P5 emphasized, "Sometimes you get good results at work by just looking at and talking to a person; it gives you a chance to get to know your employees, which helps you have a better understanding of how they are." P1 declared that although supervisors are responsible for making sure the workplace was safe; employees also hold some responsibility and supervisors need to communicate that. P5 stated, "It's about communication, knowing your employees and their safety habits."

The findings that safety communication plays an essential role in promoting workplace safety aligned with the finding reported by Olson, Varga, Cannon, Jones, and Gilbert-Jones (2016) that quality and frequency of safety communication in the workplace can help develop a safety climate. In another study, Hardison et al. (2014) found that safety communication between employees and supervisors was vitally important and possessed the potential to have positive effects on safety performance. Fernández-Muñiz, Montes-Peón, and Vázquez-Ordás (2012) asserted that regular communication about safety issues among managers, supervisors, and employees is an effective practice for improving workplace safety.

With regard to strategies used to reduce OIIs in this organization, several participants acknowledged that communicating the importance of being safe helped

change employees' behaviors when supervisors convey safety messages correctly (P1, P2, P3, P6, and P7). P3 stated, "I tried to get them to look at the big picture of what can happen because of their unsafe behaviors at work." P3 and P5 both shared that "the big picture" included explaining "why" being safe were important. P5 emphasized that making it home the same way they made it to work was one main goal of employees. Similarly, P1, P3, and P5 indicated that talking about the positive outcomes of being safe such as going home without an injury or illness or reminding them about some of the different and long-term effects of unsafe behavior helps employees behave better." P6 made the following statement:

> One time an employee came to work sick and the rest of us got sick. She felt bad because one of our coworkers had a young child at home that also got sick. We talked to her about coming to work sick and how it affected us all. This discouraged her from coming to work sick again. We encouraged her to use her sick leave. Others took heed and when they were sick, stayed home. That next year was a lot better for us because we did not have a lot of sick people around spreading diseases, all from communicating the importance of not coming to work sick.

P2, P3, and P5 indicated safety communication allowed for open dialogue on safety and health issues at work from all employees, which reduced OIIs. P7 mentioned the "feedback mechanisms" used by employees and employers to encourage safety dialogue. Some participants explained that supervisors do not limit employees from engaging in safety communication and said a good supervisor would accept feedback and

suggestions from employees (P2, P4, and P8). P2 declared that allowing employees to provide their input on safety helped develop a safety-committed organization. Two participants mentioned that anyone could share safety knowledge in their organization and they wanted everyone to get involved (P2 and P6).

Along with participants' interviews, I reviewed company safety memorandums from the years 2013 to 2016 from safety meetings. The documents supported the statements made by the participants in the interviews. In one meeting, an upper level manager stated, "Immediate supervisors must work with their staff members to promote a healthy and safe work environment, which requires communicating the importance of safety with employees." In addition, the manager stressed the importance of all employees sharing knowledge with each other on how to ensure a safer workplace.

This finding is similar to Osman et al.'s (2015) and Frazier et al.'s (2013) findings that safety communication enables employees to gain the necessary safety knowledge and helps them work safer. Strong communication between management and employees helps develop a safety climate (Frazier et al., 2013). Based on the data analysis of company OSH documents and participant interviews, the findings indicated that in this organization, supervisors reduced OIIs through safety communication and allowing employees to offer their input about effective workplace safety practices.

Some participants articulated that safety communication, if done correctly, was a good strategy to use to reduce OIIs (P2, P4, P6, and P7). P2 indicated employees responded better to thoroughly explained safety processes. P3 and P4 mentioned that "one-on-one coaching" was good for people who did not learn well in groups. P3 and P5

explained that because people learn "differently," sometimes they needed to meet a person at his or her level. P1 stated:

> Supervisors are responsible for making sure all members are in compliance with the standard operating procedures of the department. One of those responsibilities is to make sure you do what the standard procedure in the department as it relates to ensuring that everything is working right, that each member has a proper understanding of how the equipment works, and how to identify potential problems with the equipment. Things like that supervisors should communicate to employees regularly and make sure that employees understand.

Other participants expressed that supervisors should share safety communication in a positive way and not miscommunicate safety issues (P2, P4, P6, and P8). P6 and P8 declared that negative forms of safety communication could yield negative results. P6 said, "I used to yell and ridicule employees that made mistakes. I learned that that approach does not change unsafe behavior." P7 stated:

> I felt bad about not knowing how to work some of the new machines and tried to figure out how to work it on my own. Not knowing how to properly work the equipment was dangerous, and I am happy that no accidents occurred because of my actions. The equipment trainers were talking so fast that I did not fully understand how the machine worked.

P8 asserted, "I treat people the way I want to be treated and after talking to them respectfully, their safety behaviors changed." Three participants indicated most accidents and injuries result from human error, which increase from lack of safety communication

(P1, P4, and P8). A few other participants emphasized that communicating the importance of safety with employees could save another employees life and supervisors should not take that lightly (P1, P3, and P4). P3 said, "You get better results from communicating safety right the first time rather than punishing those that you have not properly communicated with and people do not always hear you, so communicate more if needed." P2 emphasized that his goal was to share as much knowledge as possible, as nice as possible, so not everyone in the workplace will make careless mistakes that led to incidents.

This finding is consistent with those of Subramaniama et al. (2017) and Seo, Lee, Kim, and Lee (2015). Subramaniama et al. found that alerting employees of dangerous work practices and informing them of hazards minimized occupational injuries and accidents. Seo et al. reported that safety communication significantly influenced worker safety practices. A review of OSH company safety meetings collected from 2013 to 2016 showed that 50% of the 40 employees who attended safety meetings listened and understood their supervisor's safety messages, resulting in fewer or no accidents within a 3-year period in this agency. As indicated in Figure 4, the number of OIIs significantly decreased from 2013 to 2016; OII rates changed from 72% in 2014 to 50% in 2015, and to 39% 2016.

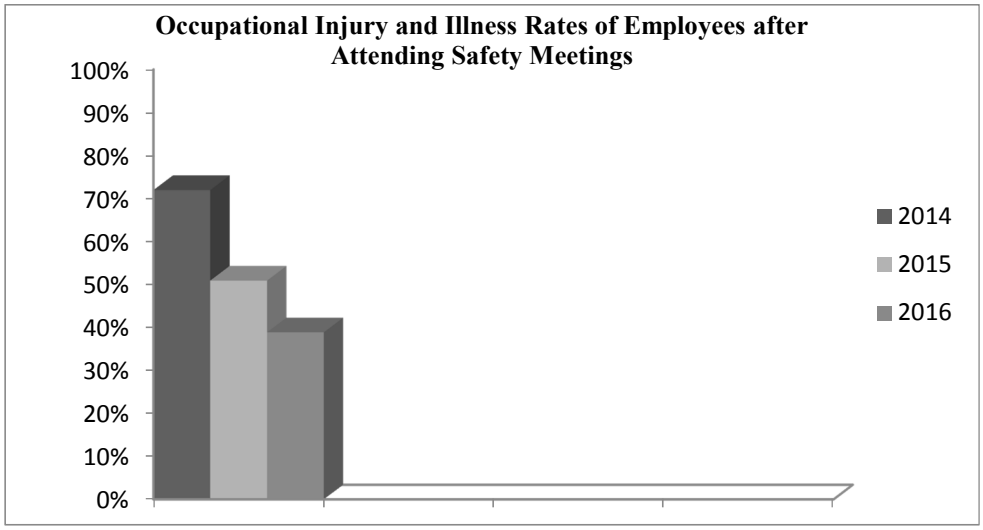

Figure 4. Occupational injury and illness rates of employees after attending safety meetings.

Employees had the opportunity to offer feedback and suggestions on things that could make the workplace even safer. P5 and P6 said supervisors developed safety committees that included more than just management in 2012 to encourage safety participation from everyone. The records showed that over the last 3 years, there was a decrease in OIIs after employees started attending safety meetings. The participants' responses and a review of company documents from safety memorandums and safety meetings notes supported the finding that communicating the importance of safety in a positive and understandable way reduced OIIs in this organization because employees responded better to the message.

Theme 2 relates to Graens's (1976) LMXT, which has extended into the safety domain and shows the quality of the LMX relationship plays a positive and significant role in encouraging safety communication and safety commitment (Day & Miscenko, 2016; Rashid et al., 2014). Newnam, Goode, Griffin, and Foran (2016) found that value-

based safety communication was critical in the development of quality LMX relationships. Because LMX relationships involve levels of trust, mutual respect, and commitment between employers and their subordinates, employees are more receptive to safety communication, which, in turn, reduces OIIs (Aziz, Salleh, Ismail, & Mustafa, 2015; Day & Miscenko, 2016).

Theme 3: Developing High-Quality Leader Member Exchange (LMX) Relationships With Employees Reduced OIIs

Developing high-quality LMX relationships with employees reduced OIIs was the third theme that emerged from the analysis of participants' responses and a review of company documents such as employee surveys, employee score cards, and incident logs. High-quality LMX relationships are positive or good working relationships between employers and employees that influence valuable organizational outcomes (Martin et al., 2016). P1, P2, P3, P5, P6, P7, and P8 articulated that in high-quality LMX relationships, employees trust and have mutual respect, which enhances safety communication and decreases OIIs. Three participants deemed that high-quality relationships are important because the employees in them are willing to do whatever needed for the good of the organization (P4, P6, and P7). P5 indicated employees in positive working relationships are like friends and that friends care about each other's wellbeing. Similarly, all eight participants indicated high-quality LMX relationships had a positive effect on worker safety.

These findings are similar to those of Hanse, Harlin, Jarebrant, Ulin, and Winkel (2015) and Lee and Ok (2016). Hanse et al. asserted that high-quality LMX relationships

related to several employee-related outcomes, including high performance, increased organizational commitment, role clarity, recognition, satisfaction with supervision, job satisfaction, low turnover intention, and organizational citizenship behaviors. Lee and Ok found that high-quality LMX relationships not only improve an employee's relationship with his or her manager but enhances the employee's relationship with the organization. Clarke, Guediri, and Lee (2017) stated that high-quality LMX relationships play an essential role in promoting a safe work environment.

A majority of the participants expressed that supervisors must find ways to form amicable relationships with their employees to help discourage unsafe behaviors (P1, P2, P3, P5, P6, and P7). Some participants alluded to the fact that supervisors should be "considerate, empathetic, and respectful" to employees when it comes to building good relationships at work (P2, P3, P4, and P7). A few employees indicated a number of ways to accomplish high-quality LMX relationships with employees (P1, P2, P3, P5, and P7). Talking to employees about things other than work was one way to build positive working relationships that reduce OIIs (P6). Showing concern for their well-being by asking how they are feeling was another way to build quality relationships with employees (P7 and P8). P8 mentioned that getting to know employees on a personal level could help them feel more comfortable and less willing to cause problems or make mistakes. Two participants talked about persuading employees to do the right things (P2 and P6). P2 indicated, "It would be ideal to have an injury-free agency. No matter what I do, convincing people to be safe at times is hard but if they like you, they usually comply." P6 expressed, "I used my relationship with my employees to get them to buy in

to safety strategies. I treat them in an unbiased and fair way along with treating them with respect, which helped." P4, P5, and P8 indicated showing they were genuinely concerned about the well-being of staff members fostered reciprocity and enhanced working relationships. P3 and P4 described a program they used to recognize and show their appreciation for teams that went above and beyond to decrease OIIs, which helped build good working relationships.

The finding that developing high-quality LMX relationships with employees reduced OIIs is similar to the findings reported by Martin et al. (2016) and Rashid et al. (2014); both groups of researchers found that forming unique strategic alliances and engaging with employees increased levels of respect and decreased OIIs, accidents, and fatalities in organizations. In another study, the researchers indicated high-quality relationships between leaders and members are associated with more positive safety communication, stronger commitment to safety, and fewer accidents (Probst et al., 2016). Uniquely, Martin et al. and Rashid et al. reported findings based on Graens's (1976) theory that developing high-quality relationships between employers and employees influences positive organizational outcomes.

Regarding the types of relationships supervisors had with their employees and the influences of those relationships on safety, most participants deemed they were good or at least amicable and had a positive impact on safety (P1, P2, P3, P5, P6, and P7). P2 made the following statement:

> For the most part, I have a good relationship with my employees. I think they understand the value of our office here in the city. We are looking out for their

> behalf. People will contact us and request us to come out to do anything from an ergonomic assessment to where their computer is set up. Maybe, "my arm's hurting because of my mouse," and so we will send somebody out and make sure that his or her set up is proper. They really appreciate that because I have had people say, "You know, I have had this back pain for a year, and by following these new guidelines and way things are set up, it's gone." By having a good rapport with my subordinates, they are not afraid to call me when hurt or injured because they want the risks reduced. Therefore, having a good rapport makes it easier to reduce OIIs and plays a positive role in reducing OIIs.

Participant 6 said his relationship played a positive role, as injury rates decreased over the years because employees were a second set of eyes for each other. Three participants acknowledged they were kind of like friends, so they did what they could to make sure everyone was good (P2, P5, and P6). P5 expressed that leading by example was effective at ensuring safety. P5 further stated, "If they like you, they will follow your lead." Hoffmeister et al. (2014) noted employees who observe their leaders behaving safely will likely do the same. P1 said, "I tend to have a relationship where I like to have my employees know what my expectation levels are in relation to the job." P3 and P4 stated employees who get along with people in the workplace tend to listen and do things right. P6 mentioned, "I saw the reduction of accidents by my team because we have learned to look out for each other in this profession." P7 stated, "My employees and I have a relationship built on mutual respect. They respect my authority and experience, knowing that I would not lead them wrong and do my best to keep them safe." Other

participants shared that employees who had respect for their supervisors would adhere to safety policies and encourage others to do so (P1, P2, P4, P5, and P8).

This finding aligns with those reported by Clarke (2016), who highlighted the importance of developing high-quality relationships between leaders and subordinates when managing the risk of workplace accidents. Clarke indicated high-quality LMX relationships are beneficial in organizations seeking to reduce occupational risks. Brunetto et al. (2016) found that LMX could have a larger influence on promoting employee safety practices than safety communication. Brunetto et al. further stated that an effective supervisor is one where "the walk matches the talk." In high-quality LMX relationships, employees usually follow their supervisor's lead (Hoffmeister et al., 2014).

A few of the participants stated that having quality relationships with employees reduced OIIs because supervisors showed they cared about their employees and had their best interests at heart (P1, P2, P3, and P5). Four participants articulated that the type of relationship employers and employees had with each other effectively reduced OIIs in their agency because employees and supervisors "worked together" and "looked out for each other" to ensure safety (P1, P3, P5, and P6). P3 stated:

> I try to have a good relationship with all of my employees, even those considered problem employees. Getting along with my employees was better and I wanted to at least have an amicable relationship with them. That had a beneficial effect overall in the environment and most of them even started working safer. After developing a good relationship with my employees, little stupid and senseless accidents decreased dramatically.

A review of company employee surveys revealed that over 50% of the 40 employees had a positive regard for their supervisors, especially on the teams with reduced numbers of OIIs. On a scale of 1 to 10, six of the eight supervisors rated at a median of 8. At the end of the survey, employees could offer comments about their supervisors. Some of the comments from employees were as follows: "I love my supervisor, he cares about me," and "I and my supervisor have a good working relationship, so I do my best to do my job and be safe." A third employee noted the supervisor was strict but good, which he appreciated. In contrast, one employee expressed that some supervisors "needed training on how to talk to people."

Based on a thorough review of employee surveys and participants' interviews, the finding that having good or high-quality LMX relationships reduced OIIs was similar to the one that Graen (1976) used to explain the LMX relationship. The responses from the participant interviews showed that supervisors and employees who had respectful or amicable relationships with each other in the workplace had lower OIIs rates (P1, P3, P4, P5, and P6). Having positive relationships with employees encourages employees to comply with safety rules and regulations designed to reduce OIIs (Erdogan & Bauer, 2014; Martin et al., 2016). The findings correlated with those of Clarke et al. (2017) and Hoffmeister et al. (2014). These researchers posited that leaders could motivate their employees into engaging in safety participation and safety citizenship behaviors (Clarke et al., 2017; Hoffmeister et al., 2014). Clarke et al. declared that high-quality LMX relationships are effective methods of promoting workplace safety.

Some participants shared that having good relationships with employees increased employee safety engagement and safety commitment (P1, P2, P4, P6, and P8). Other participants emphasized that safety rules were only effective if employees adhered to them, which supervisors can achieve from encouraging comradery in the workplace (P3, P4, P5, and P6). Four participants articulated that increasing employee engagement was important because it encouraged employees to work together for the good of the organization (P1, P2, P5, and P6). P2 and P5 implied that improving safety through employees was a great strategy to use to reduce OIIs because engaged workers can help their organizations achieve their safety objectives and goals. P6 said, "My employees and I work together to make sure our work area is safe. I feel that our working relationship helps them to work safer and be more productive." P7 mentioned, "We encourage each other to use SL when they are sick, so illnesses will not spread, and we offer the flu shot free of charge to all employees." P8 emphasized that all employees should work together to make the workplace free of accidents, injuries, and illnesses because those are factors that affect all employees. P2 stated, "I respect and value the input of my employees and encourage them to partake in various parts of the agency, especially surrounding safety. By doing that, I noticed a significant decrease in accidents over the years." P5 expressed:

> Reducing OIIs requires engagement and is why I have an open-door policy allowing my employees to come and talk to me about anything at any time. When it comes down to reducing accidents, I need my employees to help and support me. This has worked best at reducing accidents.

All participants stressed the importance of having a good relationship with employees that influences safety commitment or safety engagement. A review of company employee scorecards used to rate teams for safety performance showed a direct correlation with the findings from the interview data. The data from the company scorecards revealed that supervisors and employees on five teams in this organization worked together to ensure safety. In fact, OIIs reduced in this agency because managers found it harder to pick the winning team for the safety recognition reward in 2016. Leaders used scorecards to rate factors that increased workplace safety such as cleanliness, work area organization, safety practices, and the time management skills of supervisors and employees on five teams. Data from score cards indicated that three out of the five teams had significantly decreased rates of OIIs. In 2016, three of the five teams received 4 stars in cleanliness, 5 stars in work area organization, 4 stars in safety practices, and 5 stars in time management skills.

This aligned with Frazier et al.'s (2013) findings that employee engagement in safety leads to positive organizational outcomes, such as fewer work-related accidents. Rashid et al. (2014) found that LMX relationships enhance employee safety commitment. Other researchers proposed that leaders create the safety climate and organizational culture for their employees and developing positive LMX relationships leads to employee engagement (Hoover, 2010; Lyu, 2016).

In contrast, low-quality relationships between employees and employers are negative and can have a similar effect on organizational outcomes (Erdogan & Bauer, 2014). Three participants (P2, P3, and P7) stated employees with low-quality LMX

relationships with their supervisors were often combative and would sometimes intentionally break safety rules. P3 stated:

> I used to use a punitive approach when my employees' broke safety rules, which was bad for our working relationship. From that experience, I learned that people are people, and some are very vindictive. In some instances, employees' broke safety rules just to get me in trouble with upper management.

Some expressed that low-quality LMX relationships between supervisors and employees were not good to have at work because they caused tension that could influence accidents and mistakes (P2, P5, and P7). P8 said that if employees did not feel a connection with their supervisors, they cared less about doing things 100% correctly and safely. For the most part, all eight participants stressed that the nature or type of relationship between employees and employers helped promote safety and having a good rapport was effective at reducing OIIs. A review of company incident logs showed two employees that were constantly getting into accidents. P2 and P5 indicated that these two employees did not have good relationships with their supervisors, which had a negative effect on their safety behaviors.

Based on a thorough analysis of the data collected from the participant interviews and a review of company incident logs; low-quality relationships at work lead to negative work outcomes. This finding is similar to those reported by Erdogan and Bauer (2014) and Zhang, Huai, and Xie (2015) that strained low-quality LMX relationships between employees inhibit employees from actively voicing concerns or trying to improve their current situations. Zhou and Jiang (2015) found that low-quality relationships have a

negative effect on the safety climate and employees are less committed to safety. However, high-quality LMX relationships lead to more safety behaviors and stronger safety climates (Zhou & Jiang, 2015). Thus, the interview data and OSH company documents reviewed during data analysis supported that having good or high-quality relationships with employees decreased OIIs in this organization.

Theme 3 relates to Graens's (1976) LMXT, which he proposed that the quality of the "dyadic" relationship between employers and their subordinates increases or decreases levels of mutual respect, trust, and commitment among employees. Martin et al. (2016) and Rashid et al. (2014) both asserted that developing high-quality LMX relationships between employers and employees influences positive organizational outcomes. Supervisors can enhance safety communication and improve safety practices by having cordial relationships with their employees. Supervisors who develop good quality relationships with their employees can achieve organizational success because everyone is helping each other to succeed and do well (Graen, 1976). In high-quality relationships, the relationship between leaders and their subordinates involves reciprocity and both parties work and behave in a safer manner (Clarke et al., 2017; Mullen, Kelloway, & Teed, 2017).

Theme 4: Continuous Education and Training

Continuous education and training was the fourth theme that emerged from the analysis of participants' responses and a review of company OSH documents of incident logs, frequency of severity reports, safety training manuals, safety test sample booklets, and safety test scores. All eight participants acknowledged that continuous education and

training reduced OIIs. Several participants asserted that continuous education and training were important in keeping employees up to date on policies and procedures to ensure safety (P1, P2, P3, P5, P6, and P7). P1, P2, P5, and P7 expressed that continuous education and training helped reduce OIIs by showing employees the proper way to ensure safety. P1 stated that although making sure all equipment is working properly is the supervisor's responsibility, employees needed to have a proper understanding of how to work the equipment and identify problems. These findings correlated with Wu, Liu, Zhang, Skibniewski, and Wang's (2015) assertion that continuous improvement through safety education and training can help reduce accidents on construction sites. Supervisors need effective safety and training to change some of the negative occupational risk perceptions of employees and to encourage safety behaviors (Adjekum et al., 2015; Oppong, 2015).

Some participants expressed that old training methods worked better than some of the new methods (P2, P3, P5, P6, and P7). A few of the participants indicated they did not like or respond well to some of the new computerized training methods (P1, P3, P5, and P8). Nakayama and Jin (2015) deemed that adult learners acquire knowledge and skills better when they participate in training and put their hands on a piece of equipment. P2 said, "Hands-on training works best to me; it is better to show an employee how to be safe, then you can see for yourself if they get it." P3 and P4 explained that "one-on-one" safety training or coaching methods were successful because a supervisor could address a specific issue with an employee. P6 mentioned that employees who had proper hands-on education and training were less likely to be involved in accidents because they took

pride in showing off their skills. Some participants shared that some employees did not know how to be safe and needed daily face-to-face training sessions to get things right (P3, P4, P6, and P8). Other participants emphasized that employees wanted to be safe and needed help with things they cannot learn from a computer (P1, P2, P5, and P7). In the same fashion, all eight participants deemed that hands-on or direct education and training was essential and an effective strategy that reduced OIIs.

A review of company safety test sample booklets corresponded with the participants' interview statements. In the training room, there was a piece of equipment used to provide employees with hands on training. In the safety test sample booklet, employees had to identify each component on the equipment and the purpose of that component. P2 stated employees had to score at least 80% or better on the sample test before they could take the actual test. Some of the participants expressed that employees who were unable to pass the sample test cannot work with the equipment and were at risk for termination (P2, P3, P6, and P7). Several participants indicated that properly training all employees how to identify and work with the equipment to ensure safety is essential (P1, P2, P3, P4, P5, and P7).

The findings that education and training reduced OIIs is consistent with Taylor's (2015) findings that prevention through education and training is a more effective and alternative way to ensure safety. Dermirkesen and Arditti (2015) and Osman et al. (2015) asserted that managers can achieve good safety records and prevent work-related incidents through effective safety training. Various forms of safety education and training illuminate the importance of OHS and can lead to compliance (Nakayama & Jin, 2015;

Osman et al., 2015). Nakayama and Jin (2015) further stated that some employees benefit more from hands-on training because online training can be less effective. Employers who have good relationships with their employees provide the education and training methods that work best for their employees (Zohar, 2014).

With regard to methods that work best and opinions for reducing OIIs, four participants deemed that education and training methods worked best and noted that continuing to educate and train employees could further reduce OIIs (P1, P2, P4, and P6). Most of these participants and a few others emphasized that continuous education and training was essential because of the development of new technology and diseases (P2, P3, P4, P5, P6, and P7). P2 and P6 indicated all employees need education and training consistently to keep up with things in the world. P3 said:

> There is a different or new machine developed almost every day. It reminds me of a cellphone; every time you look around, there is a new or updated version with more stuff to learn. As soon as you learn how to use one machine, there is another to learn. At least when exposed to a new disease the protocol does not change much. However, I would still like to know about the disease, especially something like Ebola. Knowing helped decrease OIIs in my agency by preparing and teaching employees how to protect themselves.

P4 and P8 expressed that a lack of awareness promoted fear, and fear leads to mistakes that can lead to accidents. P7 stated providing employees with up-to-date education and training was important because it kept them informed and gave them an idea of what to expect so they could be more careful.

These findings correspond with Probst et al. (2016) assertion that employers are to ensure their safety training is current. Researchers Samano-Rios et al. (2014) and Teck et al. (2015) found that adaptable and revised training programs help employers ensure workplace safety. Torchiaro (2014) stated that leaders must prioritize and establish continuous education and prevention methods to avoid occupational problems. Supervisors in high-quality relationships understand that effective safety education and training promotes workplace safety, which is their goal (Clarke et al., 2017; Zohar, 2014).

The analysis of company safety training manuals also supported the findings from the participant interviews by showing the manuals were current and up-to-date. Staff members update training manuals regularly and add a supplemental page if changes occur. After training sessions, supervisors require employees to take a test to show their skills and knowledge of current safety procedures. A review of company OSH documents of safety test results given after each training session from 2013 through 2016 showed that 85% of the 40 employees understood the safety policies and procedures in this organization. Managers require employees to score at least 80% to pass and only 5% to 10% of the 40 employees in the training sessions needed retesting. Based on the data analysis, providing current and up-to-date training reduced OIIs.

Five participants articulated that providing education and training that targeted a specific type of unsafe practice reduced OIIs in their organization (P2, P3, P4, P6, and P7). P2 mentioned he had a few employees who complained about back pain, which led to the development of a training class to address improper lifting techniques. P3 and P4

shared that some accidents were seasonal, and some employees were having the same types of accidents every season. P4 said:

> I noticed in the winter we had a lot of slip and falls. Slip and falls are very costly and costs our organization thousands of dollars. To address this problem, we developed slip and fall classes to help teach employees how to avoid them.

Data analysis of company OSH incident logs revealed most of the accidents were specific and that targeting particular or specific problems reduced further risk. I reviewed the company frequency of severity reports that showed 70% of 10 employees that attended slip and fall training classes had no re-occurring incidents in 2015. Likewise, incident logs showed the same outcome for 60% of 15 employees who attended proper lifting classes in 2016. Based on the analyzed data, education and training played a role in reducing OIIs in this organization.

Several participants expressed that safety training benefitted employees who did not like sharing they were having issues on the job that could cause OIIs (P1, P2, P3, P5, and P6). A few of the participants shared that the biggest problems were with the improper use of PPE and noted many employees complained about the PPE being uncomfortable (P1, P5, P6, and P8). P5 noted the PPE was uncomfortable when not worn right and said employees needed to ask for help rather than run the risk of getting sick or injured. However, people usually did not ask for help because they feared looking incompetent, but PPE training could help (P5, P6, and P8). P6 shared that other than comfort, pride played a significant role in people making mistakes that caused accidents and injuries. In addition, the quality of the LMX relationship affects how employees

indicate they are having problems and if they need help with addressing issues on the job (Zhou & Jiang, 2015). P2 indicated that offering safety training that addresses issues such as comfort, lifting, and other factors regularly helped reduce OIIs without targeting or exposing specific employees. These findings were consistent with Cunningham and Geller's (2014) finding that safety training is critical when seeking to manage occupational risks. In another study, De Carli, Abiteboul, and Puro (2014), found that accidents reduced by providing employees with emergency preparedness, safety precautions, and the use of protective gear education and training. For the same reason, novice nurses in one study benefited from receiving lifting position training (Ketelaar et al., 2015).

Theme 4 relates to both the LMXT and RHT. Scholars use Graens's LMXT to explore the role of the dyadic relationship between supervisors and employees in organizational outcomes. The quality of the LMX relationship between supervisors and employees determine how employees respond to safety training (Martin et al., 2016; Zhou & Jiang, 2015). Employees who have high-quality relationships with their employers respond better to safety education and training (Moon et al., 2016; Rashid et al., 2014). Thus, high-quality LMX relationships in the workplace discourage risk-taking behaviors, and safety practices enhances from safety education and training (Groeneweg & Mors, 2016). In addition, Wilde (1982) proposed that people are willing to engage in risky and unsafe behaviors especially when safety interventions are in place. Even though employees are willing to engage in risk-taking behaviors at work for various reasons (e.g., uncomfortable PPE, laziness, psychological determinants, etc.); supervisors can

minimize risks by using education and systematic training techniques (Feng et al., 2017; Wijeratne et al., 2014).

Application to Practice

OSH experts indicated that over 100 million occupational hazards occur each year, resulting in missed time from work, productivity losses, reduced performance, lost time claims, and high medical expenses (BLS, 2014; Cantley et al., 2014). The repercussions associated with OIIs can have a detrimental impact on organizational progress, making it important that supervisors and managers develop ways to reduce such injuries. Although OIIs occur in both sectors (public and private), more occur in public agencies compared to private agencies. One reason that more accidents occur in the public sector is because public or government agencies use different OII reduction strategies, which leads to more workplace incidents. Assessing risks and facilitating relationships with employees play major roles in developing a safety culture. Supervisors can use several methods to develop a safety culture, such as managing employee risk-taking behaviors, communicating the importance of safety with employees, having good or high-quality relationships with employees, and providing continuous education and training to employees (OSHA, 2013; Rashid et al., 2014). In addition, OSH professionals have identified that providing support to employees, involving workers in safety projects, providing training, and identifying problems are a few of the techniques that can reduce OIIs (OSHA, 2013).

I conducted this qualitative single case study to explore strategies that supervisors in some government agencies use to assess risk and facilitate working relationships with

their employees to reduce OIIs. Participants' interviews and OSH company documents provided a plethora of information on effective risk assessment and working relationship strategies used to reduce OIIs. All participants indicated they had encountered some of their employees engaging in unsafe behaviors that could have led to accidents within the last 5 years. This government agency has a workplace that maintains a level of mutual respect and admiration for all employees and encourages employee safety engagement. Because of the nature of the workplace, supervisors at this government agency can effectively reduce OIIs by managing employee risk-taking behaviors, communicating the importance of safety with employees, developing high-quality relationships with employees, and offering continuous education and training.

The findings found in this study provide supervisors, managers, and business leaders in various agencies valuable information on some of the strategies needed to provide a safety and healthy work environment. Furthermore, the findings provided in this study can lead to the implementation of successful risk assessment strategies and encourage better working relationships that can help develop a safety climate or culture. Ultimately, the findings from this study provide supervisors and managers in various organizations with insight and shed light on new strategies found effective in reducing OIIs in one agency.

Implications for Social Change

This qualitative case study contributes to social change because all organizations can benefit from their leaders applying strategies to help reduce occupational accidents, injuries, and illnesses. OIIs are an issue that affects both employees and employers. The

main objective involved in this research was to explore strategies that supervisors in a government agency used to assess risks and facilitate relationships with their employees that reduced OIIs. Reducing OIIs is important because around the world, millions of workers suffer from work-related diseases and work injuries, which have a huge financial burden for business owners (Amponsah-Tawiah et al., 2016; Takala et al., 2014). Each year, approximately 60,000 individuals become permanently disabled or even die from OIIs, which affects an organization's bottom line (Polat, 2014; Swanepoel, 2014). Business leaders, managers, and supervisors must understand the importance of developing the most effective strategies to address this issue in their organizations.

Organizational leaders aim to promote social change. Thus, businesses in both the public and private sectors play an essential role in society by creating jobs, giving to charities, and helping to support communities. In public government agencies, most of the revenue generated keeps the economy going and provides citizens with some of the essential resources they need to survive. OIIs interrupt the operations of any agency by increasing workers' compensation and retraining costs, absenteeism, and faulty products while decreasing productivity, morale, and profits (Cantley et al., 2014; OSHA, n.d.). Supervisors can use the strategies that emerged from the data analysis to help develop and implement efficient OII reduction strategies to improve employee health and safety, organizational performance, and profitability. Thus, implementing effective strategies that reduce OIIs can benefit society as a whole by keeping individuals employed, supporting communities, preserving lives, and promoting economic growth worldwide.

Recommendations for Action

Leaders of various agencies, especially those servicing the public, can use the information in this study to implement effective strategies to reduce OIIs. The findings found in this study provided evidence that managing employees' risk-taking behaviors, communicating the importance of safety with employees, developing high-quality relationships with employees, and offering continuous education and training to employees are factors that reduce OIIs. Supervisors can use some of the information shared by the participants to reduce OIIs and improve employee safety and health, productivity, and performance. The knowledge and information shared by participants may close the gaps in the existing literature related to OII reduction techniques and provide supervisors with information about strategies that others have found to be effective in reducing OIIs. In addition, supervisors can reduce OIIs by promoting a safety culture in their organizations.

The findings found in this study provide supervisors with crucial information related to the importance of managing employees' risk-taking behaviors, communicating the importance of safety with employees, developing high-quality relationships with employees, and providing continuous education and training to employees when striving to reduce OIIs. By implementing these strategies, supervisors can acquire new knowledge on how to make the workplace safer and hazardous free as possible for employees. Based on the information gathered, I recommend that supervisors and managers analyze the findings in this study and apply some of the methods they have not previously considered to decrease OIIs in their agencies.

As a researcher, I dedicated myself to sharing the findings of my study with business leaders, organizations, and scholars. The findings in this study are beneficial to business leaders because they determine the safety needs of their organizations and have a duty to ensure that employees are healthy and safe at work. Moreover, managers can examine the information in this study and determine whether my findings are useful to their organizations. Business leaders can use the information in this study to create effective strategies that may contribute to reduced OII rates, the management of employee risk-taking behaviors, ways to communicate the importance of safety with employees, indicate how to develop high-quality relationships with employees, and show how essential providing continuous education and training as experienced by this government agency.

My goal is to publish the findings of the study in many ways, so business leaders and others have access to this valuable information. I will also disseminate a summary of the results to the community partner and the participants for further distribution. The study will be available in the ProQuest UMI dissertations database for students and other professionals to view. I will also seek various opportunities to share my findings with journals, forums, workshops, and OSH professionals.

Recommendations for Further Research

Studying strategies that supervisors in one government agency used to assess risk and facilitate working relationships with their employees to reduce OIIs is important to businesses practices. The purpose of this study was to explore what strategies were most successful at reducing work-related accidents, injuries, and illnesses. The results from

this study, while significant, developed from interviews with participants and company documents from a single government agency. For this reason, I recommend that future researchers investigate other factors that reduce OIIs in other agencies and sectors. By exploring other factors, agencies, or sectors, future researchers could provide a more in-depth understanding of effective OII reduction strategies for implementation. In addition, some participants may have shared different experiences and perspectives about reducing OIIs that may change over time and company documents change.

There are other factors, such as absenteeism and presentism, which play a role in OII rates. Researchers should consider exploring these factors in addition to using a quantitative approach to examine the relationships between different variables, such as the relationships between absenteeism, presentism, safety communication, employee engagement, and leadership styles and OIIs. Future exploration of these areas might provide supervisors with new factors to consider and offer new insight into ways to reduce OIIs. Additionally, future research could help address the gaps in the literature and help business professionals understand factors needed to reduce OIIs, which will contribute to social change.

Reflections

I chose to explore the strategies supervisors in one government agency used to assess risk and facilitate working relationship with their employees because of my education, personal, and professional experiences. At work, I have witnessed employees engaging in risk-taking behaviors and suffered directly from employees being out of work, many times from their own actions. I observed the responses of management to

these incidents, which amazed me and sparked my interest in exploring the methods government supervisors use to reduce OIIs. Because of my experiences, I wanted to know what strategies supervisors used to predict risk-taking behaviors and the role of the employee–supervisor relationship in reducing work-related accidents, injuries, and illnesses. As a qualitative researcher, my role was to collect data without bias. Therefore, I conducted this qualitative single case study in an unfamiliar organization to help eliminate biases and increase the reliability and validity of the findings.

During the data collection and analysis stages, I was eager to finish and share the results of my findings with supervisors and managers in the business world. My goal was to provide findings that supervisors could use to help reduce OIIs by paying more attention to employee behaviors and developing better relationships with their employees. Going through the doctoral process and working with participants taught me more about the essential role of supervisors in the lives of employees. Based on the responses given by the participants, I learned about their experiences and knowledge on supervising employees in a positive, effective, and respectful manner. Additionally, the participants understood the importance of research and the valuable impact of sharing their knowledge and experiences within this study.

Conclusion

The findings from this qualitative single case study revealed that supervisors in some agencies could reduce OIIs by managing employees' risk-taking behaviors, communicating the importance of safety with employees, developing high-quality relationship with employees, and offering continuous education and training. Based on

the responses given by the participants, these four components play an essential role in reducing work-related accidents, injuries, and illnesses in organizations. All of the above referenced components are of significant value and are cost effective strategies that can benefit both employees and employers. Although OSH professionals indicated that providing a healthy and safe workplace is management's responsibility, employees also have that duty. In addition, organizational leaders can use the strategies identified within this study to encourage employee safety engagement, which can also help in the development of a safety climate and culture. Since OIIs have such detrimental effects on society, business leaders in various industries and sectors should take interest in these OII reduction strategies, because reducing OIIs improves employee health and safety, productivity, and performance in the workplace. I recommend that business leaders, scholars, and all other stakeholders use the findings, suggestions, and recommendations in this study to help reduce OIIs and improve their professional business practices.

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Appendix A: Letter of Cooperation

To fulfill the requirements for earning a doctoral degree, I am completing a qualitative single case study. The focus of my research is to determine the need for effective risk assessment and working relationship strategies that reduce occupational injuries and illnesses. I have chosen to focus my research on supervisors in a government state agency. I am requesting your employees' participation in the study. I will assign a code in place of your name to assure that identity of the organization and the participants will remain confidential to my research committee. The name of the organization and participants will not appear in the published study.

Participation requires a 30-45-minute interview in person at a location of the participants' choosing or via telephone. The interviews will occur outside of work hours. The participants will confirm their willingness to participate via e-mail and I will send a consent form to review and sign prior to the interview. The participants' names will be coded for discussion of the findings in the published study. Again, the organization's name will not appear in the published study.

Printed Name of President _____

Date of Consent _____

President's Signature _____

Researcher's Signature _____

Appendix B: Letter of Consent

Dear [Insert Name],

To fulfill the requirements for earning a doctoral degree, I am completing a qualitative single case study. The focus of my research is to determine the need for effective risk assessment and workplace relationship strategies to reduce occupational injuries and illnesses. As an employee in a state government agency, I am requesting your participation in the study. I will assign a code in place of your name, to ensure that your identity remains confidential to my research committee and your name will not appear in the published study.

Your participation requires a 30-45-minute interview in person at a location of your choosing or via telephone. To ensure accuracy, the interview will be recorded and you will be asked to review notes taken during the interview. If you find errors or miscommunication, you will be asked to provide clarifications.

I am willing to answer any questions you have regarding participation in this study. If you are willing to participate, please e-mail xxxxxxx, or call xxxxxx When I receive confirmation of your willingness to participate, I will send you a consent form to review and sign prior to the interview.

Sincerely,

Sandra Montgomery

Appendix C: Interview Questions

Managerial Interview Questions

1. What types of risk-taking behaviors do some employees display that may lead to OIIs?
2. What strategies do you use to reduce OIIs in your organization?
3. What methods did you find worked best at reducing OIIs?
4. How did your employees respond to the techniques that you provided to reduce OIIs?
5. How do you predict or assess risk-taking behaviors of employees?
6. Describe the type of relationship that you have with your employees?
7. What role does your relationship with your employees play in reducing OIIs?
8. What are some positive outcomes as a result of reducing OIIs?
9. In your opinion, what can help reduce OIIs?

Appendix D: Interview Protocol

Interview Title: Effective Strategies used to reduce Occupational Injuries and Illnesses in Government agencies.

1. The interview session will begin with greetings and introductions.
2. The study participants will have previously read the informed consent form and provided their consent by e-mail or signature, agreeing to participate in the research. I will thank the participant agreeing to participate in the research study.
3. I will provide the participant information about the member checking process that will follow the interview. Following the interview, I will read the participant a summary my interpretations of the interview data to confirm accuracy. At that time, I will allow the participant to elaborate on my interpretations and indicate if any errors or miscommunications found in the interview data to assist with ensuring reliability and validity of the data.
4. I will turn on the audio recorder and noting the date, time, and location of the interview.
5. Each participant is given adequate time to fully answer each predetermined interview question and any additional follow-up questions in detail.
6. At the close of the interview, I will thank each research participant for their time and participation in the study and give them a $10 gift card.