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LEADERSHIP STYLE AND SUBORDINATE WORK STRESS

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LEADERSHIP STYLE AND SUBORDINATE WORK STRESS

ABSTRACT

The purpose of this quantitative study was to examine the work stress perceived by public safety dispatchers and determine whether the supervisor's leadership style played a role in the stress experienced. Research showed, and evidence suggested, that many stress-related symptoms at work occur because of unhealthy supervisor-subordinate relationships (Skakon, Nielsen, Borg, & Guzman, as cited in Belanger et al., 2016). Previous researchers found that a leader with a toxic, laissez-faire, or destructive leadership style increased the stress experienced by the employee (Syed, Rehman, & Kitchlew, 2018) while a supervisor with a transformational leadership style decreased the stress (Abbasi, 2018). Pishgooie, Atashzadeh-Shoorideh, Falcó-Pegueroles, and Lotfi (2019) found a significant correlation between job stress and laissez-faire leadership among nurses. An employee's health is affected when dealing with work stress (Toderi & Balducci, 2018; Zoeckler, 2017) and their health decreases or worsens (Gluschkoff, Elovainio, Kinnunen, Mullola, Hintsanen, Keltikangas-Järvinen, & Hintsa, 2016). Two research questions were asked: "How do public safety dispatchers report their experiences associated with job-related stress?" and "How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?" This research used the effort-reward imbalance model and organizational justice theory as the theoretical framework. Two instruments were used as part of the data gathering: the Effort-Reward Imbalance Questionnaire and the Multifactor Leadership Questionnaire. These two instruments together helped to answer the research questions through descriptive statistics. Social media were used to recruit participants

who were public safety dispatchers working in the United States. A literature review indicated this topic was worth investigating. This researcher hoped to bridge the gap in the literature, as this type of research in the dispatch center was not located. The study found public safety dispatchers experienced job stress as indicated by the ER ratio and rated their supervisors as more passive-avoidant than the norm. The researcher recommends that agencies take care with whom they promote to a supervisory role, as supervisors affect the lives of their subordinates and the agency itself.

Keywords: public safety dispatcher, communications center, job stress, work stress, supervisor-subordinate relationship

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A teacher affects eternity; he can never tell where his influence stops.

—Henry Adams

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CHAPTER 1

INTRODUCTION

Stress resulting from the workplace is a problem for many employees in today's

workforce, and no industry is immune. However, the focus of this research was to explore the

stress felt by public safety dispatchers, who are civilian law enforcement employees. Work stress

is common for those who work in law enforcement. Many falsely believe public safety

dispatchers do not experience the same amount of stress as their patrol counterparts. McCarty

and Skogan (2013) stated the emotional toll is nearly the same for a public safety dispatcher as it

is for a police officer, as the effects are virtually the same.

Finney, Stergiopoulos, Hensel, Bonato, and Dewa (2013) stated, "stress is the

psychological strain or distress resulting from exposure to unusual or demanding situations"

(p. 3). According to the World Health Organization, stress is one of the primary sources of

depression and burnout for employees (Belanger et al., 2016). Once an employee leaves work,

their stress does not stay at the door but instead accompanies them in their daily lives; they take

this home to their families and loved ones.

Stress is an issue that affects many people. Those who work together often have similar

burnout, which can be caused by stress (Rowney & Cahoon, as cited in Bass, 2008), leading one

to wonder what role organizational leadership plays. One study has shown that:

> transactional leadership directly leads to negative employee behavior and strengthens the
>
> influence of work stress on negative behavior . . . [and] transformational leadership
>
> mitigates work stress and reduces negative behavior, which demonstrates that

transformational leadership reduces work stress and negative behavior. (Yao, Fan, Guo, & Li, 2014, p. 118)

Workers who experience stress in the workplace are more likely to be absent and more irritable, and more difficult to get along with (Perry, as cited in Bass, 2008). The way stress manifests itself is through "frustration, defensiveness, faulty decision-making, and physiological symptoms like sweating, heavier breathing, and increased heartbeat" (Bass, 2008, p. 812). Toderi and Balducci (2018) stated an employee's leader affects the health of an employee.

The department's personnel are the most important and expensive resource for any police department (Lambert, Qureshi, Frank, Klahm, & Smith, 2018). It has been estimated workplace stress costs corporate America $200 billion per year. This loss is through "absenteeism, lost productivity, accidents, and medical insurance" (Laws, as cited in Sosik & Godshalk, 2000, pp. 365-366). This cost is perhaps something employers can relate to better. It can take months, if not a year, to train a new public safety dispatcher, which can become a great expense to the department when there is significant turnover.

The public safety dispatcher must make quick decisions based on known available information. Any distraction that affects the public safety dispatcher's ability to do his or her job can put others at risk. Likewise, any absenteeism may reduce the number of workers and can cause frustration for those working or those needing assistance.

The U.S. Bureau of Labor Statistics (2018) stated there were 98,600 current public safety dispatch positions in 2016, with the median yearly salary of $39,640 in 2017 (Police, Fire, and Ambulance Dispatchers). The public safety dispatcher may answer the telephone, work the radio, or both simultaneously. Larger agencies often have the public safety dispatcher start by answering telephones as a call taker and then advance to the radio, whereas, at a smaller agency,

the public safety dispatcher does not have that same division of duties. Large agencies have many working during the shift, while a small agency may have only one person working, so all the burden falls on this individual. The Federal Communications Commission has listed 8,559 public safety answering points (PSAP) in the United States and territories, and these are agencies where emergency 911 calls are answered (911 Master PSAP Registry). Not all agencies answer 911 calls.

This research study examined the work stress experienced by public safety dispatchers and their supervisor's leadership style. It utilized a descriptive research method using surveys to examine trends. Two survey instruments were used.

Statement of the Problem

Research indicated the leadership of an organization affects the stress felt by the subordinate; however, there was a lack of the same research when it came to public safety dispatch. Part of this oversight could be because public safety dispatch is often marginalized within the criminal justice field. They may not be seen as crucial as sworn law enforcement officers, who are those members of the field with a gun and badge. Because of the organizational culture and stress within the department, a public safety dispatcher and law enforcement officer within the same organization may experience similar work stress even though their duties are different (Regehr et al., 2013). According to Odugwe (2018), public service employees, of which law enforcement employees are considered, find stress a significant factor affecting their morale.

Work stress can adversely affect the health of the employee who experiences it. The body's nervous system is affected by stress (Zoeckler, 2017). Musculoskeletal pain may be increased due to job stressors, which may predict other health issues (Herr et al., 2015). Employees may have increased cardiovascular problems (Toderi & Balducci, 2018).

Additionally, it may impact their psychological well-being (Zhou, Jin, & Ma, 2015), increasing depression (Regehr et al., 2013) and suicidal ideations (Loerbroks et al., 2016). Together, these issues may increase the level of burnout for the employee (Finney et al., 2013; McCarty & Skogan, 2013). Around the world, nearly 350 million people suffer from major depression, and it is one of the leading causes of disability for employees. Work-related issues may cause this depression or make it worse (Nigatu & Wang, 2018). Additionally, there is a high correlation between job stress and mental health disorders, according to Nigatu and Wang (2018).

In addition to affecting the employee's health, workplace stress may decrease employee productivity and increase absenteeism (Baysak & Yener, 2015; Syaiffuddin, 2016). Workplace-related stress costs organizations between $200 billion and $300 billion per year (Roberto, 2006, as cited in Baysak & Yener, 2015; Tuckey, Searle, Boyd, Winefield, & Winefield, 2015). Employee turnover may be increased (Welty Peachey, Burton, & Wells, 2014) due to the workplace stress experienced by the employee.

Leadership may act as a buffer for those who experience workplace stress. The leadership style within the organization has been shown to affect the stress felt by the subordinate in the workplace (Abbasi, 2018; Bass, 2008; Harms, Crede, Tynan, Leon, & Jeung, 2016). For example, a toxic, laissez-faire, or destructive leadership style negatively affects the subordinate and increases the work stress felt (Syed et al., 2018). However, a transformative leadership style is more likely to decrease the subordinate work stress dynamic (Harms, 2016; Siyal & Peng, 2018). According to Yang (2014), employees who have an ethically-based leader, such as in transformative leadership, are happier. It is not too far of a stretch to state that leaders shape their subordinates' lives (Weiß & Süß, 2016). In Violanti et al. (2018a), the researchers indicated

police officers had more stress from factors within the organization than stress from the danger of dealing with the public.

Purpose of the Study

The purpose of this study was to examine the leadership style of those in a supervisory role (the independent variable), and the stress experienced by a public safety dispatcher (the dependent variable) as perceived by the dispatchers and the work stress experienced and reported. It is important to study this topic because of the effects stress has on the employee. Research has shown the employees' health decreases or worsens when dealing with workplace stress (Gluschkoff et al., 2016). Relationships with family and friends are adversely affected (Mikkelsen & Burke, as cited in Violanti et al., 2018a). A meta-analytic review of 49,635 employees from 25 countries found a relationship between leadership style and subordinate stress in which the employee was harmed by the leader's behavior (Harms et al., 2016).

Research Questions

Work stress results from or because of stress originating in the workplace (Uysal, 2019). This stress can have numerous health effects on the employee, including physical impact (Herr et al., 2015; Toderi & Balducci, 2018; Zoeckler, 2017) and psychological effects (Loerbroks et al., 2016; Regehr et al., 2013; Zhou et al., 2015). Previous research indicated the supervisor's leadership style(s) in the organization affects the stress felt by the subordinate in the workplace (Abbasi, 2018; Bass, 2008; Harms et al., 2016). This quantitative research study utilized a convenience sampling method to answer the following questions: How do public safety dispatchers report their experiences associated with job-related stress? How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?

Conceptual Framework

This dissertation utilized two theories for the theoretical framework: the effort-reward imbalance (ERI) model and the organizational justice theory. Together, these two theories help provide a rich understanding of employee workplace stress.

Siegrist developed the ERI model in 1986, and it is based on two theories: social psychological theory and human stress theory (Siegrist, 2017). Siegrist stated the employer grants three rewards. Those rewards are financial reward through wage and salary, status-related reward through career promotion or job security, and socio-emotional reward through esteem or recognition (Siegrist, 2017). The ERI model state, when the employee puts forth more effort than received in reward, there is an imbalance (Harward, 2013). There is expected occupational reciprocity between employer and employee (Keisu, Öhman, & Enberg, 2018). Disruption can cause problems for the employee, such as health issues or behavioral or psychological issues (van Vegchel, de Jonge, Bosma, & Schaufeli, 2005). Research showed an association between the ERI of the employee and the supervisor's leadership style (Keisu et al., 2018).

Greenberg (1987) developed organizational justice theory, which has its basis in equity theory (Adams, as cited in Pan, Chen, Hao, & Bi, 2018). An essential aspect of organizational justice is the employee's perception regarding fairness in the organization (Nakamura et al., 2016). An aggregate view of an employee's idea of organizational justice in the workplace can become the workplace climate (Spell & Arnold, 2016). Fairness is a moral and ethical issue in the workplace (Rasooli, Zandi, & DeLuca, 2019). The idea of fairness is how a person believes he or she is treated compared to others (Wilkinson, Tomlinson, & Gardiner, 2018). Spell and Arnold (2016) found an employee's mental health is affected by organizational justice. The three dimensions of organizational justice are distributive, interactional, and procedural justice (Herr et

al., 2016). Rasooli et al. (2019) stated, "distributive justice is concerned with what outcomes are distributed, procedural justice considers how outcomes are distributed, and interactional justice conceptualizes justice in terms of how individuals are treated" (pp. 591-592).

Assumptions, Limitations, and Scope

Assumptions are statements the researcher believed to be true and can draw conclusions from (Bloomberg & Volpe, 2016). For this study, this researcher made the following assumptions: A supervisor within an organization who displays a transformative leadership style has subordinates who report less job stress. Similarly, a supervisor with a laissez-faire leadership style will have subordinates report a higher level of job stress. There is "sufficient support to the assumption that poor leadership in the form of laissez-faire leadership may be a root cause of workplace stress" (Skogstad, Hetland, Glaso, & Einarsen, 2014, p. 334). The researcher based this assumption on her personal work experiences and those of her coworkers. The researcher assumed those participants in the study would be honest and not be affected by social desirability bias (Adams & Lawrence, 2015) since the study was anonymous and the researcher could not identify those who participated. The anonymous nature of this study allowed the participants to answer truthfully without the fear of retaliation from their agencies. This researcher believed public safety dispatchers often felt marginalized within the law enforcement community and inside their departments. This research gave participants a voice, and the study allowed the public safety dispatcher to rate their immediate supervisor's leadership style.

A limitation represents an attribute the researcher cannot control but may influence the study. Researcher bias is a possible limitation of this study. The researcher was interested in the study because it has experiential value she experienced firsthand in her workplace and saw or discussed with her coworkers. The use of valid instruments would help decrease this bias. The

Effort-Reward Imbalance Questionnaire and the Multifactor Leadership Questionnaire are often used by researchers, are valid, and are appropriate for this study. The researcher hoped to have a large sample size to reduce any bias that may be present. The researcher solicited the population through social media so those who participated could be from all over the United States. This method allowed for no one agency to be over-represented in the study.

The study took place during January 2021. The survey was open for 25 days from January 6, 2021, to January 30, 2021. This time allowed those who wished to participate an opportunity to do so. It was the belief of this researcher there would be a significant participant population. This research included 100 participants who were employed as public safety dispatchers working in the United States.

Rationale and Significance

Research showed and evidence suggested that many stress-related symptoms at work are because of unhealthy supervisor-subordinate relationships (Skakon, Nielsen, Borg, & Guzman, as cited in Belanger et al., 2016, p. 287). There was a current gap in the literature regarding the dispatch profession and the leadership style of supervisors that the researcher thought was important to address. This researcher hoped to bridge the gap, and the researcher found similar research for other occupations (Abbasi, 2018; Syaiffuddin, 2016; Toderi & Balducci, 2018; Yao et al., 2014; Zhou et al., 2015) to guide the review of the literature and the significance of this issue.

Definition of Terms

The following are definitions of terms used in this dissertation:

- *Communications center.* The building or room from which telecommunicators work. It can be a stand-alone structure or within another facility, such as a police department.

- *Public safety dispatcher.* The person who receives calls for assistance on 911 or telephone line and sends help to callers. This assistance can be for police, fire, or EMS, or any combination thereof. Sometimes referred to as dispatcher, communications specialist, communications officer, or telecommunicator.

- *Public service answering point.* This is where 911 calls are answered. They are often incorporated within a communications center. Sometimes notated as PSAP.

- *Stress.* "Unpleasant emotional experience associated with fear, anxiety, and emotional exhaustion" (Sonnentag, as cited in Belanger et al., 2016, p. 287).

- *Subordinate.* "An employee ranked below another employee in terms of seniority or office hierarchy" ("Subordinate," n.d.).

- *Supervisor.* "Person in the first-line management who monitors and regulates employees in their performance of assigned or delegated tasks. Supervisors are usually authorized to recommend and/or effect hiring, disciplining, promoting, punishing, rewarding, and other associated activities regarding the employee in their departments" ("Supervisor," n.d.).

- *Work stress.* Stress originating in the workplace (Uysal, 2019).

Conclusion

According to Woestman and Wasonga (2015), "research has shown that the psychological impacts of negative experiences in the workplace are stronger than those of positive experiences" (p. 149). Since much of the work public safety dispatchers deal with daily is negative regarding the work itself and the work culture, it would make sense many public safety dispatchers would experience work stress in their workplace and perhaps focus on it.

Work stress can affect all aspects of the public safety dispatcher's life, including both physical and psychological health, interpersonal relationships at work or home, and general well-

being. Organizational justice influences the well-being of the employee (Nakamura et al., 2016).

Examples of health issues resulting from work stress include cardiovascular problems (Toderi &

Balducci, 2018) and depression (Regehr et al., 2013). Additionally, the employee experiencing

job stress shows less commitment to the organization (Garg & Dhar, 2014), resulting in

increased turnover and sick leave usage (Welty Peachey et al., 2014) and decreased productivity

(Baysak & Yener, 2015; Syaiffuddin, 2016). There is the real possibility of the public safety

dispatcher's supervisor or department leadership exacerbating these problems.

The following chapters further explore this issue. Chapter 2 is a literature review of the

topic, and Chapter 3 discussed the methodology of the research. Chapter 4 provides the results of

the study. Finally, Chapter 5 has recommendations for action and further study.

CHAPTER 2

LITERATURE REVIEW

The purpose of the literature review was to examine the stress experienced by an employee, in particular, that of a public safety dispatcher. Previous research (Abbasi, 2018; Syaiffuddin, 2016; Toderi & Balducci, 2018; Yao et al., 2014; Zhou et al., 2015) showed the leadership style of the employee's supervisor was an additional cause of stress at work in addition to the stress of the job duties. The population studied were dispatchers within a public safety setting located in the United States. The dispatchers included in this study provide dispatch services for police, fire, ambulance, or any combination of the three types of organizations. The literature review placed special attention on the employee's health affected by stress, as seen through the effort-reward imbalance model.

Research suggested a connection between the stress felt by the subordinate in the workplace and the leadership style of the subordinates' supervisor (Dehue, Bolman, Völlink, Pouwelse, 2012; Lopez, Green, Carmody-Bubb, & Kodatt, 2011; Skakon, Nielsen, Borg, & Guzman, as cited in Jacobs, 2019). Approximately 60% to 75% of employees felt the most stressful part of their job was their immediate supervisor (Raskin & Fazzini, as cited in Woestman & Wasonga, 2015). Half of American workers are looking for other employment (Clifton & Harter, 2019).

The topics covered in this literature review included workplace stress and how leadership style affects subordinate work stress utilizing the effort-reward imbalance model and organizational justice theory as the theoretical framework. The primary purpose of this study was to examine the causes of stress for a public safety dispatcher. Additionally, it was essential to

cover any background information. The researcher made an effort to assure any gaps in the literature were addressed. The population chosen to be studied included those professionals who work as police, fire, or ambulance dispatchers or any combination thereof in a public safety setting. Many public safety dispatchers dispatch for more than one type of organization.

Unfortunately, there has not been much research into the field of public safety dispatch. No research was found that had been conducted on how the leadership style of supervisors affected those who worked in the communications center. Hence, there was a significant gap in the literature, which this researcher acknowledged. Previously, researchers conducted similar studies with other professions (Abbasi, 2018; Syaiffuddin, 2016; Toderi & Balducci, 2018; Yao et al., 2014; Zhou et al., 2015). Job stress in sworn law enforcement officers has been studied for decades (McKay-Davis, Robinson, Sebetan, & Stein, 2020).

Research showed that public safety dispatchers often felt a lack of support from the public and from those within their organization (Anshel, Umscheid, & Brinthaupt, 2013). Not much research has been conducted on this population, as public safety dispatchers are often forgotten about in their agency. Public safety dispatchers and their sworn law enforcement counterparts often felt similar amounts of work stress even though they perform different duties within the department (Regehr et al., 2013). This stress may be attributed to the work culture and stress felt within the organization and not the job duties involved in completing their employment's daily tasks.

Workplace stress is a significant issue, as it can increase burnout (Finney et al., 2013; McCarty & Skogan, 2013) and decrease job satisfaction and performance (Swider & Zimmerman, 2010). Additionally, an employee's life satisfaction can be adversely affected

(Dogan, Lacin, & Tutal, 2015). The health of an employee dealing with workplace stress has been shown by research to decrease (Gluschkoff et al., 2016).

The supervisor's leadership style has been shown to have a role in the stress felt by the subordinate (Abbasi, 2018; Bass, 2008; Harms et al., 2016). A toxic, laissez-faire, or destructive leadership style negatively affects the subordinate and increases the work stress felt (Syed et al., 2018). Meanwhile, a transformative leadership style is more likely to decrease the subordinate work stress dynamic (Harms et al., 2016; Siyal & Peng, 2018). There are additional leadership styles between these extremes that can affect the stress felt by the subordinate.

While there has been research regarding the leadership of an organization and the effects of the stress felt by the subordinate, there has been a lack of similar research when it comes to public safety dispatch. Part of this could be because public safety dispatch is often marginalized within the criminal justice field, as they are not seen as being as important as sworn law enforcement officers, who are those members of the field with a gun and badge. Interestingly, a public safety dispatcher and law enforcement officer within the same organization may experience similar work stress because of the organizational culture and stress within the department even though their duties are different (Regehr et al., 2013). According to Odugwe (2018), public service employees, of which law enforcement employees would be considered, find stress as a major factor affecting their morale.

Work stress can adversely affect the health of the employee experiencing it. The body's nervous system is affected by stress (Zoeckler, 2017). Musculoskeletal pain may be increased due to job stressors, which may predict other health issues (Herr et al., 2015). Employees may have increased cardiovascular issues (Toderi & Balducci, 2018). Additionally, it may impact their psychological well-being (Zhou et al., 2015), increasing depression (Regehr et al., 2013)

and suicidal ideations (Loerbroks et al., 2016). Taken together, these issues may increase the level of burnout for the employee (Finney et al., 2013; McCarty & Skogan, 2013). Worldwide, nearly 350 million people suffer from major depression, and it is one of the leading causes of disability for employees. Work-related issues may cause or exacerbate depression (Nigatu & Wang, 2018). Additionally, there is a high correlation between job stress and mental health disorders (Nigatu & Wang, 2018). According to Spell and Arnold (2016), organizational justice can play a role in employee depression and anxiety.

In addition to affecting the employee's health, workplace stress may decrease employee productivity and increase absenteeism (Baysak & Yener, 2015; Syaiffuddin, 2016). Workplace-related stress costs organizations between $200 billion and $300 billion per year (Roberto, as cited in Baysak & Yener, 2015; Tuckey et al., 2015). Employee turnover may be increased (Welty Peachey et al., 2014) due to the workplace stress experienced. Those in charge of police budgets now believe it is more cost-effective to deal with employee stress than recruiting and training new personnel (Galbraith, Boyda, McFeeters, & Galbraith, 2021).

Leadership may act as a buffer for those who experience workplace stress. The leadership style in the organization has been shown to have an effect on the stress felt by the subordinate in the workplace (Abbasi, 2018; Bass, 2008; Harms et al., 2016). For example, a toxic, laissez-faire, or destructive leadership style negatively affects the subordinate and increases the work stress felt (Syed et al., 2018). Meanwhile, a transformative leadership style is more likely to decrease the subordinate work stress dynamic (Harms et al., 2016; Siyal & Peng, 2018). According to Yang (2014), employees who have an ethically-based leader, such as in transformative leadership, are happier. It is not too far of a stretch to state that leaders shape the lives of their subordinates (Weib & Sub, 2016). In Violanti et al. (2018a), the researchers indicated police

officers have more stress from factors within the organization than stress from the danger of dealing with the public.

Conceptual Framework

Nardi (2006) stated it was important when doing research to pick a topic based on the researcher's curiosity and experience. The personal interest within this conceptual framework was with the researcher's experiences at her place of employment and in the field of public safety dispatch. Working in the field of public safety dispatch can be rewarding but stressful. The public safety dispatcher is responsible for the safety of all law enforcement officers on duty. Additionally, the public safety dispatcher answers incoming phone calls or 911 calls and then communicates via radio with the emergency services in the field. This communication is not only for calls dispatched but also for requests such as car stops and field interviews initiated by the law enforcement officer.

This researcher utilized two theoretical frameworks within this conceptual framework: the ERI model and organizational justice theory. The ERI model by Siegrist, developed in 1986, has its basis in two theories: social psychological theory and human stress theory (Siegrist, 2017). Since the ERI model is a well-known job stress theory (Allisey, Rodwell, & Noblet, 2016), it was appropriate for this study. Organizational justice theory derives from equity theory and helps explain perceived fairness in the workplace (Adams, as cited in Pan et al., 2018).

Effort-Reward Imbalance Model

The effort-reward imbalance model comprises three parts: effort, reward, and overcommitment (Kunz, 2019). According to the ERI, there are three types of rewards granted to the employee by the employer: financial reward through wage and salary, status-related reward through career promotion or job security, and socio-emotional reward through esteem or

recognition (Siegrist, 2017). When there is too little reward compared to the effort put forth, there is an imbalance (Harward, 2013). According to the ERI model, there is occupational reciprocity between employee and employer (Keisu et al., 2018). There is a "lack of reciprocity in terms of high cost spent and low gain received (which) in turn elicits negative emotions of anger and frustration and associated bodily stress reactions, with adverse long-term consequences for health and well-being" (Siegrist, 2017, p. 26). Overcommitted employees can increase ERI negatively (Jachens, Houdmont, & Thomas, 2019; Siegrist, 1996). Overcommitment is a personal characteristic that is considered a risk factor for ERI (Feldt et al., 2016).

When Siegrest first developed the ERI model in 1986, it was primarily concerned with cardiovascular health. The ERI model has since been applied to other behavioral and psychological outcomes (van Vegchel et al., 2005). ERI may have a justice component. As Siegrist (2017) stated, "violations of trust, of fair and just exchange in a core social role, the work role, are expected to damage people's self-esteem and evoke enhanced negative emotions of anger and disappointment" (p. 28), and may change the brain's circuitry (Schultz, as cited in Siegrist, 2017). According to Siegrist (2017), one way to improve organizational and personnel development is by "strengthening participation and transformational leadership among managers" (p. 32).

Organizational Justice Theory

Organizational justice was derived from equity theory (Adams, as cited in Pan et al., 2018). In equity theory, employees compare what they receive to what they put into their job (Robbins & Judge, 2015). Organizational justice theory's premise concerns how individuals perceive justice in organizations (Greenberg, 1987; Nakamura et al., 2016). The perception of

the employee is an important aspect of organizational justice. Employees often believe things that are favorable as fair and things that are unfavorable as unfair (Brockner, 2010). This theory examines how an employee who perceives himself or herself receiving fair treatment at work has a stronger sense of obligation to the organization, affecting the employee's job satisfaction and commitment (Pan et al., 2018). One may posit this can additionally influence the stress the employee feels. How the employee perceives fairness or unfairness at work is a "psychosocial occupational stressor" (Herr et al., 2016, p. 190). There are three dimensions to organizational justice: distributive, interactional, and procedural justice (Herr et al., 2016). Ambiguous practices within the workplace are a contention source, leading to decreased satisfaction for the employee (Boateng & Hsieh, 2019). Fairness of the outcomes the employee receives, such as pay, is distributive justice (Robbins & Judge, 2015). Interactional fairness refers to the interpersonal aspect of organizational justice (Brockner, 2010). Procedural justice is how the outcomes are administered and the decision-making process (Loerbroks et al., 2016). When employees are given a sense of control or empowerment, they believe things are fairer (Robbins & Judge, 2015).

According to the U.S. Bureau of Labor Statistics (2018), there were nearly 100,000 individuals employed as police, fire, or ambulance dispatchers in 2016 (Police, Fire, and Ambulance Dispatchers). The position's median salary is $40,660 or $19.55 per hour as of 2018 in the United States. On-the-job training is provided for those hired into the field with no higher education requirement other than a high school diploma. The job outlook showed that the profession is expected to grow by 8% from the years 2016-2026. These employees can work in a center alone in a small town or with several other people in a metropolitan area, depending on geographical location.

McCarty and Skogan (2013) stated civilians have played a more prominent role in law enforcement agencies since the 1950s. Cities began to grow after World War II, and this resulted in higher crime rates. Agencies began hiring civilians to free up sworn personnel, who are those employees who carry a firearm as part of their work-related duties. In 1967, the President's Commission on Law Enforcement and Administration of Justice reported many duties within a law enforcement agency could be better performed by civilian personnel who received specialized training than sworn personnel (McCarty & Skogan, 2013).

Work Stress

Work stress originates in the workplace (Uysal, 2019). According to Jacobs (2019), workplace stress is increasing. As employees spend approximately one-third of their adult lives from the ages of 18 to 65 in the workforce, this can become a significant issue for a person; however, people who work are generally healthier than those who do not (Van den Broeck et al., 2017). Employees in the workforce can spend time out of the house and form connections with fellow employees. According to the Centers for Disease Control and Prevention (1999), scientific evidence has shown that working conditions cause the most stress for employees. A World Health Organization publication stated, "The more control workers have over their work and the way they do it and the more they participate in decisions that concern their jobs, the less likely they are to experience work stress" (Leka, Griffiths, & Cox, 2004, p. 5). Organizational culture can cause work stress for the employee, including "poor communication, poor leadership, and lack of clarity about organizational objectives and structure" (Leka et al., 2004, p. 7).

Hans Selye, a Canadian physiologist, first used the word stress in 1936 in his book *Syndromes Caused by Role of a Variety of Injuries.* His assertion was that a person's response to stress remained the same regardless of the source of the stress (Yao et al., 2014). The effects of

work stress can be physical, psychological, or behavioral (Devonish, 2018). The employee is not just affected by job stress, an organization is as well. The cost to organizations in the United States is between $200 billion to $300 billion per year (Roberto, as cited in Baysak & Yener, 2015; Tuckey et al., 2015) through the use of health care and absences (Haverman et al., 2018) among other reasons. Garg and Dhar (2013) asserted an employee who feels workplace stress may show less commitment to the organization. According to Haverman et al. (2018), one respondent, a supervisor, stated he thinks a way in which an employee could feel less stress is if the supervisor is more communicative. This statement does seem to hold some truth because, according to Kotter (1996), communication is a crucial aspect of a successful organization. Globally, work stress is considered an epidemic (Jacobs, 2019). An employees' lack of decision-making may contribute to the employee's stress (Allisey et al., 2016). According to the literature, much of the stress an employee feels seems to overwhelmingly come by way of leadership within an organizational context (Abbasi, 2018; Belanger et al., 2016). The employee's perception is an important factor; when the employee perceives he or she is putting in more effort than receiving reward in return, there is an imbalance (Allisey et al., 2016), which can lead to stress.

The personality characteristic of overcommitment may increase ERI for the employee. This employee overestimates his or her ability while underestimating the situation. Because this employee is willing to put in the extra effort, he or she may have increased ERI because this employee is not receiving the reward in return (Feldt et al., 2016).

Stress Felt by Those in the Public Safety Dispatch Field

Those who work in the law enforcement field face stress during their shifts throughout their working career. In the not-too-distant past, it was thought public safety dispatchers did not

experience the same amount of stress that law enforcement officers do; however, this has shown to be incorrect. Recent studies had found even though public safety dispatchers are not on the scene of an incident, they still feel a similar amount of stress as their sworn counterparts (Regehr et al., 2013). Steinkopf, Reddin, Black, Van Hasselt, and Couwels (2018) found 24% of those public safety dispatchers involved in the study reported a significant level of job stress. Public safety dispatchers need to have the ability to stay calm in stressful situations. This necessity to suppress emotions may increase the stress felt by the public safety dispatcher (Mann, 2004). Past research primarily examined the situations the public safety dispatcher was involved in more, such as calls for service or lack of closure on calls (Regehr et al., 2013) and not at the leadership style of the superiors within the department. However, Steinkopf et al. (2018) found in their study the higher levels of stress are more likely to be credited to stressors within the department and not related to the work done by the public safety dispatcher. Additionally, their study found police officers and public safety dispatchers had similar job stress rates, which may be attributed to the department's organizational culture and not the job itself (Steinkopf et al., 2018).

Health Effects of Work Stress on an Employee

Early research on stress focused on psychological symptoms because many researchers were medical and health specialists (Robbins & Judge, 2015). Health care costs are 50% higher for an employee experiencing workplace stress than one who is not (Avey et al., as cited in Jacobs, 2019). Singh (2017) stated in the United States and Britain, more police officers are "killed by work-related stress than they are by criminals" (p. 226). Stress in the workplace can affect more than just the productivity of an employee. The ERI model brings forth how an employee's health is affected by stress in the workplace (Violanti et al., 2018b). Sick leave exceeding two months is associated with ERI for women but not for men (Lidwall, 2016). Zhou

et al. (2015) also stated the employees' health is often impacted by the stress that originated in the workplace. Interactional and procedural justice in organizational justice theory is related to employee health (Herr et al., 2016). Lack of sleep is an additional concern because of the stress often brought on (Jacobs, 2019). Some researchers see work stress as a "public health concern" (Garbarino et al., as cited in Violanti et al., 2018a, p. 443). This stress can result in mental health issues (Zhou et al., 2015) such as depression (Regehr et al., 2013), suicidal ideation (Loerbroks et al., 2016), and other psychological issues (Belanger et al., 2016). At least one study investigated the fact that job stress increases the use of psychotropic medications by employees (Milner, Scovelle, King, & Madsen, 2019). A study showed "officers who experienced ERI were nearly eight times more likely to suffer from depression compared with those who did not experience ERI" (Violanti et al., 2018a, p. 443).

An increase in physical disease, such as cardiovascular issues (Toderi & Balducci, 2018), is associated with job stress. Garbarino and Magnavita (2015) found police officers had an increase in metabolic syndrome because of job stress. This stress can decrease productivity and increase absenteeism (Baysak & Yener, 2015; Syaiffuddin, 2016) and burnout for the employee (Finney et al., 2013; McCarty & Skogan, 2013). Additionally, the public safety dispatcher may have poor coping skills due to the stress felt (Anshel et al., 2013). The public safety dispatch profession is more of a sedentary job. Thus, public safety dispatchers are often more overweight and less healthy than their sworn coworkers (Anshel et al., 2013). Not being confined to the communications center does have the advantage for the officer of getting increased movement. Biological change can occur in the body of an employee experiencing work stress through increased cortisol levels (Violanti et al., 2018b).

Workplace Relationships and Stress

Building relationships is vital in the workplace (Fullan, 2001). Workplace stress can cause interpersonal conflict between supervisor and subordinate (Hadadian & Zarei, 2016). Job stress may affect interpersonal relationships, and this stress may transfer to a significant other or innocent co-worker (Brough, Muller, & Westman, 2018). Work stress also impacts a person's family and friends (Mikkelsen & Burke, as cited in Violanti et al., 2018a). Support in the workplace provides a sense of resiliency for an employee experiencing work stress (Prati & Pietrantoni, as cited in Violanti et al., 2018b).

Stress and job satisfaction of employees. Herzberg (as cited in Stranks, 2005) stated, "Before you can improve satisfaction with work, you must remove dissatisfaction with work" (p. 100). Stress can be an enormous dissatisfaction (Stranks, 2005). According to Uysal (2019), job satisfaction is the attitude an employee has about the job. It can contribute to the employee staying at the place of employment or looking elsewhere for other employment opportunities. In the United States, only 25% of workers are highly engaged in their workplace (Van den Broeck et al., 2017). Many employees who experience work stress have decreased morale and motivation (Jacobs, 2019). The employee's performance often suffers because of work stress (Robbins & Judge, 2015; Soteriades, Psalta, Leka, & Spanoudis, 2019). According to Devonish (2018), there is a strong and negative relationship between ERI and job satisfaction. Additionally, distributive justice, which is an aspect of organizational justice, plays a role in job satisfaction (Pan et al., 2018). Procedural justice significantly impacts the employee's job satisfaction; it consists of the personnel issues within the workplace such as promotions, evaluations, and discipline (Boateng & Hsieh, 2019). Public service dispatchers often take complaints from the public, and the way the public service dispatcher perceives fairness in the

workplace may impact the way the complaints are handled (Maxham & Netemeyer, 2018).

Galbraith et al. (2021) suggested that more supportive management be a priority for police

departments.

     Job burnout. Burnout results from workplace stress and is related to the employee's job

satisfaction (Finney et al., 2013). According to Finney et al. (2013), between 19% and 30% of

employees in the general population are affected by workplace stress and burnout. Other

researchers report 17% of the population has reached a high level of burnout (Van den Broeck et

al., 2017). Some researchers have said burnout is "a serious health threat" (Melamed, Shirom,

Toker, Berliner, & Shapira, 2006; Steams & Moore, as cited in Violanti et al., 2018a, p. 442).

There is a link between ERI and burnout (Jachens et al., 2019). Burnout results from long-term

stress in the workplace (Finney et al., 2013) and is considered the opposite of workplace

engagement (Cole, Walter, Bodeian, & O'Boyle, 2012). Burnout cannot only decrease one's job

satisfaction and job performance (Swider & Zimmerman, 2010); it can also reduce one's life

satisfaction (Dogan et al., 2015), affecting the employee's personal life (Yang, 2014) or health

(Gluschkoff, Elovainio, Kinnunen, Mullola, Hintsanen, Keltikangas-Järvinen, & Hintsa, 2016).

This can become problematic, as it can decrease the employee's motivation and increase the

turnover within the department (McCarty & Skogan, 2013). Clifton and Harter (2019) stated that

half of the United States workers were looking for new employment. The employee's perception

is essential, as this perceived fairness and organizational support, or the lack thereof, can have a

lasting effect on the employee and the employee's well-being (Pérez-Rodríguez, Topa, &

Beléndez, 2019; Wattoo, Zhao, & Xi, 2018). Employee burnout lessens when employees

perceive higher amounts of fairness in the workplace by highlighting organizational justice ideas

(Bauwens, Audenaert, Huisman, & Decramer, 2019). Needing to work short-staffed because of

increased turnover can cause additional problems, such as increased response time, frustrating both the public and employees for those in law enforcement.

Peer support. According to research, peer support reduces work stress (Tracy & Tracy, as cited in Golding et al., 2017). Peer support mitigates the stress felt by employees due to their job duties or the organization's leadership. Also, employee well-being is increased (Agarwal, Brooks, & Greenberg, 2020). Peer support has another benefit: by helping others, the employee helps himself or herself (Northhouse, 2016). Peterson, Bergström, Samuelsson, Åsberg, and Nygren (2008) found peer support groups can assist the employee. Sedivy, Rienks, Leake, and He (2020) indicated peer support is an aspect of whether child welfare workers decide to stay with an agency or leave.

Organizational Climate and Culture

An organization's climate is the "collective perceptions of the psychological, cultural, social, political and physical environment which exists in an organization" (Dewe, O'Driscoll, & Cooper, 2010, pp. 136-137). Schneider, Gonzalez-Roma, Ostroff, and West (2017) defined it as "a body of interconnected experiences with organizational policies, practices and procedures" (p. 468). Schein (2017) described it as what those in a group have learned or the idea of shared learning. This shared learning becomes a sense of identity and how an organization survives or grows (Schein, 2017). Schein (2017) stated, "Leadership is the key to learning" (p. 14). The learning done in the organization is determined by the organization's leadership (Schein, 2017).

The organizational culture is the values and assumptions an organization holds that help explain why an organization does what it does and what the focus is (Schneider et al., 2017). Frequently, an organization adopts a management style as part of the culture (Cooper &

Cartwright, as cited in Cooper et al., 2001). An employee's well-being can be affected by a poor organizational climate (Cooper & Melhuish, as cited in Cooper et al., 2001).

Effect of Employee Stress on the Organization

Half of all U.S. workers are looking for new employment (Clifton & Harter, 2019). This potential turnover is a concern for any organization. It takes time and money to hire and train new employees. When a new public safety dispatcher is hired, it can be a year before the new employee can work without a trainer. Before hiring, the process can take months, as the person must go through the interview process and any background checks even to be considered for the position. Another effect on the organization is an increase in absenteeism (Allisey et al., 2016), causing shifts to run short or force the organization to pay overtime. Because of employee stress, 48% of employees respond by partaking in unethical or illegal behavior, while 58% consider it (Jacobs, 2019). There can be civil implications for the employer regarding employee stress. According to Stranks (2005), lawsuits are increasing, and these can become costly.

Leaderships' Effect on Subordinate Stress

According to the World Health Organization, how an organization is managed can cause stress for an employee (Leka et al., 2004). The most significant predictor for workplace stress for an employee is the organization's leadership (Dehue et al., 2012; Lopez et al., 2011; Skakon, Nielsen, Borg, & Guzman, as cited in Jacobs, 2019). Leka et al. (2004) stated, "Effective supervision and guidance is important and can help protect staff from stress" (p. 16). Stranks (2005) went further with the statement, "there may be a need for drastic change to an organization's style and management culture" (p. 82). Other researchers expressed this same sentiment, "an employee's relationship with his or her leader 'may be the single most powerful connection an employee can build in an organization'" (Hui et al., as cited in Karam et al., 2018,

p. 135). Interactional justice, a component of organizational justice theory, refers to the leader-subordinate relationship's social element (Loerbroks et al., 2016). Vermunt (as cited in Pérez-Rodríguez et al., 2019) reported that perceived unfair treatment from the supervisor is a more significant stressor for the employee than the workload. Numerous studies examined how the leadership style of the supervisor affected the stress the subordinate experienced. Leadership that the employee perceives as ineffective is thought to cause harm and stress to the employee (Lopez, Green, Carmody-Bubb, & Kodatt, 2011; Restubog, Scott, & Zaganczyk, as cited in Jacobs, 2019). The supervisor's leadership style stays relatively constant throughout his or her career (Abbasi, 2018). Although the leadership style affects the subordinate's stress, it also affects the subordinate in other ways. Abbasi (2018) found that the leadership style affects the stress felt by the subordinate, and it has an impact on the subordinate's health. Abbasi (2018) found the leader who displayed a laissez-faire leadership style negatively affected the subordinate's health, whereas a leader having a transformational leadership style had the opposite effect. Continuing education for supervisors on leadership tactics could lessen the stress felt within an organization (Woodard, 2017). Employees could feel less workplace stress if organizations promote employees who demonstrate a more transformative leadership style. Thus, there may be a decrease in turnover for the organization. One way to accomplish this is to test for leadership style and abilities during the promotion cycle to a new rank.

Power tactics employed by the leader, either harsh or soft, affect the subordinate. Harsh power tactics are those in which the supervisor uses discipline and control, whereas soft power tactics are those in which the supervisor utilizes more interpersonal skills (Belanger et al., 2016). Though some researchers found this may not pertain to all employees, Belanger et al. (2016) stated that generally speaking, soft power tactics have a more positive effect on the employee

than harsh power tactics. These softer power tactics can include having a more motivated employee and the increased well-being of the employee. Ethical leadership and trust in the supervisor also improve the employee's well-being (Chughtai, Byrne, & Flood, 2015). Effective communication from the supervisor is essential (Leka et al., 2004).

Harms et al. (2016) stated that many employees believe the worst part of their job is their supervisor. A meta-analytic review of 49,635 employees from 25 countries found a relationship between leadership style and subordinate stress in which the employee is either hurt or harmed by the leader's behavior. Though the leadership style does affect the stress felt by the subordinate, at least one study (Sherman et al., 2012) reported the leader does not face a significant level of stress in his or her respective position. According to this study, the leadership role itself has a lower level of stress associated with it. No further studies were found that report this same conclusion.

Toxic leadership in the workplace. Syed et al. (2018) suggested a laissez-faire leadership style most significantly impacts subordinate stress than the transformational or transactional leadership styles. In her dissertation, Brown (2019) showed that toxic leadership is found in many organizations, which can affect the morale of the employees, weakening job satisfaction. Additionally, the needs of the follower fail to be met (Northouse, 2016). Toxic leadership is "abusive supervision and destructive leadership" (Tepper, as cited in Webster, Brough, & Daly, 2016, p. 1).

Uysal (2019) referred to the idea of toxic leadership and how it affects an employee's job stress and job satisfaction. A toxic leader was more likely to be punitive to an employee and use intimidation techniques (Uysal, 2019). Hadadian and Zarei (2016) went even further and stated this leadership style can damage an employee. Bass (2008) noted a toxic leader might do things

that are unethical or illegal. Some examples of this type of leadership are intimidation, micromanagement, and arrogance (Webster et al., 2016). Additionally, a toxic leader may bully the employees and cause an increase in turnover within the organization (Matos, O'Neill, & Lei, 2018). This type of leader can have an effect on the rest of the organization (Dykes & Winn, 2019). Interestingly, one study (Matos et al., 2018) indicated a male employee might be more successful in this type of environment than a female employee.

Destructive leadership in the workplace. Destructive leadership is not well researched in the literature but is not uncommon in the workplace (Woestman & Wasonga, 2015). According to Woestman and Wasonga (2015), this type of leadership is executed knowing it will harm an employee. It is intentional and without regard to the needs of the employee or organization. As Woestman and Wasonga (2015) explained, a negative experience in the workplace is more long-lasting in the employee's mind than a positive experience. The negative experiences felt become problematic as the employee carries this negativity. Northouse (2016) referred to this leadership as "pseudotransformational" (p. 339), in which this type of leader is out for personal gain. Further, he stated this causes negativity in the workplace. Destructive leadership is often seen as "the 'dark' side of leadership" (Thoroughgood, Sawyer, Padilla, & Lunsford, 2018, p. 627). This type of leader may retaliate against an employee even though it is illegal to do so (Jacobs, 2019), violate the employees' rights, and leave the employees worse off than they were (Northouse, 2016).

Laissez-faire leadership in the workplace. A laissez-faire leadership style is avoidance (Skogstad et al., 2014). Leadership expert Bernard Bass (2008) stated this type of leader has no confidence in him or herself to supervise others, and he or she does not get involved when it

comes to any responsibility. Additionally, a laissez-faire leader is passive in interactions with subordinates (Abbasi, 2018).

Non-toxic leadership in the workplace. The meta-analytic review by Harms et al. (2016) found leaders who had a more transformative leadership style have employees who have lower levels of subordinate work stress. Siyal and Peng (2018) found a more transformative leadership style by supervisory staff might lessen turnover within an organization. Researchers Yao et al. (2014) indicated transformational leadership has a negative relationship with subordinate work stress while transactional leadership has a positive relationship. According to Yang (2014), the supervisor's ethical leadership style may increase employee loyalty, while Zhou et al. (2015) found it increased an employee's well-being and job satisfaction.

As a toxic leader does "more harm than good to followers" (Bass, 2008, p. 235), a non-toxic leader does the opposite. The non-toxic leader is more ethically aware (Caldwell, Dixon, Floyd, Chaudoin, Post, & Cheokas, 2012), proactive (Abbasi, 2018), and mindful of how his or her behavior affects the subordinate. The non-toxic leadership style may lessen turnover within an organization (Welty Peachey et al., 2014). Additionally, a leader displaying non-toxic leadership qualities allows for self-actualization of the employee (Bass, 2008), which according to Maslow's hierarchy of needs, is the highest level one wishes to achieve (Hersey, Blanchard, & Johnson, 2001). This is when the employee reaches his or her full potential.

Transformative leadership in the workplace. Caldwell et al. (2012) stated a transformative leader considers the employee's needs and the organization in a morally sound manner to bring out the best in the employee. Often, this type of leader has a vision and tries new approaches to reach a person (Nihart, 2016) and in an empowering way (Zook, 2017). Van Oord (2013) stated the transformative leader is interested in social justice. Additionally, fairness to

individuals is essential (Shields, Dollarhide, & Young, 2017). The transformative leader desires to help those marginalized in society (Zook, 2017), which ties in with the social justice aspect. This social justice aspect helps those in the workplace who are often not seen as important as those higher within the company structure as the transformative leader tries to lessen the unequal distribution of power (Shields et al., 2017).

Transformational leadership in the workplace. A transformational leader utilizes the five I's: idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individual consideration (Bass & Avolio, 2004). El-Bayoumi Salem (2015) stated a transformational leader is more "change-oriented" (p. 240). The transformational leader takes into account the needs of the employee to "offer inspiration and motivation . . . by providing meaning to their work rather than just rewards" (El-Bayoumi Salem, 2015, p. 241) with the idea of interpersonal relationships (Van Oord, 2013). Northouse (2016) stated the transformational leader makes a connection with followers. According to Syaiffuddin (2016), the transformational leader motivates an employee to achieve a mutual goal. Similarly, Thomson, Rawson, Slade, and Bledsoe (2016) stated the leader and employee work together to attain the goal. Researchers Russell, Cole, and Jones (2014) examined how the leadership within a law enforcement organization affects the employees within the organization and found that employees with leaders displaying a transformative leadership style do more than their job requires. Yang (2014) found employees who have a transformational leader take on characteristics similar to the leader. Robbins and Judge (2015) stated that a transformational leader is more creative and encourages subordinates to be creative.

Transactional leadership in the workplace. The quid pro quo dynamic inherent in transactional leadership is convergent, extolling an ethic of productivity instead of personal

fulfillment (Baysak & Yener, 2015). Yao et al. (2014) described transactional leadership as being "result-oriented" (p. 112). An example is rewarding good performance (Welty Peachey et al., 2012) with performance-based raises at the end of the year as the employee does something for a reward and, in this case, it is more money.

Conclusion

Research has shown a positive relationship between the supervisor's leadership style and the work stress felt by the subordinate (Hadadian & Zarei, 2016; Matos et al., 2018; Uysal, 2019). Not only is the subordinate affected by way of performance decline (Swider & Zimmerman, 2010) or health-related issues (Gluschkoff et al., 2016), but the organization suffers as well. The results are turnover (Welty Peachey et al., 2014) and employee absences (Haverman et al., 2018). Job-related stress costs organizations within the United States between $200 billion and $300 billion per year (Roberto, as cited in Baysak & Yener, 2015; Tuckey et al., 2015). If employees leave because of job-related stress, organizations need to hire and train new employees, which takes time, money, and effort. This job stress can further result in the loss of productivity and satisfaction of those who remain in the organization and can possibly become a repetitive cycle for those in the workplace. Those in charge of police budgets now believe it is more cost-effective to deal with employee stress than recruiting and training new personnel (Galbraith et al., 2021).

The life-work balance of employees is vital for those in the workforce. Workplace stress can reduce an employee's life satisfaction (Dogan et al., 2015), further affecting the employee's personal life (Yang, 2014). The employee carries this stress into his or her personal life and could potentially take it out on a family member (Brough et al., 2018).

CHAPTER 3

METHODOLOGY

This quantitative study used a descriptive (or survey) research method with public safety dispatchers within the United States as participants. This researcher was interested in examining the stress felt by dispatchers and the leadership style as perceived by the public safety dispatchers of their supervisors. The primary research questions being asked were:

How do public safety dispatchers report their experiences associated with job-related stress?

How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?

The survey research examined the trends of work stress and the leadership style of the supervisor. Creswell (2015) stated it is imperative to use valid and reliable questionnaires for research; therefore, the Effort-Reward Imbalance Questionnaire (short version), hereafter known as ERI, and the Multifactor Leadership Questionnaire (Rater Form), hereafter known as MLQ, were utilized to gather data. The researcher used REDCap and SPSS software for the distribution of questionnaires and data analysis. The researcher used all instruments in accordance with the copyright per their respective publishers. Siegrist developed the ERI to measure effort-reward imbalance in the workplace. It was initially a more extended version but was adapted and shortened in 2006 (Kunz, 2019). This information is in Appendix D. Bass and Avolio developed the MLQ to measure transformational, transactional, and laissez-faire leadership styles (Avolio, Bass, & Jung, 1999; Boamah & Tremblay, 2019). The MLQ is "the most widely used measure of

transformational leadership" (Northouse, 2016, p. 187). Further information regarding MLQ is in Appendix E.

Purpose of the Study

The purpose of this study was to examine the leadership style of those in a supervisor role (the independent variable) and the stress experienced by a public safety dispatcher (the dependent variable) as perceived by the dispatchers, as well as the work stress experienced and reported. It is important to study this topic because of the effects stress has on the employee. Research showed an employee's health decreases or worsens when dealing with workplace stress (Gluschkoff et al., 2016). Relationships with family and friends are adversely affected (Mikkelsen & Burke, as cited in Violanti et al., 2018a). A meta-analytic review of 49,635 employees from 25 countries found a relationship between leadership style and subordinate stress in which the employee was either hurt or harmed by the leader's behavior (Harms et al., 2016).

Research Questions

Work stress results from or because of stress originated in the workplace (Uysal, 2019). This stress can have numerous health effects on the employee, including physical effects (Herr et al., 2015; Toderi & Balducci, 2018; Zoeckler, 2017) and psychological effects (Loerbroks et al., 2016; Regehr et al., 2013; Zhou et al., 2015). Research indicated the leadership style of the supervisor(s) in the organization is shown to affect the stress felt by the subordinate in the workplace (Abbasi, 2018; Bass, 2008; Harms et al., 2016). This research hoped to answer the following questions:

How do public safety dispatchers report their experiences associated with job-related stress?

How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?

Research Design and Hypothesis

This study hypothesized that public safety dispatchers experience work stress, and the leadership of the organization plays a role in said stress. The null hypothesis was the leadership of the organization had no bearing on the stress felt. This study's research design was a quantitative, nonexperimental method called descriptive (or survey) research. Survey research was appropriate for this study because this researcher desired to examine trends reported by the participants regarding their work stress and their supervisor's leadership style. Creswell (2015) stated that survey research is conducted when the researcher's interest is in knowing about trends. Survey research is a meaningful way to gather data from a population, with the U.S. government being the most prominent collector of survey data (Fowler, 2002).

This study utilized a cross-sectional survey design. This study collected data for one period in January 2021. The survey opened for participants on January 6, 2021, and closed on January 30, 2021, after being available for 25 days. REDCap was used to build and distribute the online questionnaires and gather the data. REDCap was provided to students by the University of New England.

Population and Sampling Methods

The research population for this study consisted of public safety dispatchers living and working for agencies located within the United States. Because the researcher's present place of employment did not offer a large enough sample size for an adequate study, the decision was made to expand the study to outside the one agency. Additionally, a larger sample size would provide a lesser chance of error (Creswell, 2015). The U.S. Bureau of Labor Statistics (2018)

stated there are 98,600 dispatch positions in the United States (Police, Fire, and Ambulance Dispatchers). Roberts (2010) explained that giving a questionnaire to every potential participant (in this case, dispatcher) was not feasible; therefore, a sampling of the population was necessary. Fowler (2002) stated, "the size of the population from which a sample of a particular size is drawn has virtually no impact on how well that sample is likely to describe the population" (p. 35). This method was appropriate since a survey study can provide accurate information about the sample population (Babbie, 1990).

The researcher invited participants to contribute through social media, as social media are an effective way to reach a broad sample of the target population. Some researchers found the response rate rises when using an internet-based survey method (Nardi, 2006). Dillman, Smyth, and Christian (2009) stated internet-based surveys are a low-cost option and can be completed by a large population in a short amount of time. The primary social media channel used was Facebook utilizing the snowball sampling method. Two Facebook groups were utilized with permission from the group administrators to post the study in their respective social media groups (Facebook group A and Facebook group B). The Facebook group administrators signed a letter of support (Appendix A).

The researcher expected a dispatcher to simultaneously be in more than one group and share the study on his or her personal page. This researcher further shared the invitation on her personal page. Because of these factors of posting the study in the social media realm and the chances of the survey being further shared, convenience and snowball sampling were utilized. This sampling method lends itself to a larger sample size of the population being studied (Creswell, 2015). Depending on the response rate, this researcher considered the need to cap the number of participants. This cap was not needed.

Instrumentation

Two well-established and known questionnaires were used for this research. Since it is essential for the instruments to be valid and reliable (Creswell, 2015), those instruments were the ERI (short version) and the MLQ (Rater Form). The researcher secured the necessary rights and permission to use the instruments. Johannes Siegrist gave this researcher email permission to use the ERI. This researcher initially purchased the MLQ Remote Online Survey License for 100 surveys, with the option of buying more if needed. The researcher purchased an additional 50 survey licenses. It was expected the survey would take 15 minutes or less to complete.

The MLQ (Appendix E) was developed by Bass and Avolio to measure transformational, transactional, and laissez-faire leadership styles (Avolio et al., 1999; Boamah & Tremblay, 2019). The MLQ is "the most widely used measure of transformational leadership" (Northouse, 2016, p. 187). The questionnaire has multiple versions, and the researcher used the MLQ Rater Form for this study. The MLQ Rater Form consists of 45 questions utilizing a Likert scale for responses. The responses ranged from 0 to 4 with 0 = "Not at all," 1 = "Once in a while," 2 = "Sometimes," 3 = "Fairly often," and 4 = "Frequently, if not always."

Johannes Siegrist developed the ERI (Appendix D). The ERI has two versions: the short and the long version. The short version was developed from the more extended version in 2016 (Kunz, 2019). This research used the short version, which contains 16 questions utilizing a Likert scale. The responses ranged from 1-4 with 1 = "Strongly disagree," 2 = "Disagree," 3 = "Agree," and 4 = "Strongly agree." It contains three scales: Effort Scale, Reward Scale, and Overcommitment Scale (Siegrist, Li, & Montano, 2019).

Participant Consent

All prospective participants in the research study were required to provide consent to be included in the survey before accessing the survey with a yes or no answer. A consent form was included for the prospective participant to read or have read to them if they so chose. The consent form was in two parts. The participants were notified they could withdraw from the survey at any time with no adverse consequences. The participant needed to acknowledge and give consent to go further into the survey. The consent was the only mandatory field in the survey the participant had to answer. The consent form included in the study is in Appendixes B and C.

Data Collection

The researcher used snowball sampling as the sampling method. A recruitment flyer and survey were posted on the researcher's personal Facebook page and two Facebook groups. Any identifying information was removed about the Facebook groups to further make the identities of the participants anonymous. The researcher asked participants to share the recruitment flyer and survey on their personal Facebook accounts to gain more participants. The researcher expected a large sample population since participants would be more likely to complete the survey if it interested them (Fowler Jr, 2002).

The MLQ and ERI questionnaires for the study were distributed using REDCap software. The REDCap account was provided by the University of New England in the United States to complete the data collection. Participants were advised of informed consent at the time of data collection and were informed they could withdraw from the survey at any time they wished with no adverse consequences. Additionally, participants were advised the results would be reported in aggregate with no ability to discern one's answers since the researcher collected no identifying

data. The data collection was conducted over a three-week period in January 2021 (January 6 to January 30) to receive an adequate number of participants and to give those who wished to participate a chance to complete the survey. All participation was entirely voluntary, with no promise of anything in return for completing the questionnaire other than intrinsic satisfaction. The researcher posted the survey on multiple occasions.

The participants were anonymous to ensure their confidentiality in the study. This researcher hoped that the anonymous nature of the study would allow the participants to be honest without any fear of retaliation from their respective agencies, as this researcher was "bound by ethical codes of conduct to maintain the dignity and privacy of those who participate" (Adams & Lawrence, 2015, p. 139).

Data Analysis

After the data had been collected for the ERI and MLQ, they were exported to IBM SPSS Statistics for descriptive statistical analysis. Once the collected data were exported to SPSS, the researcher had to reverse code four statements in the ERI. The researcher calculated the data for mode, averages, mean, standard deviation, and the exclusive range. Additional information is included in Chapter 4 and Appendixes F, G, and H.

The mode, a measure of central tendency, is the value most often selected for a variable (Nardi, 2006). The mode helped determine how most participants answered a particular statement. The mean is often used as a measure of central tendency and gave a precise measurement (Salkind, 2014). The standard deviation helped the researcher understand the dispersion of the values (Nardi, 2006).

After the data had been analyzed, the researcher made a graph and frequency table to represent the information. This graph and frequency table allowed for the visual representation of

the data and ease of understanding. SPSS was used to make the visual representations. Frequency tables can be found in Appendixes I and J.

Limitations and Delimitations

A possible limitation of this research was researcher bias. There was evidence to suggest the topic of the study was occurring in the researcher's workplace. To offset this potential concern, this researcher exhausted the literature with relevant and reliable sources, utilized a large sample population, and used existing questionnaires. A large sample population was expected to participate from those employed as public safety dispatchers in the United States. This researcher was careful when soliciting participants; she did not use any wording that could be construed as being likely to sway the answers of those taking part in the survey. The questionnaires this researcher used had been deemed valid and reliable, which helped dissipate any further bias. The dispatchers who participated could decide to complete the survey at their place of employment, and this might be a concern if the dispatcher became busy with the call load while completing the questionnaire. An additional problem was if the dispatcher was having a bad day with the supervisor, which could cause the dispatcher to score differently. The MLQ Rater Form is for another person, such as a subordinate, to rate the supervisor's leadership. The dispatcher may have personal or professional differences with the supervisor, which may affect the scoring. Such research depends on the person's honesty in completing the questionnaire and how authentic and objective they were in rating their supervisors.

The researcher chose the public safety dispatch population based on the following attributes: researcher experience in the field, access to the population, and a lack of similar studies with this population. This researcher has worked in the dispatch field for over 20 years.

This study provided public safety dispatchers an opportunity to express concerns relating to stress.

Internal and External Validity

This research had high external validity because it could be replicated with other professions or others who work in the public service sector. The ability to generalize with other groups increased the external validity. This may be the case with other employees of a police department. Steinkopf et al. (2018) found police officers and dispatchers face similar rates of job stress in their departments from their departments' inner workings regardless of their role. The research design led to lower internal validity. The internal validity would be higher in an experimental-type research design due to that design type.

Ethical Issues

This study underwent Institutional Review Board (IRB) approval at the University of New England before any data collection. The University of New England IRB reviewed the research protocol and determined it was exempt from IRB review and oversight. The researcher received this notification on December 22, 2020. It was imperative no participant suffered adverse effects from taking part in the study. Additionally, it was necessary not to misrepresent any results or fabricate or edit any data (Creswell, 2015) or use inappropriate statistics to make the findings seem different (Nardi, 2006). The researcher imported the data from the questionnaires in REDCap to SPSS, which further decreased the possibility of an error on behalf of the researcher.

The researcher solicited the participants involved in the study away from her workplace. This researcher did not explicitly recruit from a particular site, including the researcher's workplace. Coworkers of this researcher could participate; however, the researcher could not

distinguish a co-worker's responses from any other participant. The participants involved in the study possibly represented several agencies, and any specific information about the settings was de-identified in the study.

Conclusion and Summary

This study used a descriptive approach to examine the work stress public safety dispatchers' experience and their supervisor's leadership style. The participants of the study could complete both the ERI and MLQ. The MLQ Rater Form assessed the leadership style of another, specifically the employee's supervisor in this case. Descriptive statistics were used to analyze the data. The research had high external validity. The survey design type of research completed did bring about a lack of internal validity. Importing directly from REDCap to SPSS decreased any researcher error. The researcher believes that dispatchers often feel marginalized and forgotten. This researcher hoped to bring dispatchers a voice and acknowledge the job stress and what, if any, role the leadership style of a supervisor plays in the stress.

CHAPTER 4

RESULTS

Chapter 4 of this dissertation discusses the research questions utilized for this study. Table 1 provides an overview of the research questions investigated and their connection to the data sources. This chapter includes basic demographic information of the participants and survey distribution techniques for this study. The process used for coding the data for Parts 2 and 3 and handling missing data is included. Chapter 4 additionally has information on data analysis procedures, including descriptive statistical analysis. Included in Chapter 4 is a presentation of the results of the study. First, Part 2, which is the effort-reward imbalance model, and subsequent information, are presented. The Multifactor Leadership Questionnaire and subsequent information are presented next. The results of Part 2 and Part 3 are examined together for those participants who completed both parts. This chapter ends with a summary of the results.

Research Questions Investigated

The researcher used a quantitative research method to examine stress felt by public safety dispatchers in the United States and their supervisors' leadership styles as perceived by the public safety dispatchers. The researcher asked two research questions: "How do public safety dispatchers report their experiences associated with job-related stress?" and "How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?" This study used two existing research instruments. The instruments were the ERI and MLQ. Table 1 outlines the research questions and their connection to the data sources.

Table 1

Research Questions and Data Sources

Research Questions	Survey Items
How do public safety dispatchers report their experiences associated with job-related stress?	Part 2 ERI1-OC6
How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?	Part 2 ERI4, ERI9 Part 3 MLQ1-MLQ45

The ERI is a widely used survey regarding employee stress and was appropriate for the first research question about how dispatchers reported their job-related stress experiences. The MLQ is the most widely used survey for leadership styles and was a good fit for the second research question about how the supervisor's approach to leadership impacted the employee's job-related stress. Additionally, there were two statements in the ERI, which helped to answer the second research question.

The following sections further describe the steps the researcher took and the analysis of the data. First, the survey distribution process is explained. Then, the researcher follows up with the analysis.

Survey Distribution Process

The researcher received notification on December 22, 2020, from the UNE IRB that the research was exempt from IRB review and oversight, and the researcher could begin data collection. The data collection for this research was conducted by utilizing an internet-based online survey program named REDCap. The University of New England provided REDCap to the students of the university. REDCap allowed the researcher to easily design and construct a survey instrument distributed to participants through social media. Once the responses were collected, the survey data were exported to IBM SPSS Statistics for analysis.

The researcher received signed written approval from two Facebook group administrators to post the survey in their groups, referred to as Facebook group A and Facebook group B. Additionally, the researcher posted the recruitment flyer on her personal Facebook page and asked it to be shared. To qualify for the survey, the potential participant had to work as a public safety dispatcher, work in the United States, and be 18 years of age or older. The survey was first shared on January 6, 2021 and closed on January 30, 2021. It was open and available to take for 25 days. The researcher monitored the participation and responses throughout the time the survey was open. One hundred fourteen participants initially accessed the survey. One hundred participants (88%) continued past the consent and the first page of the ERI. If a participant did not move past the consent or the first page of the ERI, the researcher discontinued the participant from the data analysis since it provided no usable data.

Description of Participants

Participants for the research included 100 public safety dispatchers over 18 years of age who were employed in the United States. The researcher collected no identifying data at the time of participation. The researcher did this to keep responses anonymous so participants could respond without fear of reprisal or retaliation.

There was a difference in n for the two questionnaires included in the survey. No question, aside from consent, was required to be answered. Participants could skip over any question they wanted to for any reason. Ninety-four percent of the participants answered all questions of the ERI, which was the first survey. The second survey (MLQ) had fewer participants (59%).

Analysis Method

After the survey closed, the survey data were exported to IBM SPSS Statistics. The researcher deleted the survey responses, which did not go further than consent (Part 1) or past the first page of the ERI (Part 2). When there was missing data from a participant not answering a question, "999" was inserted, and it was noted as missing data. Part 2 of the survey was the ERI. Part 3 of the survey was the MLQ.

The ERI Questionnaire in Part 2 included 16 statements in which the participant responded with "Strongly disagree = 1," "Disagree = 2," "Agree = 3," or "Strongly agree" = 4. The ERI Questionnaire is shown in Appendix D.

Four statements of the ERI had to be reverse coded ("Strongly disagree = 4," "Disagree = 3," "Agree = 2," or "Strongly agree" = 1). Those statements were, "My job promotion prospects are poor," "I have experienced or expect to experience an undesirable change in my work situation," "My job security is poor," and "When I get home, I can easily relax and 'switch off' work."

Once Part 2 of the survey was correctly coded, the researcher calculated the data for mode, averages, mean, mode, standard deviation, and the exclusive range. This information is included in Appendix F.

The MLQ in Part 3 of the survey included 45 statements in which the participant responded with "Not at all = 0," "Once in a while = 1," "Sometimes = 2," "Fairly often = 3," and "Frequently, if not always" = 4. The coding is noted in Table 2. Further MLQ information is shown in Appendix E.

After Part 3 of the survey was coded, the researcher calculated the mode, averages, mean, mode, standard deviation, and the exclusive range. This information is included in Appendix G.

Presentation of Results

Part 2 of the survey (ERI) had 16 statements for the participant to answer and is divided

into three scales: Effort Scale, Reward Scale, and Overcommitment Scale. In addition, there

were three subscales of the Reward Scale: Esteem, Promotion, and Security; these subscales are

a factor in the reward the participant received. A sum of the scores determined where the

participant fell within the scale.

Table 2

Construction of scores for ERI Questionnaire (short version)

Scales	Items	Range
Effort Scale	ERI1 to ERI3	3 to 12
Reward Scale	ERI4 to ERI10	7 to 28
Overcommitment Scale	OC1 to OC6	6 to 24
Subscales of the Reward Scale:		
Esteem	ERI4 and ERI8	2 to 8
Promotion	ERI5, ERI9, and ERI10	3 to 12
Security	ERI6 and ERI7	2 to 8

The number of participants who answered the questions for each scale were: Effort Scale

(98), Reward Scale (98), Overcommitment Scale (97), Esteem Reward Scale (100), Promotion

Reward Scale (100), and Security Reward Scale (98) leaving a valid N of 94 (listwise). The

construction range of the sum of the scores for the scales are as follows: Effort Scale (3 to 12),

Reward Scale (7 to 28), Overcommitment Scale (6 to 24), Esteem Reward Scale (2 to 8),

Promotion Reward Scale (3 to 12), and Security Reward Scale (2 to 8). The researcher summed

the scores to find the minimum, maximum, mean, mode, and standard deviation for the study:

Effort Scale (min. 6, max. 12, mean 9.4796, mode 10, SD 1.46597), Reward Scale (min. 7, max.

27, mean 15.6837, mode 16, SD 3.46588), Overcommitment Scale (min. 7, max. 23, mean

15.4639, mode 17, SD 3.30423), Esteem Reward Scale (min. 2, max. 8, mean 4.4100, mode 4,

SD 1.49136), Promotion Reward Scale (min. 3, max. 11, mean 5.730, mode 7, SD 1.78577), Security Reward Scale (min. 2, max. 8, mean 5.5714, mode 6, SD 1.35464).

ER ratio. The ER ratio is the effort score divided by the reward score taking into account a correction factor (c = 0.42857). The correction factor was figured by dividing the number of items in E (3) by the number of items in R (7). The formula is:

$$ER= \frac{E}{Rxc}$$

For this study, the ER ratio was 1.410. The same number of participants answered both the Effort Scale and the Reward Scale questions. According to Siegrist et al. (2019), ERI is based on reciprocity, and when ER = 1, the employee said there was one effort for one reward. For ER < 1, there were fewer efforts for each reward. ER > 1 would indicate the employee reported more effort for each reward.

The personality factor of overcommitment reflected the participant's need for approval. The overcommitment score was figured by summing the six statements in the Overcommitment Scale of the ERI. The higher this number, the higher the overcommitment (Siegrist, 1996). The mean overcommitment score for this study was 15.46. The minimum score possible was 6, and the highest score possible was 24. This score showed overcommitment was a factor in the job stress experienced.

Based on the participants' responses in Part 2 and the coding process, the survey data showed they reported stress as part of their job. This helped to answer the research question posed by the researcher: "How do public safety dispatchers report their experiences associated with job-related stress?" Time pressure can be an aspect of stress experienced. In the statement, "I have constant time pressure due to a heavy workload," three percent reported "strongly disagree," 28.3% reported "disagree," 56.6% reported "agree," and 12.1% reported "strongly

agree." The next statement dealing with time pressure is part of the Overcommitment Scale. In the statement, "I get easily overwhelmed by time pressures at work," 20.2% reported "strongly disagree," 58.5% reported "disagree," 20.2% reported "agree," and 1% reported "strongly agree."

The demands of the job and interruptions while performing the job itself can cause stress. In the statement, "I have many interruptions and disturbances while performing my job," one percent reported "strongly disagree," 8% reported "disagree," 56% reported "agree," and 35% reported "strongly agree." Additionally, the statement, "Over the past few years, my job has become more and more demanding," yielded the following results: no one reported "strongly disagree," 6% reported "disagree," 45.5% reported "agree," while 48.5% reported "strongly agree."

The employee's supervisor can be a cause of stress and the perception of respect and prestige. In the statement, "I receive the respect I deserve from my superior or a respective relevant person," 23% reported "strongly disagree," 38% reported "disagree," 31% reported "agree," and 8% reported "strongly agree." Additionally, in the statement, "Considering all my efforts and achievements, I receive the respect and prestige I deserve at work," 22% reported "strongly disagree," 45% reported "disagree," 27% reported "agree," and 6% reported "strongly agree."

The ERI had statements about prospective job promotion and salary. In the statement, "My job promotion prospects are poor," 3% reported "strongly disagree," 11% reported "disagree," 35% reported "agree," and 51% reported "strongly agree." Additionally, the statement, "Considering all my efforts and achievements, my job promotion prospects are adequate," showed that 28% reported "strongly disagree," half or 50% reported "disagree," 20%

reported "agree," and 4% reported "strongly agree." In the statement, "Considering all my efforts and achievements, my salary/income is adequate," 3% reported "strongly disagree," 32% reported "disagree," 35% reported "agree," and 3% reported "strongly agree."

Part 2 of the survey showed employees can carry the stress home with them and into their personal lives. For example, in the statement, "As soon as I get up in the morning, I start thinking about work problems," 13.1% reported "strongly disagree," 40.4% reported "disagree," while 35.4% reported "agree," and 11.1% reported "strongly agree." Additionally, in the statement, "When I get home, I can easily relax and 'switch off' work," 23.5% reported "strongly disagree," 41.4% reported "disagree," 26.5% reported "agree," and 8.2% reported "strongly agree." Next, the statement, "People close to me say I sacrifice too much for my job," found that 3% reported "strongly disagree," 30.3% reported "disagree," 41.4% reported "agree," and 25.3% reported "strongly agree."

Stress from work can affect sleep for some employees. In the statement, "Work rarely lets me go. It is still on my mind when I go to bed," 5% reported "strongly disagree," 29.3% reported "disagree," 45.5% report "agree," and 20.2% reported "strongly agree." Next, the statement, "If I postpone something I was supposed to do today, I'll have trouble sleeping at night," 10% reported "strongly disagree," 40% reported "disagree," 34% reported "agree," and 16% reported "strongly agree."

There was a noticeable drop off in the number of participants for Part 3 of the study. Many participants (41%) did not complete the MLQ as part of the survey, which yielded 59% of participants who completed Part 3. There was a valid N listwise of 56 for Part 2 and Part 3 combined. These are the participants who answered all questions for both parts. The MLQ contained 45 statements for the participant to rate the leadership style of their supervisor. The

researcher further analyzed the valid percent of three questions as allowed to be released by the publisher. Further, the researcher utilized the MLQ manual for direction on how to interpret the results. For Part 3 of the survey, the participant rated their supervisor. In the first statement, "Talks optimistically about the future," 15.9% reported "Not at all," 18.8% reported "Once in a while," 29.0% reported "Sometimes," 33.3% reported "Fairly often," and 2.9% reported "Frequently, if not always." Next, in the statement, "Spends time teaching and coaching," 30.6% reported "Not at all," 32.3% reported "Once in a while," 16.1% reported "Sometimes," 11.3% reported "Fairly often," and 9.7% reported "Frequently, if not always." Finally, in the statement, "Avoids making decisions," 27.1% reported "Not at all," 20.3% reported "Once in a while," 22% reported "Sometimes," 16.9% reported "Fairly often," and 13.6% reported "Frequently, if not always."

Part 3 of the survey consisted of the MLQ, in which the participants rated their supervisor's leadership. The characteristics of this instrument are transformational, transactional, passive avoidant, and outcomes of leadership. After the data were transferred to SPSS, the researcher had to construct the MLQ scales. The construction of MLQ scores was done by combining the statements. See Table 3 for ease of information. For the transformational characteristic, the idealized attributes (IA) were MLQ 10, 18, 21, 25; idealized behaviors (IB) was MLQ 6, 14, 23, 34. Additionally, inspirational motivation (IM) was MLQ 9, 13, 26, 36; intellectual stimulation (IS) was MLQ 2, 8, 30, 32; and individual consideration (IC) was MLQ 15, 19, 29, 31.

The transactional characteristic of contingent reward (CR) was MLQ 1, 11, 16, 35 and management by exception active (MBEA) was MLQ 4, 22, 24, 27. The passive-avoidant characteristic was management by exception passive (MBEP) was MLQ 3, 12, 17, 20 and

laissez-faire (LF) was MLQ 5, 7, 28, 33. Finally, the outcomes of leadership are extra effort (EE) was MLQ 39, 42, 44; effectiveness (EFF) was MLQ 37, 40, 43, 45; and satisfaction (SAT) was MLQ 38, 41.

Table 3

Construction of MLQ Scores

Scale	Characteristic	MLQ Statement
Idealized attributes (IA)	Transformational	10, 18, 21, 25
Idealized behaviors (IB)	Transformational	6, 14, 23, 34
Inspirational motivation (IM)	Transformational	9, 13, 26, 36
Intellectual stimulation (IS)	Transformational	2, 8, 30, 32
Individual consideration (IC)	Transformational	15, 19, 29, 31
Contingent reward (CR)	Transactional	1, 11, 16, 35
Mgmt by exception active (MBEA)	Transactional	4, 22, 24, 27
Mgmt by exception passive (MBEP)	Passive avoidant	3, 12, 17, 20
Laissez-faire (LF)	Passive avoidant	5, 7, 28, 33
Extra effort (EE)	Outcomes of leadership	39, 42, 44
Effectiveness (EFF)	Outcomes of leadership	37, 40, 43, 45
Satisfaction (SAT)	Outcomes of leadership	38, 41

The researcher calculated the scales of Part 3 for minimum, maximum, mean, mode, and standard deviation described here. The number of participants who completed the scales in Part 3 were: IA (69), IB (69), IM (69), IS (69), IC (62), CR (69), MBEA (69), MBEP (69), LF (69), EE (59), EFF (59), SAT (59) with a valid N listwise of 59.

Transformational leadership is composed of the 5 I's. The scales that make up the transformational leadership characteristics are IA (idealized attributes) with a min .00, max. 4.0, mean 1.6884, mode 1.0, and SD 1.07478; IB (idealized behaviors) with a min .00, max 3.50, mean 1.7319, mode 1.25, and SD .83662; IM (inspirational motivation) with min .00, max 4.00, mean 1.7572, mode 2.0, and SD 1.083780; IS (intellectual stimulation) with min .00, max 3.50, mean 1.4481, mode 1.0, and SD .95445; and IC (individual consideration) with a min .00, max. 3.75, mean 1.4718, mode 1.75, and SD 1.01838.

The scales that make up transactional leadership characteristics are CR with min .00, max. 4.00, mean 1.6063, mode 2.0, and SD .95282 and MBEA with min. .25, max. 4.0, mean 1.9179, mode 2.0, and SD .85981.

Next, the scales that are part of passive-avoidant characteristics are MBEP with min. .00, max. 4.0, mean 2.3986, mode 3.0, and SD 1.11830 and LF (Laissez-faire) with min. .00, max. 4.00, mean 2.0435, mode 2.5, and SD 1.19662.

Outcomes of leadership characteristic scales also make up part of the survey for Part 3. These scales are EE with min. .00, max. 4.00, mean 1.2994, mode 0.0, and SD 1.18531; EFF with min. .00, max. 3.75, mean 1.5593, mode 0.0, and SD 1.6369; and SAT with min. .00, max 4.00, mean 1.5254, mode 0.0, 1.5, 3.0, and SD 1.11967.

According to the publisher of the MLQ, the purpose is not to label a leader as transformational, transactional, or passive-avoidant. Instead, it is more appropriate to label a leader (or group of) as more or less than the norm. A way to determine this is to look at the percentile norm table in the MLQ manual (Bass & Avolio, 2004). The researcher used the percentile norm table after averaging the scores for each scale. The study found the majority of participants scored their leaders as more passive-avoidant than the norm. The study also found participants scored their leaders less transformational than the norm. Transactional leadership was divided as more than the norm and less than the norm. Outcomes of leadership also scored less than the norm.

The researcher utilized a percentile norm table ($n = 27{,}205$) established by Mind Garden, publisher of the MLQ, to determine the percentile for the average of each scale. For example, a percentile score of five indicated that 5% of the normed population scored lower, while 95%

scored higher. The participants in this study scored their supervisor in the following percentiles, according to Table 4.

Table 4

MLQ Percentile Table, Part 3

Scale	Percentile	Scale	Percentile
IA*	5	MBEA**	60
IB*	5	MBEP***	95
IM*	5	LF***	95
IS*	5	EE****	5
IC*	5	EFF****	5
CR**	5	SAT****	5

Notes. *Transformational, **transactional, ***passive-avoidant, ****outcomes of leadership.

The group's success is related to transformational and transactional leadership (Bass & Avolio, 2004). This success is measured within the MLQ through the outcomes of leadership. It is measured through extra effort, effectiveness, and satisfaction with leadership. The participants in this study were not satisfied with their leadership nor thought their leadership was effective.

The researcher utilized the select cases feature in SPSS to filter out those cases that had missing data from Part 2 and Part 3, which left 56 participants. Missing data were replaced with "999," and were indicated as missing data. This information is additionally in Table 5. Descriptive statistical analysis for the ERI and MLQ combined are in Appendix H. Five participants had an ER ratio < 1 (< 1%). Nine participants had an ER ratio > 2 (16%). More participants rated their supervisor as more passive-avoidant than the norm than more transformational than the norm, or more transactional than the norm. The number of participants who rated their supervisor as more passive-avoidant than the norm was 42 (75%). Of those participants who rated their supervisor as more passive-avoidant than the norm, two participants had an ER ratio < 1 (< 1%), 10 participants had an ER ratio > 2 (24%), and 30 had an ER ratio between 1 and 2 (71%). For those participants who rated their supervisor as more

transformational than the norm, two participants had an ER ratio < 1, and 6 participants had an ER ratio between 1 and 2. No participant had an ER ratio > 2. Three participants rated their supervisor as more transactional than the norm, and all had an ER ratio between 1 and 2. No participant had an ER ratio of < 1 or > 2.

The following data have information about how the participants rated their supervisors and their corresponding ER ratios. First, information is given about those participants who rated their supervisor as more passive-avoidant than the norm. Participant 1 had an ER ratio of 2.33, Participant 2 had an ER ratio of 4.01, and Participant 3 had an ER ratio of 0.816. Additionally, Participant 4 had an ER ratio of 1.25, Participant 5 had an ER ratio of 0.98, Participant 6 had an ER ratio of 1.51. Further, Participant 7 had an ER ratio of 1.67, Participant 9 had an ER ratio of 1.97, and Participant 10 had an ER ratio of 1.35. Participant 11 had an ER ratio of 1.62, Participant 12 had an ER ratio of 1.28, and Participant 13 had an ER ratio of 1.75. Also, Participant 16 had an ER ratio of 1.37, Participant 19 had an ER ratio of 1.23, and Participant 20 had an ER ratio of 1.40. Further, Participant 21 had an ER ratio of 1.24, Participant 22 had an ER ratio of 1.02, and Participant 23 had an ER ratio of 2.12.

Additionally, Participant 24 had an ER ratio of 1.08, Participant 26 had an ER ratio of 1.23, and Participant 28 had an ER ratio of 1.40. Participant 30 had an ER ratio of 2.33, Participant 31 had an ER ratio of 1.31, Participant 33 had an ER ratio of 1.46, and Participant 34 had an ER ratio of 1.02. Further, Participant 36 had an ER ratio of 2.34, Participant 37 had an ER ratio of 1.23, and Participant 39 had an ER ratio of 2.14. Participant 41 had an ER ratio of 1.84, Participant 43 had an ER ratio of 1.31, and Participant 45 had an ER ratio of 1.31. Further, Participant 46 had an ER ratio of 1.37, Participant 47 had an ER ratio of 1.31, Participant 48 had an ER ratio of 2.14 and Participant 49 had an ER ratio of 1.95. Also, Participant 50 had an ER

ratio of 1.17, Participant 51 had an ER ratio of 2.33, and Participant 52 had an ER ratio of 2.59.

Finally, Participant 53 had an ER ratio of 1.95, Participant 54 had an ER ratio of 1.31, Participant

55 had an ER ratio of 2.85, and Participant 56 had an ER ratio of 1.67.

Next, information is provided concerning those participants who rated their supervisor as

more transformative than the norm. Participant 14 had an ER ratio of 1.11, Participant 15 had an

ER ratio of 0.69, and Participant 18 had an ER ratio of 1.67. Additionally, Participant 29 had an

ER ratio of 1.35, Participant 35 had an ER ratio of 0.78, and Participant 40 had an ER ratio of

1.00. Finally, Participant 42 had an ER ratio of 1.16 and Participant 44 had an ER ratio of 1.16.

The following information is given concerning participants who rated their supervisor as

more transactional than the norm. Participant 17 had an ER ratio of 1.11, Participant 27 had an

ER ratio of 1.43, and Participant 32 had an ER ratio of 1.16.

A few participants did not rate their supervisor more or less than the norm

overwhelmingly in any one category. Participant 8 rated his or her supervisor as both more

transformative than the norm and more passive-avoidant than the norm with an ER ratio of

0.816. Participant 25 did not rate his or her supervisor more than the norm in any category and

had an ER ratio of 2.10. Participant 38 rated his or her supervisor in the 50th percentile for

transformational leadership, neither more nor less than the norm, with an ER ratio of 1.30.

Table 5

ERI and MLQ Combined

Leadership Characteristic (MLQ)	< 1	1-2	> 2	Total	ERI Total
More passive-avoidant than the norm	2	30	10	42	42
More transformational than the norm	2	6	0	8	50
More transactional than the norm	0	3	0	3	53
Did not fit any one category	1	1	1	3	56

Table 6 shows the distribution of ERI and MLQ combined and cumulative ERI total.

Table 6

Participant ERI Score and Leadership Rater Characteristic

Participant	ERI Score	Participant	ERI Score	Participant	ERI Score
		More passive-avoidant than the norm			
1	2.33	2	4.01	3	0.816
4	1.25	5	0.98	6	1.51
7	1.67	9	1.97	10	1.35
11	1.62	12	1.28	13	1.75
16	1.37	19	1.23	20	1.40
21	1.24	22	1.02	23	2.12
24	1.08	26	1.23	28	1.40
30	2.33	31	1.31	33	1.46
34	1.02	36	2.34	37	1.23
39	2.14	41	1.84	43	1.31
45	1.31	46	1.37	47	1.31
48	2.14	49	1.95	50	1.17
51	2.33	52	2.59	53	1.95
54	1.31	55	2.85	56	1.67
		More transformational than the norm			
14	1.11	15	0.69	18	1.67
29	1.35	35	0.78	40	1.00
42	1.16	44	1.16		
		More transactional than the norm			
17	1.11	27	1.43	32	1.16
		Does not fit any category above			
8	0.816	25	2.10	38	1.30

This study's hypothesis was that public safety dispatchers experience work stress. Additionally, the leadership of the organization plays a role in said stress. The null hypothesis was the leadership of the organization has no bearing on the stress felt. The researcher found the hypothesis was true; however, there could be other reasons for the public service dispatcher's work stress. Additionally, this may not be true for all participants.

Summary

Chapter 4 presented information about the data collection process and analysis of this study. There was a difference in the number of participants in Part 2 and Part 3, and 56 participants answered both parts. These data were examined separately and then together to understand and answer the research questions for the study.

Survey results. Two separate instruments made up the survey: the ERI (Part 2) and the MLQ (Part 3). Part 1 of the survey was the consent the participant needed to acknowledge to gain access to the rest of the survey. This was the only mandatory field in the survey. The participant could stop at the consent or continue. Additionally, the participant had the choice not to answer or skip any question after the point of consent was given. Part 2 of the survey examined the stress felt by the public safety dispatcher. Part 3 was more focused on the leadership style of the public safety dispatcher's supervisor.

Based on the participants' responses, public safety dispatchers felt stress because of their work, and the personality factor of overcommitment of the participant played a factor. Additionally, their supervisor's leadership style was a factor in the stress felt, and the participants were not satisfied with their leadership. The researcher examined the ER ratio of participants and the corresponding leadership style of the supervisor. Previous research showed an association between the ERI of the employee and the supervisor's leadership style (Keisu et al., 2018). Of those participants who rated their supervisor as more passive-avoidant than the norm, 95% had an ER ratio < 1. This large number of participants with an ER ratio > 1 indicated the majority of participants put in more effort than received in reward. Additionally, the participants rated their supervisor as more passive-avoidant than the norm, more than any other leadership style in the survey 75% of the time. These findings helped answer the research questions posed by the

researcher that public safety dispatchers feel stress as part of their job-related duties, and the supervisor's leadership style plays a role in this stress.

Chapter 5 summarizes and interprets the research findings. In addition, the researcher makes recommendations for action. Suggestions for further study are given.

CHAPTER 5

CONCLUSION

This study examined the job-related stress experienced by public safety dispatchers who work in the United States. Two Facebook group administrators gave their signed approval to post the recruitment flyer in their groups. Additionally, the researcher posted the recruitment flyer on her page. It was also shared by others. Using a descriptive study approach, the researcher posed the following research questions:

How do public safety dispatchers report their experiences associated with job-related stress?

How do public safety dispatchers perceive their supervisor's approach to leadership impacts their job-related stress?

A total of 116 potential participants accessed the REDCap survey. Two valid and reliable instruments were used: the ERI and MLQ. Of those participants who accessed the survey, 100 (86%) went further than the consent and first page of the ERI Questionnaire. The participants who did not go any further than the consent or first page were deleted, as there were no usable data gleaned from these participants.

In this chapter, the researcher summarizes the findings of the study. Further, any implications or recommendations are discussed. Conclusions drawn from the results are presented at the end of the chapter.

Research Findings

The study results showed that public safety dispatchers experienced stress as part of their job-related duties, and the supervisor's leadership style played a role. The ERI has often been

used to measure job stress by examining the effort an employee put in and the reward the employee received in return through the ER ratio. An additional measure used by the researcher was the MLQ. The MLQ was used for the participant to rate their supervisor's leadership style.

Results were examined separately for the different parts of the survey and then together to better understand the research questions. The mean ER ratio for the first part of the study was 1.410, which showed the average participant put in more effort than reward received in return. 56 participants answered all the questions of the study of Part 2 and Part 3. Of those, 51 participants (91%) had an ER ratio of > 1. In addition, 42 participants (75%) rated their supervisor as more passive-avoidant than the norm. There could be a few reasons more participants completed the ERI compared to the MLQ. The participants could have thought the survey was too long, were not comfortable rating the supervisor, or had a fear of retaliation even though the researcher collected no participant data.

Further, the results of this study corroborated the literature. Employees feel stressed because of their jobs, and their supervisor's leadership style can be a factor. The transformational leader would mitigate the stress experienced by the employee (Yao et al., 2014). A leader whose leadership style is toxic, laissez-faire, or destructive would increase the employee's stress (Syed et al., 2018). The majority of participants in this study rated their supervisor as more passive-avoidant than the norm and had an ER ratio > 1. In the ERI statement, "I receive the respect I deserve from my superior or a respective relevant person," 61% of the participants either reported "disagree" or "strongly disagree." Another ERI statement, "Considering all my efforts and achievements, I receive the respect and prestige I deserve at work," had 67% of participants reported "disagree" or "strongly disagree." In the MLQ statement, (The person I am rating . . .) "Spends time teaching and coaching," 62.9% of participants either reported "Not at all" or "Once

in a while." The MLQ percentile norm table (Table 4) in Chapter 4 demonstrated that the public

safety dispatchers rated their supervisor's leadership style in the fifth percentile for all aspects of

transformational leadership. This indicated that 95% of the normed population ($n = 27,205$) were

rated higher. Further, according to the norm table, the public safety dispatchers rated their

supervisor's leadership style in the 95th percentile for both characteristics of passive-avoidant

leadership, meaning that 5% of the normed population were rated lower. Participants were not

satisfied with their leadership according to the percentile norm table, as the satisfaction

characteristic was in the fifth percentile. The supervisors rated failed to meet the needs of their

subordinates.

Limitations

There were limitations to this study. First was researcher bias. The researcher was

interested in the study because it had experiential value she experienced directly in her

workplace and saw or discussed with her coworkers. The use of valid instruments would help

decrease this bias. The Effort-Reward Imbalance Questionnaire and the Multifactor Leadership

Questionnaire are often used by researchers, are valid, and were appropriate for this study. The

researcher hoped to have a large sample size to reduce any bias that may be present. The

researcher solicited the population through social media so those who participated could be from

all over the United States. This method ensured no one agency would be over-represented in the

study.

Another limitation was a difference in the number of participants for the ERI and MLQ.

Ideally, participants would have completed both parts, but they did not. It was their option to do

so. The only mandatory question in the study was the consent. Any other question was voluntary,

and the participant had the option to skip it or stop at any time. Participant fatigue is believed to

play a factor along with the possibility the participant thought he or she would face retaliation for rating their supervisor.

The quantitative research design was another limitation. A qualitative study may have gone more in-depth into the lived experiences of individual participants. A qualitative research design would not allow for as many participants.

Recommendations for Action

The research results indicated public safety dispatchers experienced job-related stress in which the supervisor's leadership style could be a factor. Galbraith et al. (2021) suggested that more supportive management be a priority for police departments. The recommendation of this researcher is that public safety dispatch agencies, especially those that decide who to promote to a leadership role, carefully choose potential leaders who exhibit traits of a transformational leader. This recommendation is based on the study results, which showed 75% of participants rated their supervisor's leadership style as more passive-avoidant than the norm, and 95% had an ER ratio > 1. This ER ratio > 1 indicated that the participants put in more effort than received in reward. By choosing potential leaders exhibiting transformational leadership qualities, the department can better serve the needs of its employees. A transformational leader is more likely to help his or her subordinate through the five I's: idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individual consideration (Bass & Avolio, 2004). Further, it is recommended that leaders develop better relationships with their subordinates and have more effective communication. Researchers Russell, Cole, and Jones (2014) examined how the leadership within a law enforcement organization affected the employees within the organization and found that employees who have leaders displaying a transformative leadership style do more than their job requires. Further, Yang (2014) found

employees who have a transformational leader take on characteristics similar to the leader. Pishgooie et al. (2019) found a significant correlation between job stress and laissez-faire leadership among nurses. The terms *transformative leadership* and *transformational leadership* are sometimes used interchangeably in the literature.

It may be beneficial to have potential leaders take the standard MLQ test to measure their leadership style. To be an effective leader, one must develop oneself before developing others, which can be measured with the MLQ (Bass & Avolio, 2004). As Clifton and Harter (2019) stated, half of U.S. workers are looking for new employment. Further, research indicated that some employees say the worst part of their job is their supervisor (Harms et al., 2016). Testing for leadership style using the MLQ could mitigate the stress experienced by the employee. The supervisor-subordinate dynamic is important because the connection an employee has with his or her supervisor may be the most important relationship for the employee in the workplace (Hui et al., as cited in Karam et al., 2018).

In addition, education or training on how best to lead those under one's supervision and command is advised utilizing transformational leadership techniques. This recommendation is based on the literature. According to Siegrist (2017), one way to improve organizational and personnel development is by "strengthening participation and transformational leadership among managers" (p. 32). Continuing education for supervisors on leadership tactics could have the ability to lessen the stress felt within an organization (Woodard, 2017). Agencies need to understand those they promote to a leadership role have an impact on the stress the employee experiences and take this responsibility seriously since research has shown there is a positive relationship between the leadership style of the supervisor and the work stress felt by the subordinate (Hadadian & Zarei, 2016; Matos et al., 2018; Uysal, 2019).

The above recommendations are true for the dispatch communications center and a law enforcement agency. Law enforcement agencies would benefit from promoting those potential applications with transformational leadership characteristics since law enforcement officers and public safety dispatchers often feel similar stress levels regardless of their duties in the department (Steinkopf et al., 2018). This is often due to the organizational culture of the department.

Recommendations of Further Study

A recommendation for further study is to expand the research to law enforcement officers. As indicated in the literature review of this dissertation, public safety dispatchers and law enforcement officers experience similar amounts of stress (Regehr et al., 2013). In addition, public safety dispatchers and law enforcement officers within the same agency have similar stress because of the department's organizational culture (Regehr et al., 2013). Utilizing a case study approach of a large law enforcement agency examining law enforcement officers and public safety dispatchers as participants would more closely examine the organizational justice aspect. Additionally, comparing male and female participants is recommended since researchers found in at least one study that male employees are more successful than female employees in a toxic environment (Matos et al., 2018). This study did not ask for any demographic data, so the gender of the participants is unknown.

Another recommendation for further study would be to examine any health issues (physical or mental) this employee population experienced when dealing with work stress. An increase in physical disease, such as cardiovascular issues (Toderi & Balducci, 2018), is associated with job stress. Additionally, Garbarino and Magnavita (2015) found police officers had an increase in metabolic syndrome because of job stress. Health care costs are 50% higher

for an employee experiencing workplace stress than one who is not (Avey et al., as cited in Jacobs, 2019). Singh (2017) stated in the United States and Britain, more police officers are "killed by work-related stress than they are by criminals" (p. 226).

A further recommendation would be to conduct a correlational analysis. A correlational analysis was beyond the scope of this study. This analysis would more closely examine any relationship between the ERI and MLQ along with their interaction in the study between the stress of the employee and the supervisor's leadership style, and to what degree. Research has shown a positive relationship between the supervisor's leadership style and the work stress felt by the subordinate (Hadadian & Zarei, 2016; Matos et al., 2018; Uysal, 2019). A correlational analysis would examine this idea more closely for this population. Other researchers have found a correlation between job stress and mental health issues (Nigatu & Wang, 2018), which can further affect one's life. The purpose of this study was not to determine if there was a correlation. Instead, descriptive statistics were used to answer the research questions using pre-existing instruments.

Conclusion

This descriptive survey study had 100 participants who completed the consent and at least one page of the ERI. Of those, 56 participants completed the ERI and MLQ. Regardless of the number of participants, the study showed public safety dispatchers reported job-related stress. Fowler (2002) stated, "the size of the population from which a sample of a particular size is drawn has virtually no impact on how well that sample is likely to describe the population" (p. 35). Further, the method used was appropriate since a survey study can provide accurate information about the sample population (Babbie, 1990).

According to this study, public safety dispatchers put in more effort than they received in reward with an ER ratio of 1.410. An overwhelming majority (91%) reported an ER ratio > 1, which indicated job stress. The personality factor of overcommitment also played a role. Additionally, a large number of participants (75%) rated their supervisor as more passive-avoidant than the norm versus more transformational than the norm or more transactional than the norm. The results of this study indicated public safety dispatchers experience job stress, and their supervisor's leadership style could be a factor. The norm table (Table 4) showed that transformational leadership characteristics were in the 5th percentile, and the characteristics of passive-avoidant were in the 95th percentile for the study. Further, the satisfaction characteristic was in the fifth percentile, as well as extra effort and effectiveness under the outcomes of the leadership scale.

There are implications for the participants who reported stress because of their job. Job-related stress can cause physical, mental, and emotional problems for employees (Zoeckler, 2017; Toderi & Balducci, 2018; Zhoe, Jin, & Ma, 2015). An employee's health dealing with job stress has shown to decrease (Gluschkoff et al., 2016). Employees often take this stress home with them, affecting their daily lives and those of their families, often decreasing life satisfaction (Dogan et al., 2015). Additionally, it may impact their psychological well-being (Zhou et al., 2015), increasing depression (Regehr et al., 2013) and suicidal ideations (Loerbroks et al., 2016). A meta-analytic review of 49,635 employees from 25 countries found a relationship between leadership style and subordinate stress in which the employee is either hurt or harmed by the leader's behavior (Harms et al., 2016).

Not only is the employee affected by job stress, but the organization is as well. Job stress can adversely affect the organization. The cost to organizations is between $200 billion and $300

billion per year (Roberto, as cited in Baysak & Yener, 2015; Tuckey et al., 2015). Additionally, employee turnover may be increased (Welty Peachey et al., 2014) because of the stress experienced by the employee. Workplace stress may also decrease employee productivity and increase absenteeism (Baysak & Yener, 2015; Syaiffuddin, 2016), further causing a burden for employees and the department. Additionally, the employee experiencing job stress shows less commitment to the organization (Garg & Dhar, 2014).

Past research suggested a connection between the stress felt by the subordinate in the workplace and the leadership style of the supervisor (Dehue et al., 2012; Lopez et al., 2011; Skakon, Nielson, Borg, & Guzman, as cited in Jacobs, 2019). Research showed and evidence suggested that many stress-related symptoms at work are because of unhealthy supervisor-subordinate relationships (Skakon, Nielsen, Borg, & Guzman, as cited in Belanger et al., 2016). There is "sufficient support to the assumption that poor leadership in the form of laissez-faire leadership may be a root cause of workplace stress" (Skogstad et al., 2014, p. 334). Additionally, 60% to 75% of employees in past studies felt the most stressful part of their job was their immediate supervisor (Raskin & Fazzini, as cited in Woestman & Wasonga, 2015). Syed et al. (2018) stated a toxic, laissez-faire, or destructive leadership style negatively affects the subordinate and increases this employee's stress. This study had 42 participants who rated their supervisor as more passive-avoidant than the norm. Two participants had an ER ratio < 1, and 10 participants had an ER ratio > 2. The remaining 30 participants had an ER ratio between 1 and 2. A leader with a transformative leadership style is more likely to decrease subordinate work stress (Harms et al., 2016; Siyal & Peng, 2018); however, in this study, two participants had an ER ratio < 1 and rated their supervisor as more transformational than the norm while six participants had an ER ratio between 1 and 2. No participant who rated his or her supervisor as more

transformational than the norm had an ER ratio > 2. Public safety dispatch can be a stressful occupation. However, the effort put forth and the reward received in return, along with the supervisor's leadership style, could make a difference in this stress felt and experienced.

Steinkopf et al. (2018) found higher levels of stress were more likely to be credited to stressors within the department and not related to the work done by the public safety dispatcher. Additionally, their study found police officers and public safety dispatchers had similar rates of job stress, which may be attributed to the inner workings, such as the department's organizational culture and not the job itself (Steinkopf et al., 2018). The researcher found her hypothesis was true that public safety dispatchers do experience job stress, and their supervisor could be a factor in that stress.

REFERENCES

"911 Master PSAP Registry." *Federal Communications Commission*, www.fcc.gov/general/9-1-
1-master-psap-registry.

Abbasi, S. G. (2018). Leadership styles: Moderating impact on job stress and health. *Journal of
Human Resources Management Research*, 2018, 1-11. doi:10.5171.2018.322892

Adams, K. A., & Lawrence, E. K. (2015). *Research methods, statistics, and applications*. Los
Angeles, CA: SAGE.

Agarwal, B., Brooks, S. K., & Greenberg, N. (2020). The role of peer support in managing
occupational stress: A qualitative study of the sustaining resilience at work intervention.
Workplace Health & Safety, *68*(2), 57-64. doi:10.1177/2165079919873934

Allisey, A., Rodwell, J., & Noblet, A. (2016). An application of an extended effort-reward
imbalance model to police absenteeism behaviour. *Personnel Review, 45*(4), 663-680.
doi:10.1108/PR-06-2014-0125

Anshel, M. H., Umscheid, D., & Brinthaupt, T. M. (2013). Effect of a combined coping skills
and wellness program on perceived stress and physical energy among police emergency
dispatchers: An exploratory study. *Journal of Police and Criminal Psychology*, *28*(1), 1-
14. doi:10.1007/s11896-012-9110-x

Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of
transformational and transactional leadership using the multifactor leadership
questionnaire. *Journal of Occupational and Organizational Psychology, 72*(4), 441-462.

Babbie, E. (1990). *Survey research methods* (2nd ed.). Belmont, CA: Wadsworth Publishing
Company.

Bass, B. (2008). *The Bass handbook of leadership: Theory, research, & managerial applications* (4th ed.). New York, NY: Free Press.

Bass, B. M., & Avolio, B. J. (2004). *Multifactor Leadership Questionnaire* (3rd ed.). Redwood City, CA: MindGarden.

Bauwens, R., Audenaert, M., Huisman, J., & Decramer, A. (2019). Performance management fairness and burnout: Implications for organizational citizenship behaviors. *Studies in Higher Education*, *44*(3), 584-598. doi:10.1080/03075079.2017.1389878

Baysak, B., & Yener, M. I. (2015). The relationship between perceived leadership style and perceived stress on hospital employees. *Procedia-Social and Behavioral Sciences*, *207*, 79-89. doi:10.1016/j.sbspro.2015.10.159

Belanger, J. J., Pierro, A., Barbieri, B., De Carlo, N. A., Falco, A., & Kruglanski, A. W. (2016). One size doesn't fit all: The influence of supervisors' power tactics and subordinates' need for cognitive closure on burnout and stress. *European Journal of Work and Organizational Psychology, 25*(2), 287-300. doi:10.1080/1359432X.2015.1061999

Bloomberg, L. D., & Volpe, M. (2016). *Completing your qualitative dissertation: A road map from beginning to end* (3rd ed.). Los Angeles, CA: SAGE.

Boamah, S. A., & Tremblay, P. (2019). Examining the factor structure of the MLQ transactional and transformational leadership dimensions in nursing context. *Western Journal of Nursing Research, 41*(5), 743-761. https://doi.org/10.1177/0193945918778833

Boateng, F. D., & Hsieh, M. (2019). Explaining job satisfaction and commitment among prison officers: The role of organizational justice. *The Prison Journal*, *99*(2), 172-193. doi:10.1177/0032885519825491

Brockner, J. (2010). *A contemporary look at organizational justice: Multiplying insult times injury*. New York, NY: Routledge.

Brough, P., Muller, W., & Westman, M. (2018). Work, stress, and relationships: The crossover process model. *Australian Journal of Psychology, 70*(4), 341-349. doi:10.1111/ajpy.12208

Brown, C. P. (2019). *The employee perspective: A phenomenological approach to the after-effects of toxic leadership* (Order No. 13810500). Available from ProQuest One Academic. (2203399500). Retrieved from ProQuest database. (2203399500)

Caldwell, C., Dixon, R. D., Floyd, L. A., Chaudoin, J., Post, J., & Cheokas, G. (2012). Transformative leadership: Achieving unparalleled excellence. *Journal of Business Ethics*, *109*, 175-187. doi:10.1007/s10551-011-1116-2

Centers for Disease Control and Prevention. (1999). *Stress at work* (NIOSH publication no. 99-101). Retrieved from https://www.cdc.gov/niosh/docs/99-101/default.html

Chughtai, A., Byrne, M., & Flood, B. (2015). Linking ethical leadership to employee well-being: The role of trust in supervisor. *Journal of Business Ethics, 128*(3), 653-663. doi:10.1007/s10551-014-2126-7

Clifton, J., & Harter, J. (2019). *It's the manager: Gallup finds that the quality of managers and team leaders is the single biggest factor in your organization's long-term success.* New York, NY: Gallup Press.

Cole, M. S., Walter, F., Bodeian, A. G., & O'Boyle, E. H. (2012). Job burnout and employee engagement: A meta-analytic examination of construct proliferation. *Journal of Management*, *38*(5), 1550-1581. doi:10.1177/0149206311415252

Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational Stress: A review and critique of theory, research, and applications.* Thousand Oaks, CA: SAGE.

Creswell, J. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Boston, MA: Pearson.

Dehue, F., Bolman, C., Völlink, T., & Pouwelse, M. (2012). Coping with bullying at work and health-related problems. *International Journal of Stress Management, 19*, 175-197. doi:10.1037/a0028969

Devonish, D. (2018). Effort-reward imbalance at work: The role of job satisfaction. *Personnel Review*, *47*(2), 319-333. doi:10.1108/PR-08-2016-0218

Dewe, P. J., O'Driscoll, M. P., & Cooper, C. L. (2010). *Coping with work stress: A review and critique*. West Sussex, UK: Wiley-Blackwell.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Dogan, B. G., Lacin, E., & Tutal, N. (2015). Predicatives of the workers' burnout level: Life satisfaction and social support. *Procedia: Social and Behavioral Sciences*, *191*, 1801-1806.

Dykes, A. C., & Winn, G. L. (2019). Identifying toxic leadership and building worker resilience. *Professional Safety, 64*(3), 38-45.

El-Bayoumi Salem, I. (2015). Transformational leadership: Relationship to job stress and job burnout in five-star hotels. *Tourism and Hospitality Research*, *15*(4), 240-253. doi:10.1177/1467358415581445

Feldt, T., Hyvönen, K., Mäkikangas, A., Rantanen, J., Huhtala, M., & Kinnunen, U. (2016). Overcommitment as a predictor of effort-reward imbalance: Evidence from an 8-year follow-up study. *Scandinavian Journal of Work, Environment & Health*, *42*(4), 309-319. doi:10.5271/sjweh.3575

Finney, C., Stergiopoulos, E., Hensel, J., Bonato, S., & Dewa, C. S. (2013). Organizational stressors associated with job stress and burnout in correctional officers: A systematic review. *BMC Public Health*, *13*(82), 1-13. doi:10.1186/1471-2458-13-82

Fowler, F. J. Jr. (2002). *Survey research methods* (3rd ed.). Thousand Oaks, CA: SAGE.

Fullan, M. (2001). *Leading in a culture of change.* San Francisco, CA: Jossey-Bass.

Galbraith, N., Boyda, D., McFeeters, D., & Galbraith, V. (2021). Patterns of occupational stress in police contact and dispatch personnel: Implications for physical and psychological health. *International Archives of Occupational and Environmental Health, 94*(2), 231-241. https://doi.org/10.1007/s00420-020-01562-1

Garbarino, S., & Magnavita, N. (2015). Work stress and metabolic syndrome in police officers. A prospective study. *PloS One, 10*(12), e0144318. doi:10.1371/journal.pone.0144318

Garg, S., & Dhar, R. L. (2014). Effects of stress, LMX and perceived organizational support on service quality: Mediating effects of organizational commitment. *Journal of Hospitality and Tourism Management*, *21*, 64-75. doi:10.1016.j.jhtm.2014.07.002

Gluschkoff, K., Elovainio, M., Kinnunen, U., Mullola, S., Hintsanen, M., Keltikangas-Järvinen, L., & Hintsa, T. (2016). Work stress, poor recovery and burnout in teachers. *Occupational Medicine, 66*(7), 564-570. doi:10.1093/occmed/kqw086

Golding, S. E., Horsfield, C., Davies, A., Egan, B., Jones, M., Raleigh, M., & Cropley, M. (2017). Exploring the psychological health of emergency dispatch centre operatives: A systematic review and narrative synthesis. *Peer Journal*, *5*, e3735. doi:10.7717/peerj.3735

Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review*, *12*, 9-22.

Hadadian, Z., & Zarei, J. (2016). Relationship between toxic leadership and job stress of knowledge workers. *Studies in Business and Economics*, *11*(3), 84-89. doi:10.1515/sbe-2016-0037

Harms, P. D., Crede, M., Tynan, M., Leon, M., & Jeung, W. (2016). Leadership and stress: A meta-analytic review. *The Leadership Quarterly*, *28*, 178-194. doi:10.1016/j.leaqua.2016.10.006

Harward, B. J. (2013). *Effort-reward imbalance at work and realization of physical activity intentions* (Order No. 3606189). Available from ProQuest One Academic. (1492338108)

Haverman, B. M., Brouwers, E. P. M., Hoek, R. J. A., Anema, J. R., van der Beek, Allard, J., & Boot, C. R. L. (2018). Work stress prevention needs of employees and supervisors. *BMC Public Health, 18*(1), 642-711. doi:10.1186/s12889-018-5535-1

Herr, R. M., Bosch, J. A., Loerbroks, A., van Vianen, A. E. M., Jarczok, M. N., Fischer, J. E., & Schmidt, B. (2015). Three job stress models and their relationship with musculoskeletal pain in blue- and white-collar workers. *Journal of Psychosomatic Research, 79*(5), 340-347. doi:10.1016/j.jpsychores.2015.08.001

Herr, R. M., Loerbroks, A., Bosch, J. A., Seegel, M., Schneider, M., & Burkhard, S. (2016). Associations of organizational justice with tinnitus and the mediating role of depressive symptoms and burnout-findings from a cross-sectional study. *International Journal of Behavioral Medicine, 23*, 190-197.

Hersey, P., Blanchard, K. H., & Johnson, D. E. (2001). *Management of organizational behavior: Leading human resources* (8th ed.). Upper Saddle River, NJ: Prentice-Hall.

Jachens, L., Houdmont, J., & Thomas, R. (2019). Effort–reward imbalance and burnout among humanitarian aid workers. *Disasters, 43*(1), 67-87. doi:10.1111/disa.12288

Jacobs, C. M. (2019). Ineffective-leader-induced occupational stress. *SAGE Open, 9*(2), 215824401985585. doi:10.1177/2158244019855858

Karam, E. P., Hu, J., Davison, R. B., Juravich, M., Nahrgang, J. D., Humphrey, S. E., & Scott DeRue, D. (2018). Illuminating the "face" of justice: A meta-analytic examination of leadership and organizational justice. *Journal of Management Studies, 56*(1), 134-171. doi:10.1111/joms.12402

Keisu, B., Öhman, A., & Enberg, B. (2018). Employee effort-reward balance and first-level manager transformational leadership within elderly care. *Scandinavian Journal of Caring Sciences, 32*(1), 407-416. doi:10.1111/scs.12475

Kotter, J. P. (1996). *Leading change*. Boston, MA: Harvard Business School Press.

Kunz, C. (2019). The influence of working conditions on health satisfaction, physical and mental health: Testing the effort-reward imbalance (ERI) model and its moderation with over-commitment using a representative sample of German employees (GSOEP). *BMC Public Health, 19*(1), 1009-11. doi:10.1186/s12889-019-7187-1

Lambert, E. G., Qureshi, H., Frank, J., Klahm, C., & Smith, B. (2018). Job stress, job

    involvement, job satisfaction, and organizational commitment and their associations with

    job burnout among Indian police officers: A research note. *Journal of Police and*

    Criminal Psychology, 33(2), 85-99. https://doi.org/10.1007/s11896-017-9236-y

Leka, S., Griffiths, A., & Cox, T. (2004). *Work organization & stress: Systematic program*

    approaches for employers, managers and trade union representatives. Retrieved from

    https://www.who.int/occupational_health/publications/pwh3rev.pdf

Lidwall, U. (2016). Effort–reward imbalance, overcommitment and their associations with all-

    cause and mental disorder long-term sick leave—A case-control study of the Swedish

    working population. *International Journal of Occupational Medicine and Environmental*

    Health, 29(6), 973-989. doi:10.13075/ijomeh.1896.00712

Loerbroks, A., Cho, S., Dollard, M. F., Zou, J., Fischer, J. E., Jiang, Y., . . . Li, J. (2016).

    Associations between work stress and suicidal ideation: Individual-participant data from

    six cross-sectional studies. *Journal of Psychosomatic Research, 90*, 62-69.

    doi:10.1016/j.jpsychores.2016.09.008

Lopez, D., Green, M. T., Carmody-Bubb, M., & Kodatt, S. (2011). The relationship between

    leadership style and employee stress: An empirical study. *The International Journal of*

    Interdisciplinary Social Sciences: Annual Review, 6, 169-182.

Mann, S. (2004). People-work: Emotion management, stress and coping. *British Journal of*

    Guidance & Counseling, *23*(2), 205-221. doi:10.1080/0369880410001692247

Matos, K., O'Neill, O., & Lei, X. (2018). Toxic leadership and the masculinity contest culture:

    How "win or die" cultures breed abusive leadership. *Journal of Social Issues, 74*(3), 500-

    528. doi:10.1111/josi.12284

Maxham, J. G., & Netemeyer, R. G. (2018; 2003). Firms reap what they sow: The effects of shared values and perceived organizational justice on customers' evaluations of complaint handling. *Journal of Marketing, 67*(1), 46-62. doi:10.1509/jmkg.67.1.46.18591

McCarty, W. P., & Skogan, W. G. (2013). Job-related burnout among civilian and sworn police personnel. *Police Quarterly*, *16*(1), 66-84. doi:10.1177/1098611112457357

McKay-Davis, S., Robinson, T., Sebetan, I. M., & Stein, P. (2020). Civilian forensic technician and sworn police officer job-related stress. *Journal of Forensic Sciences, 65*(6), 2065-2070. https://doi.org/10.1111/1556-4029.14543

Milner, A., Scovelle, A. J., King, T. L., & Madsen, I. (2019). Exposure to work stress and use of psychotropic medications: A systematic review and meta-analysis. *Journal of Epidemiology and Community Health, 73*(6), 569-576. doi:10.1136/jech-2018-211752

Nakamura, S., Somemura, H., Sasaki, N., Yamamoto, M., Tanaka, M., & Tanaka, K. (2016). Effect of management training in organizational justice: A randomized controlled trial. *Industrial Health*, *54*(3), 263-271. doi:10.2486/indhealth.2015-0164

Nardi, P. M. (2006). *Doing survey research: A guide to quantitative methods* (2nd ed.). Boston, MA: Pearson.

Nigatu, Y. T., & Wang, J. (2018). The combined effects of job demand and control, effort-reward imbalance and work-family conflicts on the risk of major depressive episode: A 4-year longitudinal study. *Occupational and Environmental Medicine, 75*(1), 6-11. doi:10.1136/oemed-2016-104114

Nihart, M. A. (2016). Transformative leadership in action. *Journal of the American Psychiatric Nurses Association, 22*(5), 411-412. doi:10.1177/1078390316658866

Northouse, P. G. (2016). *Leadership: Theory and practice* (7th ed.). Los Angeles, CA: SAGE.

Odugwe, J. I. (2018). *Participatory action for occupational stress on morale and absenteeism: Exploratory case study* (Order No. 10808840). Available from ProQuest One Academic. (2041921430)

Pan, X., Chen, M., Hao, Z., & Bi, W. (2018). The effects of organizational justice on positive organizational behavior: Evidence from a large-sample survey and a situational experiment. *Frontiers in Psychology, 8*, 1-16. doi:https://doi.org/10.3389/fpsyg.2017.02315

Pérez-Rodríguez, V., Topa, G., & Beléndez, M. (2019). Organizational justice and work stress: The mediating role of negative, but not positive, emotions. *Personality and Individual Differences.* doi:10.1016/j.paid.2019.04.047

Peterson, U., Bergström, G., Samuelsson, M., Åsberg, M., & Nygren, Å. (2008). Reflecting peer-support groups in the prevention of stress and burnout: Randomized controlled trial. *Journal of Advanced Nursing, 63*(5), 506-516. doi:10.1111/j.1365-2648.2008.04743.x

Pishgooie, A. H., Atashzadeh-Shoorideh, F., Falcó-Pegueroles, A., & Lotfi, Z. (2019). Correlation between nursing managers' leadership styles and nurses' job stress and anticipated turnover. *Journal of Nursing Management, 27*(3), 527-534. https://doi.org/10.1111/jonm.12707

Police, Fire, and Ambulance Dispatchers. (2018, September 5). Retrieved from https://www.bls.gov/ooh/office-and-administrative-support/police-fire-and-ambulance-dispatchers.htm

Rasooli, A., Zandi, H., & DeLuca, C. (2019). Conceptualising fairness in classroom assessment: Exploring the value of organisational justice theory. *Assessment in Education: Principles, Policy & Practice, 26*(5), 584-611. doi:10.1080/0969594x.2019.1593105

Regehr, C., LeBlanc, V., Barath, I., Balach, J., & Birze, A. (2013). Predictors of physiological

stress and psychological distress in police communicators. *Police Practice Research*,

14(6), 451-463. doi:10.1080/15614263.2012.736718

Robbins, S. P., & Judge, T. A. (2015). *Organizational behavior* (16th ed.). Boston, MA: Pearson.

Roberts, C. M. (2010). *The dissertation journey: A practical and comprehensive guide to

planning, writing, and defending your dissertation* (2nd ed.). Thousand Oaks, CA:

Corwin.

Russell, L. M., Cole, B. M., & Jones III, R. J. (2014). High-risk occupations: How

leadership, stress, and ability to cope influence burnout in law enforcement. *Journal of

Leadership, Accountability and Ethics, 11*(3), 49.

Salkind, N. J. (2014). *Statistics for people who (think they) hate statistics* (5th ed.). Los Angeles,

CA: SAGE.

Schein, E. H. (2017). *Organizational culture and leadership* (5th ed.). Hoboken, NJ: John Wiley

& Sons, Inc.

Schneider, B., Gonzalez-Roma, V, Ostroff, C., & West, M. A. (2017). Organizational climate

and culture: Reflections on the history of the constructs in the journal of applied

psychology. *Journal of Applied Psychology, 102*(3), 468-482. doi:10.1037/apl0000090

Sedivy, J. A., Rienks, S., Leake, R., & He, A. S. (2020). Expanding our understanding of the role

of peer support in child welfare workforce retention. *Journal of Public Child Welfare*,

14(1), 80-100. doi:10.1080/15548732.2019.1658020

Sherman, G. D., Lee, J. J., Cuddy, A. J. C., Renshon, J., Oveis, C., Gross, J. J., & Lerner, J. S.

(2012). Leadership is associated with lower levels of stress. *Proceedings of the National

Academy of Sciences of the United States of America*, *109*(4), 17903-17907.

Shields, C. M., Dollarhide, C. T., & Young, A. A. (2017;2018;). Transformative leadership in
     school counseling: An emerging paradigm for equity and excellence. *Professional School
     Counseling, 21*(1b), 1-11.

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of
     Occupational Health Psychology, 1*(1), 27-41.

Siegrist, J. (2017). The effort-reward imbalance model. In C. L. Cooper and C. Quick (Eds.). *The
     handbook of stress and health: A guide to research and practice* (pp. 24-35).

Siegrist, J., Li, J., & Montano, D. (2019). *Psychometric properties of the effort-reward
     imbalance questionnaire* (Manuscript).

Singh, A. P. (2017). Coping with work stress in police employees. *Journal of Police and
     Criminal Psychology, 32*(3), 225-235. doi:10.1007/s11896-016-9215-8

Siyal, S., & Peng, X. (2018). Does leadership lessen turnover? The moderated mediation effect
     of leader-member exchange and perspective-taking on public servants. *Journal of Public
     Affairs, 18*(4), e1830-n/a. doi:10.1002/pa.1830

Skogstad, A., Hetland, J., Glaso, L., & Einarsen, S. (2014). Is avoidant leadership a root cause of
     subordinate stress? Longitudinal relationships between laissez-faire leadership and role
     ambiguity. *Work & Stress*, *28*(4), 323-341. doi:10.1080/02678373.2014.957363

Soteriades, E. S., Psalta, L., Leka, S., & Spanoudis, G. (2019). Occupational stress and
     musculoskeletal symptoms in firefighters. *International Journal of Occupational
     Medicine and Environmental Health, 32*(3), 341-352. doi:10.13075/ijomeh.1896.01268

Spell, C. S., & Arnold, T. J. (2016; 2007). A multi-level analysis of organizational justice
     climate, structure, and employee mental health. *Journal of Management, 33*(5), 724-751.
     doi:10.1177/0149206307305560

Steinkopf, B., Reddin, R. A., Black, R. A., Van Hasselt, V. B., & Couwels. (2018). Assessment

of stress and resiliency in emergency dispatchers. *Society for Police and Criminal*

Psychology, *1*(1), 1-14. doi:10.1007/s11896-018-9255-3

Stranks, J. (2005). *Stress at work: Management and prevention*. Burlington, MA: Elsevier

Butterworth-Heinemann.

Subordinate. (n.d.). BusinessDictionary.com. Retrieved July 22, 2020, from

BusinessDictionary.com. http://www.businessdictionary.com/definition/subordinate.html

Supervisor. (n.d.). BusinessDictionary.com. Retrieved July 22, 2020, from

BusinessDictionary.com. http://www.businessdictionary.com/definition/supervisor.html

Swider, B. W., & Zimmerman, R. D. (2010). Born to burnout: A meta-analytic path model of

personality, job burnout, and work outcomes. *Journal of Vocational Behavior*, *76*(2010),

487-506. doi:10.1016/j.jvb.2010.01.003

Syaiffuddin, S. S. A. (2016). The influence of work stress and transformational leadership on

work motivation and implication of employee's performance (case study). *Academy of*

Strategic Management Journal, *15*(3), 42-48.

Syed, A. R., Rehman, K. U., & Kitchlew, N. (2018). Impact of perceived leadership style on

employees' work stress: Moderating and mediating role big 5 personality traits.

Paradigms: A Research Journal of Commerce, Economics, and Social Sciences, *12*(1), 6-

15. doi:10.24312/paradigms120102

Thomson, N. B., Rawson, J. V., Slade, C. P., & Bledsoe, M. (2016). Transformation and

transformational leadership. *Academic Radiology, 23*(5), 592-599.

doi:10.1016/j.acra.2016.01.010

Thoroughgood, C. N., Sawyer, K. B., Padilla, A., & Lunsford, L. (2018). Destructive leadership: A critique of leader-centric perspectives and toward a more holistic definition. *Journal of Business Ethics, 151*(3), 627-649. doi:10.1007/s10551-016-3257-9

Toderi, S., & Balducci, C. (2018). Stress-preventive management competencies, psychosocial work environments, and affective well-being: A multilevel, multisource investigation. *International Journal of Environmental Research and Public Health*, *15*(3), 397-414. doi:10.3390/ijerph115030397

Tuckey, M. R., Searle, B. J., Boyd, C. M., Winefield, A. H., & Winefield, H. R. (2015). Hindrances are not threats: Advancing the multidimensionality of work stress. *Journal of Occupational Health Psychology, 20*(2), 131-147. doi:10.1037/a0038280

Uysal, H. T. (2019). The mediation role of toxic leadership in the effect of job stress on job satisfaction. *International Journal of Business*, *24*(1), 55-73.

Van den Broeck, A., Elst, T. V., Baillien, E., Sercu, M., Schouteden, M., De Witte, & Godderis, L. (2017). Job demands, job resources, burnout, work engagement, and their relationships: An analysis across sectors. *American College of Occupational and Environmental Medicine*, *59*(4), 369-376.

van Oord, L. (2013). Towards transformative leadership in education. *International Journal of Leadership in Education, 16*(4), 419-434. https://doi.org/10.1080/13603124.2013.776116

van Vegchel, N., de Jonge, J., Bosma, H., & Schaufeli, W. (2005). Reviewing the effort-reward imbalance model: Drawing up the balance of 45 empirical studies. *Social Science & Medicine, 60*(5), 1117-1131. doi:10.1016/j.socscimed.2004.06.043

Violanti, J. M., Fekedulegn, D., Gu, J. K., Allison, P., Mnatsakanova, A., Tinney-Zara, C., & Andrew, M. E. (2018b). Effort–reward imbalance in police work: Associations with the cortisol awakening response. *International Archives of Occupational and Environmental Health*, *91*(5), 513-522. doi:10.1007/s00420-018-1300-0

Violanti, J. M., Mnatsakanova, A., Andrew, M. E., Allison, P., Gu, J. K., & Fekedulegn, D. (2018a). Effort–reward imbalance and overcommitment at work: Associations with police burnout. *Police Quarterly, 21*(4), 440-460. doi:10.1177/1098611118774764

Wattoo, M. A., Zhao, S., & Xi, M. (2018). Perceived organizational support and employee well-being. *Chinese Management Studies, 12*(2), 469-484. doi:10.1108/CMS-07-2017-0211

Webster, V., Brough, P., & Daly, K. (2016). Fight, flight or freeze: Common responses for followers coping with toxic leadership. *Stress and Health, 32*(4), 346-354. doi:10.1002/smi.2626

Weiß, E., & Süß, S. (2016). The relationship between transformational leadership and effort-reward imbalance. *Leadership & Organization Development Journal, 37*(4), 450-466. doi:10.1108/LODJ-08-2014-0146

Welty Peachey, J. J. Burton, L., & Wells, J. (2014). Examining the influence of transformational leadership, organizational commitment, job embeddedness, and job search behaviors on turnover intentions in intercollegiate athletics. *Leadership & Organization Development Journal, 35*(8), 740-755. doi:10.1108/LODJ-10-2012-0128

Wilkinson, K., Tomlinson, J., & Gardiner, J. (2018). The perceived fairness of work-life balance policies: A UK case study of solo-living managers and professions without children. *Human Resource Management Journal, 28*(2), 325-339. doi:10.1111/1748-8583.12181

Woestman, D. S., & Wasonga, T. A. (2015). Destructive leadership behaviors and workplace attitudes in schools. *NASSP Bulletin*, *99*(2), 147-163. doi:10. 1177/0192636515581922

Woodard, T. D. (2017). *Autocratic leadership and stress on law enforcement officers: A narrative inquiry* (Order No. 10690593). Available from ProQuest One Academic. (1968595650)

Yang, C. (2014). Does ethical leadership lead to happy workers? A study on the impact of ethical leadership, subjective well-being, and life happiness in the Chinese culture. *Journal of Business Ethics*, *123*(3), 513-525. doi:10.1007/s10551-013-1852-6

Yao, Y. H., Fan, Y. Y., Guo, Y. X., & Li, Y. (2014). Leadership, work stress and employee behavior. *Chinese Management Studies*, *8*(1), 109-126. doi:10.1108/CMS-04-2014-0089

Zhou, H., Jin, M., & Ma, Q. (2015). Remedy for work stress: The impact and mechanism of ethical leadership. *Central European of Public Health*, *23*(2), 176-180.

Zoeckler, J. M. (2017). *Occupational stress and health among home health care workers* (Order No. 10272448). Available from ProQuest One Academic. (1926732967)

Zook, T. (2017). Promising pedagogy: Advancing the educational experience of queer students through transformative leadership. *Journal of Homosexuality, 64*(13), 1755-1777. doi:10.1080/00918369.2016.1267462

APPENDIX A: INVITATION COMMUNICATION TO POTENTIAL PARTICIPANTS

The following message was sent to Facebook group administrators requesting signed permission to post in their group:

Hi! Thank you for allowing me to post my study about dispatcher job stress in your Facebook group. As a requirement for the Institutional Review Board (IRB) of my school, I need to have a signed letter of permission to post my research study in your group. Their role is to ensure my study is ethical and I will not purposely cause harm to participants. Could I have an email to send this to? Either a work or personal email is fine. I also need to know what name to put on the letter.

Thank you,
Jennifer Yoho, Doctoral Candidate
University of New England

APPENDIX B: CONSENT FOR PARTICIPATION IN ANONYMOUS SURVEY RESEARCH

Version 09.21.18

UNIVERSITY OF NEW ENGLAND

CONSENT FOR PARTICIPATION

IN ANONYMOUS SURVEY RESEARCH

Project Title:

Principal Investigator(s): Jennifer Yoho

Introduction:

- Please read this form. You may also request that the form is read to you. The purpose of this form is to give you information about this research study, and if you choose to participate and document that choice. You can take as much time as you need to decide whether or not you want to participate.

- You are encouraged to ask any questions that you may have about this study, now, during or after the project is complete.

- Your participation is voluntary.

Why is this research study being done?

This research is being done to examine the leadership style of those in a supervisor role and the stress experienced by a public safety dispatcher as perceived by the dispatchers as well as the work stress experienced and reported.

Who will be in this study?

Public safety dispatchers working in the United States will be invited to participate in this study.

What will I be asked to do?

You will be asked to complete an anonymous survey through REDCap, which should take 15 minutes or less to complete. Sample questions include:

I have constant time pressure due to a heavy work load. (ERI) Scale: Strongly disagree, Disagree, Agree, Strongly agree

The person I am rating talks optimistically about the future (MLQ) Scale: 0- Not at all, 1- Once in a while, 2- Sometimes, 3- Fairly often, 4- Frequently, if not always

What are the possible risks of taking part in this study?

The study poses little to no risk to you. You may internalize some questions. This could cause mild emotional distress if they bring up thoughts or feelings from a stressful event or situation.

What are the possible benefits of taking part in this study?

The possible benefits include adding to the field of knowledge about the stress public safety dispatchers experience.

What will it cost me?

There is no cost to participate.

How will my privacy be protected?

The survey will be conducted anonymously with no identifying data provided. All results will be provided in aggregate.

PLEASE NOTE: THE UNE INSTITUTIONAL REVIEW BOARD MAY REVIEW THE RESEARCH RECORDS.

How will my data be kept confidential?

The data collected will be kept on a password-protected laptop computer. The collected data will be destroyed at the conclusion of the research study.

PLEASE NOTE: IF YOU HAVE BEEN TOLD THAT THIS SURVEY IS ANONYMOUS, PLEASE DO INCLUDE ANY INFORMATION THAT CAN IDENTIFY YOU.

What are my rights as a research participant?

- Your participation is voluntary. Your decision to participate will have no impact on your current or future relations with the University.

- Your decision to participate will not affect your relationship with Jennifer Yoho.

- You may skip or refuse to answer any question for any reason.

- If you choose not to participate there is no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.

- You are free to withdraw from this research study at any time, for any reason.

  - If you choose to withdraw from the research there will be no penalty to you and you will not lose any benefits that you are otherwise entitled to receive.

- You will be informed of any significant findings developed during the course of the research that may affect your willingness to participate in the research.

- If you sustain an injury while participating in this study, your participation may be ended.

What other options do I have?

- You may choose not to participate.

Whom may I contact with questions?

- The researchers conducting this study are Jennifer Yoho.

  - For more information regarding this study, please contact jyoho@une.edu.

- If you choose to participate in this research study and believe you may have suffered a

  research related injury, please contact hwilmot@une.edu.

  If you have any questions or concerns about your rights as a research subject, you may

  call Mary Bachman DeSilva, Sc.D., Chair of the UNE Institutional Review Board at

  (207) 221-4567 or irb@une.edu.

Will I receive a copy of this consent form?

- You may print and keep a copy of this consent form.

APPENDIX C: CONSENT FOR PARTICIPATION IN RESEARCH

CONSENT. Checking "YES" means that you understand the information, that any questions that you may have about this study have been answered, and that you are eligible and voluntarily agree to participate.

Yes/No

CONFIDENTIALITY. This confidential online survey is being conducted through the website REDCap, an independent internet service company. You may find out more about this website, if you wish, at https://redcap.une.edu/redcap/ No identifying information about you is being collected. In order to protect the anonymity of your responses, no IP addresses, email addressed, or identifying information will be collected. REDCap uses industry-standard security methods to protect data transmission and storage. Survey data will be stored only on a password-protected computer. All individual answers will be presented in a summary form in any papers, books, talks, posts or stories resulting from this study. The data set may be shared with other researchers, but your identity will not be known.

FURTHER INFORMATION. If you have any questions, or would like additional information about this study, please contact Jennifer Yoho at jyoho@une.edu.

I understand the above description of the research and the risks and benefits associated with my participation as a research subject. I understand that by proceeding with this survey I agree to take part in this research and do so voluntarily.

APPENDIX D: ERI QUESTIONNAIRE

Johannes.Siegrist@med.uni-duesseldorf.de
Sun 8/2/2020 8:46 AM
To: Jennifer Yoho

ERI_Psychometric-New.docx
130 KB

Dear Jennifer Yoho,
in response to your message I hereby give you permission to use the Effort-Reward Imbalance (ERI) questionnaire (original and short version) for all your research projects. I attach a document with the two versions in English language as well as information on data analysis and Interpretation. In case you need to shorten your items it may be essential to focus on the two abbreviated scales 'effort' (3 items) and 'reward' (7 items). If you need further Information feel free to get in touch again.
With kind regards
J. Siegrist, PhD, Senior Professor, Heinrich-Heine-University Düsseldorf, Germany

Table D1

ERI Questionnaire

	Strongly disagree	Disagree	Agree	Strongly Agree
ER11 I have constant time pressure due to a heavy workload.				
ER12 I have many interruptions and disturbances while performing my job.				
ER13 Over the past few years, my job has become more and more demanding.				
ER14 I receive the respect I deserve from my superior or a respective relevant person.				
ER15 My job promotion prospects are poor. *Reverse coding*				
ER16 I have experienced or I expect to experience an undesirable change in my work situation. *Reverse coding*				
ER17 My job security is poor. *Reverse coding*				
ER18 Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.				
ER19 Considering all my efforts and achievements, my job promotion prospects are adequate.				
ER110 Considering all my efforts and achievements, my salary / income is adequate.				
OC1 I get easily overwhelmed by time pressures at work.				
OC2 As soon as I get up in the morning I start thinking about work problems.				
OC3 When I get home, I can easily relax and 'switch off' work. Reverse coding				
OC4 People close to me say I sacrifice too much for my job.				
OC5 Work rarely lets me go, it is still on my mind when I go to bed.				
OC6 If I postpone something that I was supposed to do today, I'll have trouble sleeping at night.				

APPENDIX E: MLQ QUESTIONNAIRE

MLQ

Multifactor Leadership Questionnaire

Leader Form, Rater Form, and Scoring
Key for MLQ (Form 5x-Short)

by Bernard Bass and Bruce Avolio

Note to Masters and Doctoral Students:
You may insert the following SAMPLE copy of the instrument
in your IRB proposal if necessary.
You may NOT insert a complete copy of the instrument
in your Thesis or Dissertation!!!
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Citation of the instrument must include the applicable copyright statement listed below. Sample Items:

As a leader ....

    I talk optimistically about the future.
    I spend time teaching and coaching.
    I avoid making decisions.

The person I am rating....

    Talks optimistically about the future.
    Spends time teaching and coaching.
    Avoids making decisions

Sincerely,

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Citation of the instrument must include the applicable copyright statement listed below. Sample Items:

As a leader ....

> I talk optimistically about the future.
> I spend time teaching and coaching.
> I avoid making decisions.

The person I am rating....

> Talks optimistically about the future.
> Spends time teaching and coaching.
> Avoids making decisions

Sincerely,

Robert Most
Mind Garden, Inc.
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- **You may** share the group's mean scale scores with survey participants and others.

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Other Terms in Mind Garden's Online Use Policy

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The Remote Online Use Application requires the following information, which is subject to verification:

- Name
- Email address
- Company/Institution
- Mind Garden order or invoice number
- Mind Garden instrument name
- The remote online survey website that you will be using

Additionally, we require agreement to the following conditions of use:

- I will administer this Mind Garden instrument for research purposes only.
- I will not send Mind Garden instruments in the text of an email or as a PDF file to survey participants.
- I will put the instrument copyright statement (from the footer of my license document; includes the copyright date, copyright holder, and publisher details) on every page containing questions/items from this instrument.
- I will send screenshots of my online survey to info@mindgarden.com so that Mind Garden can verify that the copyright statement appears.
- I will compensate Mind Garden, Inc. for each license use; one license is used when a participant first accesses the online survey.
- I will track my license use.
- Once the number of administrations reaches the number purchased, I will purchase additional licenses or the survey will be closed to use.
- I will remove this online survey at the conclusion of my data collection and I will personally confirm that it cannot be accessed.
- Please note: if you cannot build and administer your online survey in compliance with our conditions of use, we will not approve your application.

CAUTION: If you do not require a unique login for each respondent, the survey method you use may elicit a large number of responses to your survey. You are responsible for compensating Mind Garden for every administration, regardless of circumstances.

Questions? Contact Mind Garden
info@mindgarden.com
650.322.6300

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MLQ	The person I am rating....	*Not at all*	*Once in a while*	*Someti mes*	*Fairly often*	*Frequently, if not always*
9	Talks optimistically about the future.					
15	Spends time teaching and coaching.					
28	Avoids making decisions.					

APPENDIX F: DESCRIPTIVE STATISTICS OF ERI

Table F1

ERI Descriptive Statistics

Scale	N	Min	Max	Mean	Mode	Range	Std. Dev.
Effort	98	6.0	12.0	9.4796	10.0	6	1.46597
Reward	98	7.0	27.0	15.6837	16.0	20	3.46588
Overcommitment	97	7.0	23.0	15.4639	17.0	16	3.30423
Esteem Reward	100	2.0	8.0	4.4100	4.0	6	1.49136
Promotion Reward	100	3.0	11.0	5.7300	7.0	8	1.78577
Security Reward	98	2.0	8.0	5.5714	6.0	6	1.35464
Valid *N* Listwise	94						

APPENDIX G: DESCRIPTIVE STATISTICS OF MLQ

Table G1

Characteristics of Transformative Leadership Descriptive Statistics

Scale	*N*	Min	Max	*M*	Mode	Range	*SD*
IA	69	.00	4.00	1.6884	1.00	4	1.07478
IB	69	.00	3.50	1.7319	1.25	3.5	0.83662
IM	69	.00	4.00	1.7572	2.00	4	1.08378
IS	69	.00	3.50	1.4481	1.00	3.5	0.95445
IC	62	.00	3.75	1.4718	1.75	3.75	1.01838
Valid *N* listwise	62						

Table G2

Characteristics of Transactional Leadership Descriptive Statistics

Scale	*N*	Min	Max	*M*	Mode	Range	*SD*
CR	69	.00	4.00	1.6063	2.00	4	0.95282
MBEA	69	.25	4.00	1.9179	2.00	3.75	0.85981
Valid *N* listwise	69						

Table G3

Characteristics of Passive Avoidant Leadership Descriptive Statistics

Scale	*N*	Min	Max	*M*	Mode	Range	*SD*
MBEP	69	.00	4.00	2.3986	3.00	4	1.11830
LF	69	.25	4.00	2.0435	2.50	4	1.19662
Valid *N* listwise	69						

Table G4

Outcomes of Leadership Descriptive Statistics

Scale	*N*	Min	Max	*M*	Mode	Range	*SD*
EE	59	.00	4.00	1.2994	.00	4	1.18531
EFF	59	.00	3.75	1.5593	.00	3.75	1.16369
SAT	59	.00	4.00	1.5254	.50	4	1.11967
					1.50		
					3.00		
Valid *N* listwise	59						

APPENDIX H: DESCRIPTIVE STATISTICS OF ERI AND MLQ COMBINED

Table H1

Combined ERI and MLQ Descriptive Statistics

Scale	*N*	Min	Max	*M*	Mode	Range	*SD*
Effort	56	6.00	12.00	9.500	9.0	6	1.53741
Reward	56	7.00	27.00	15.5179	12.0 16.0	20	3.78029
Overcommitment	56	8.00	23.00	15.6429	17.0	15	3.08326
Esteem reward	56	2.00	8.00	4.3214	4.0	6	1.56213
Promotion reward	56	3.00	11.00	5.5714	5.0	8	1.81766
Security reward	56	2.00	8.00	5.6250	6.0	6	1.38252
IA	56	.00	4.00	1.6563	1.0	4	1.11861
IB	56	.25	3.50	1.7054	1.25	3.25	.76359
IM	56	.00	4.00	1.6830	.75	4	1.14762
IS	56	.00	3.50	1.3780	1.0	3.5	.93649
IC	56	.00	3.75	1.4241	1.75	3.75	1.01681
CR	56	.00	3.75	1.5536	1.75	3.75	.93992
MBEA	56	.25	4.00	1.9345	1.5	3.75	.87252
MBEP	56	.25	4.00	2.4955	4.0	3.75	1.11752
LF	56	.00	4.00	2.0714	2.5	4	1.21983
EE	56	.00	4.00	1.2798	.00	4	1.18198
EFF	56	.00	3.75	1.5223	.75	3.75	1.18252
SAT	56	.00	4.00	1.4821	.50 1.5	4	1.12801
Valid *N*	56						

APPENDIX I: FREQUENCY TABLES OF ERI
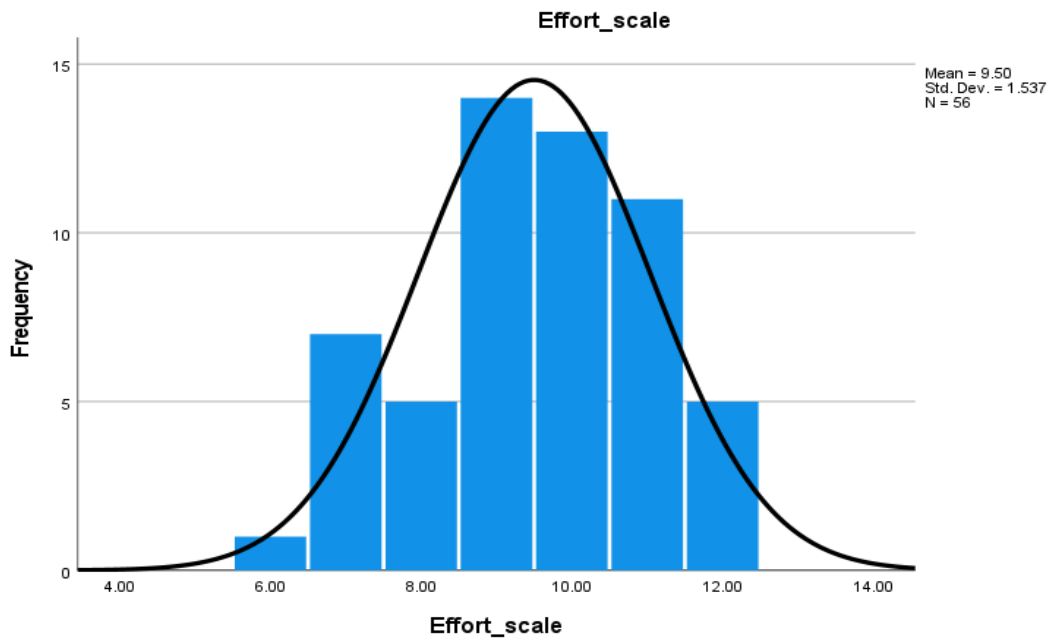
Figure I1. Effort Scale.
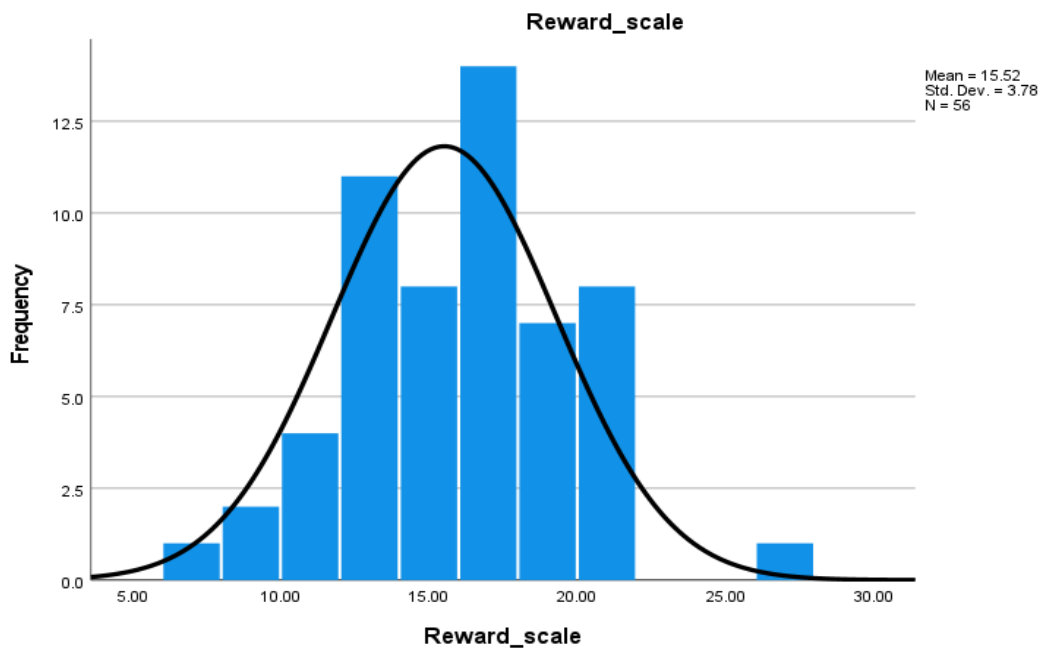
Figure I2. Reward Scale.
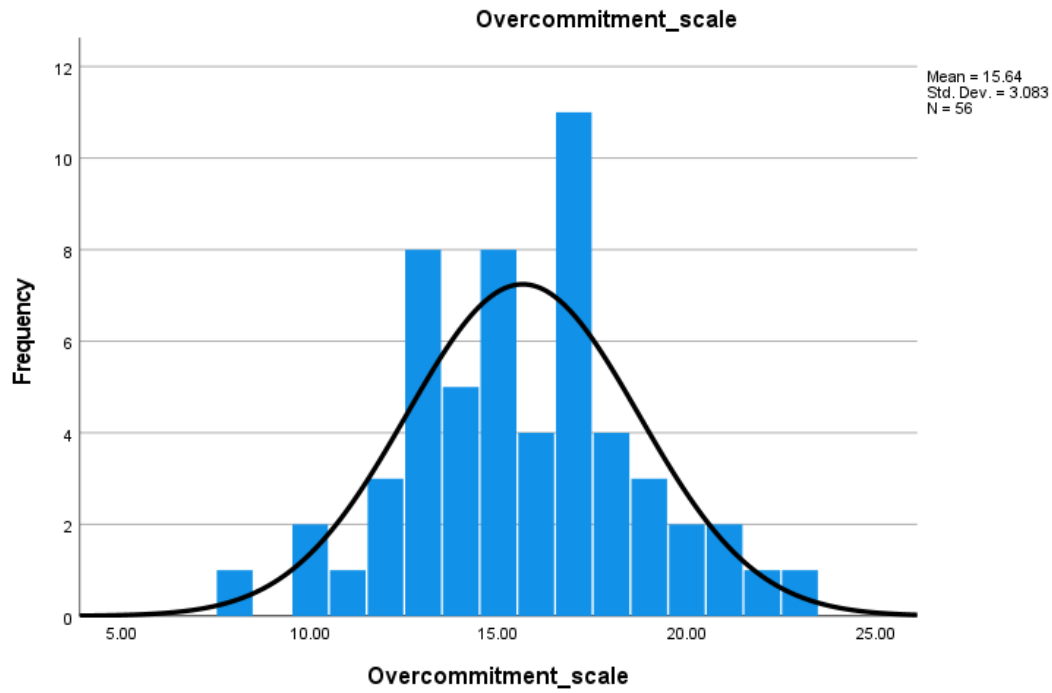
Figure I3. Overcommitment Scale.
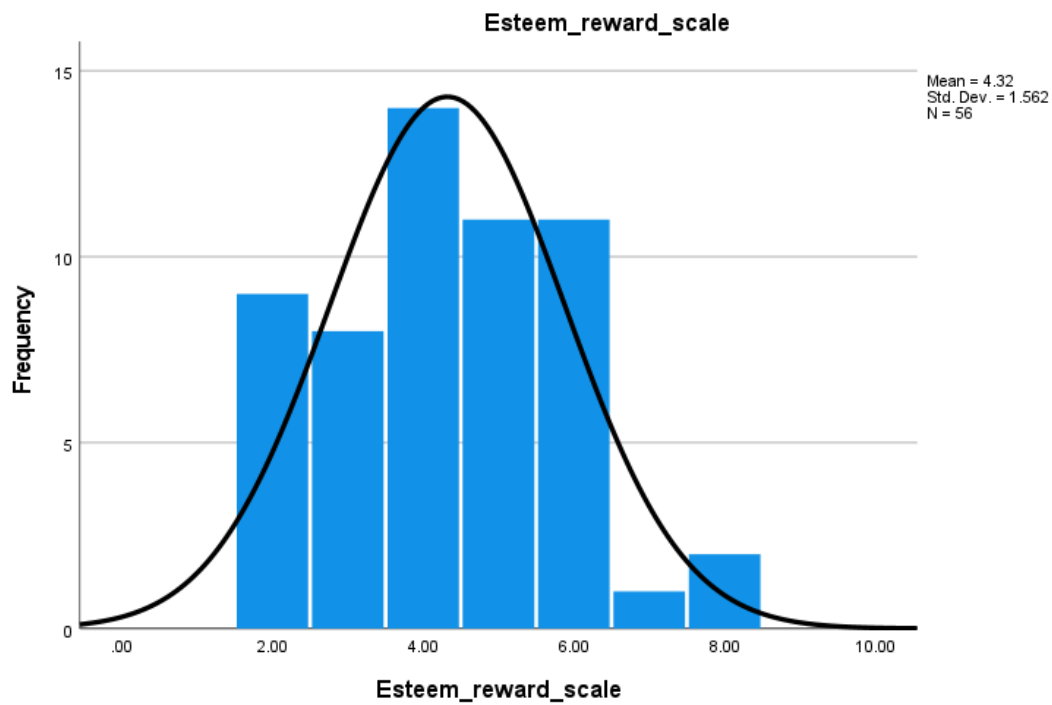
Figure I4. Esteem Reward Scale.
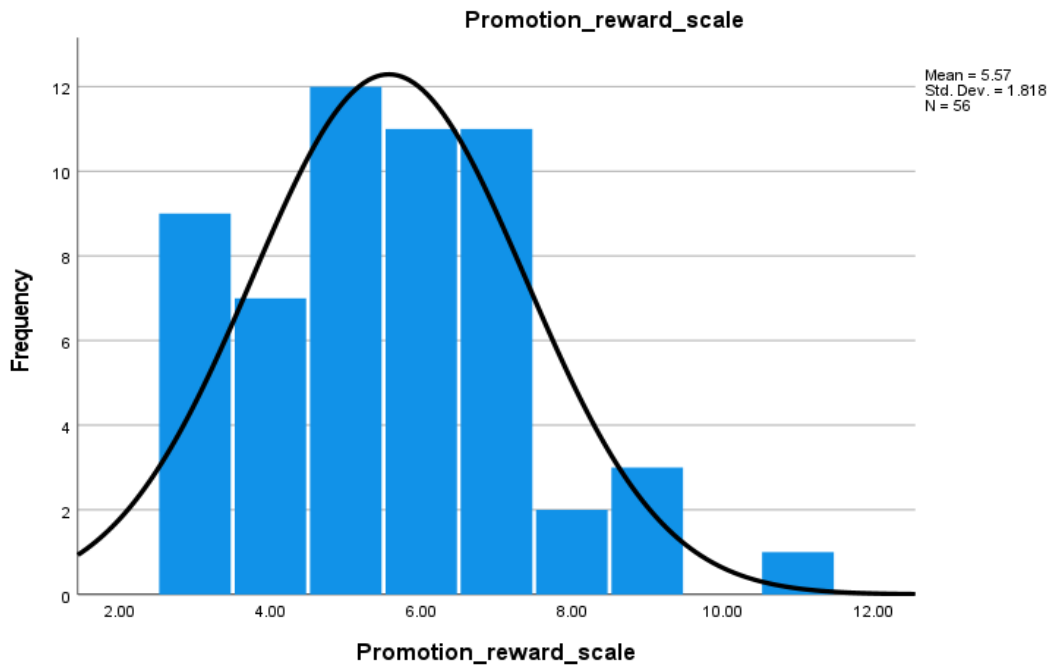
Figure I5. Promotion Reward Scale.
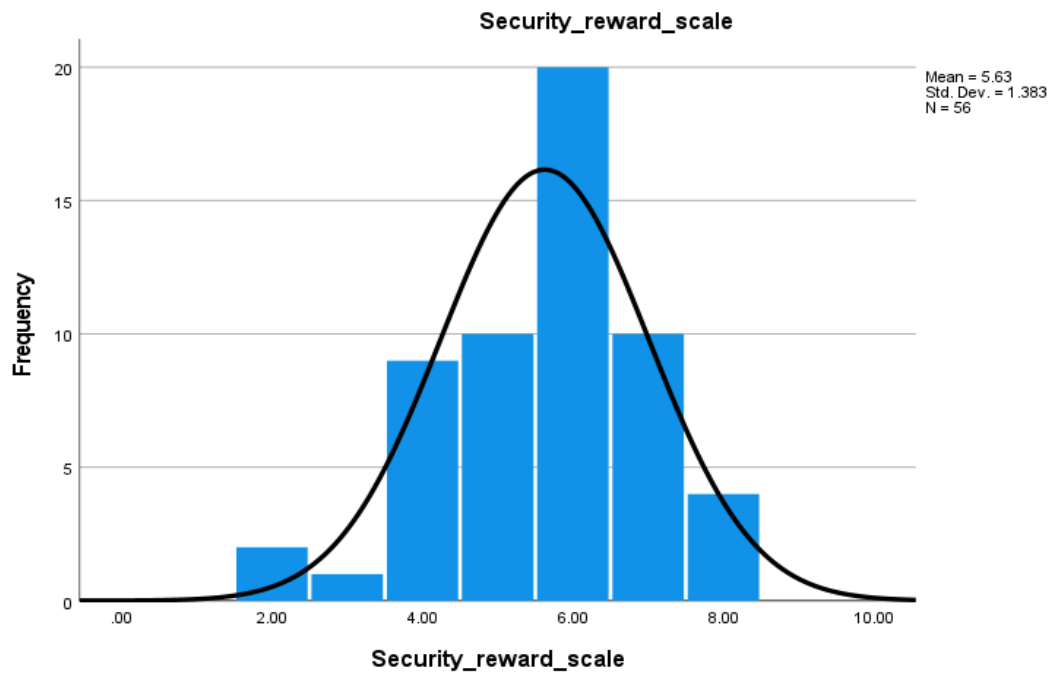
Figure 16. Security Reward Scale.

APPENDIX J: FREQUENCY TABLES OF MLQ
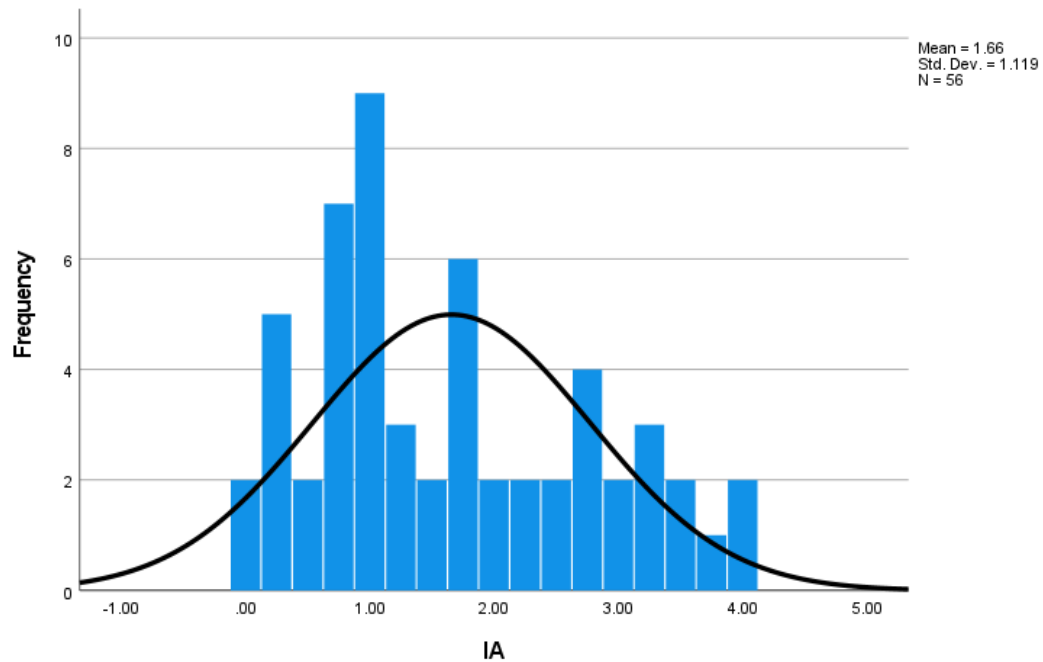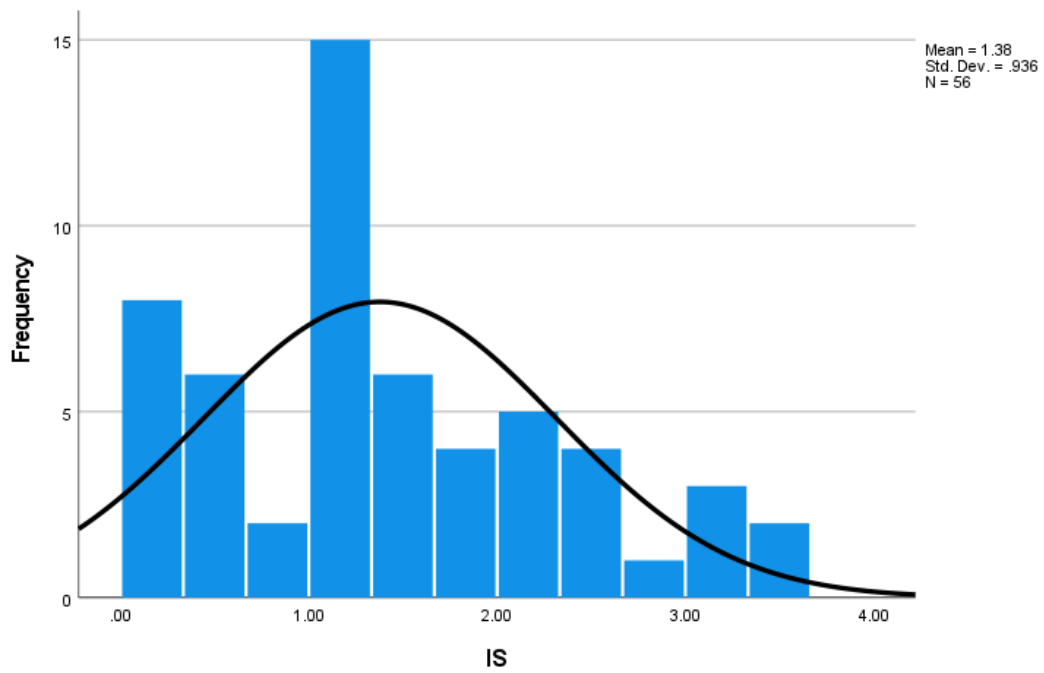

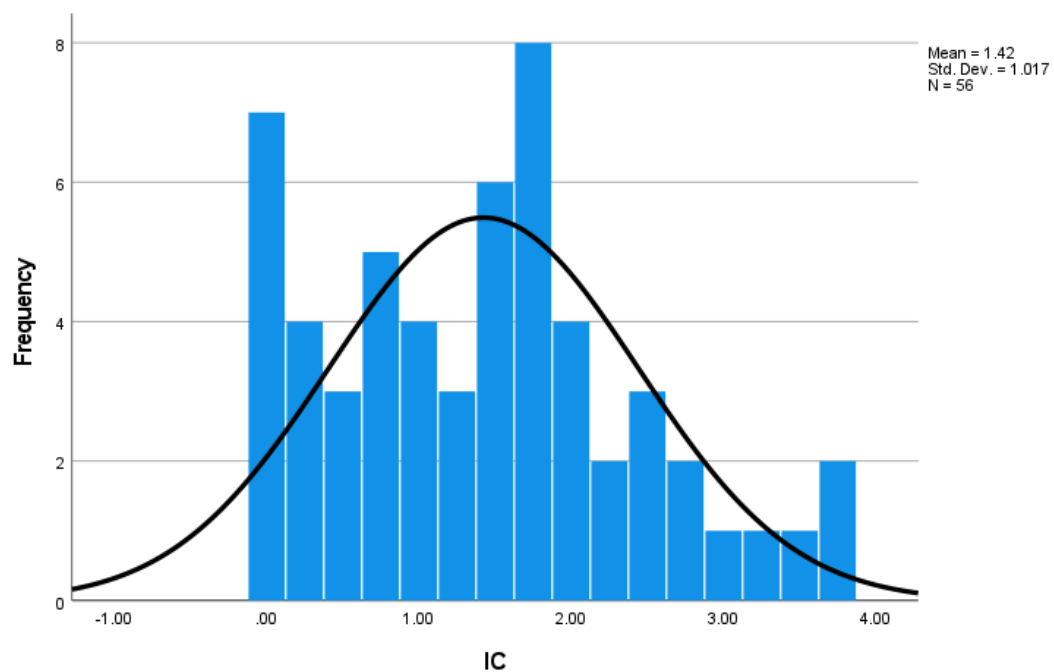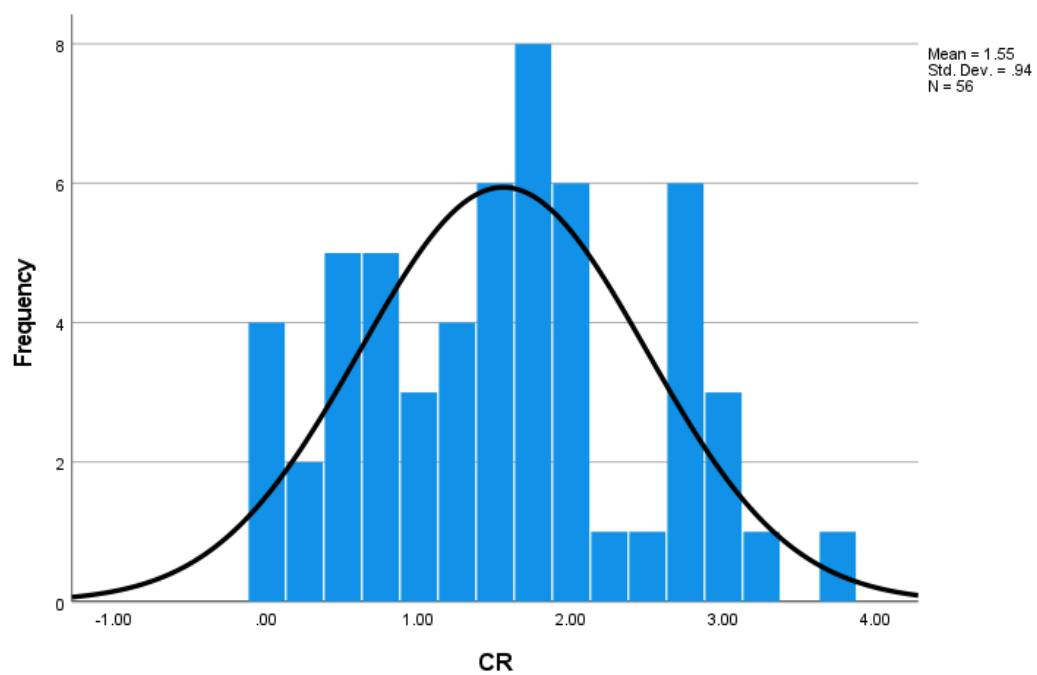*Figure J1*. IA.
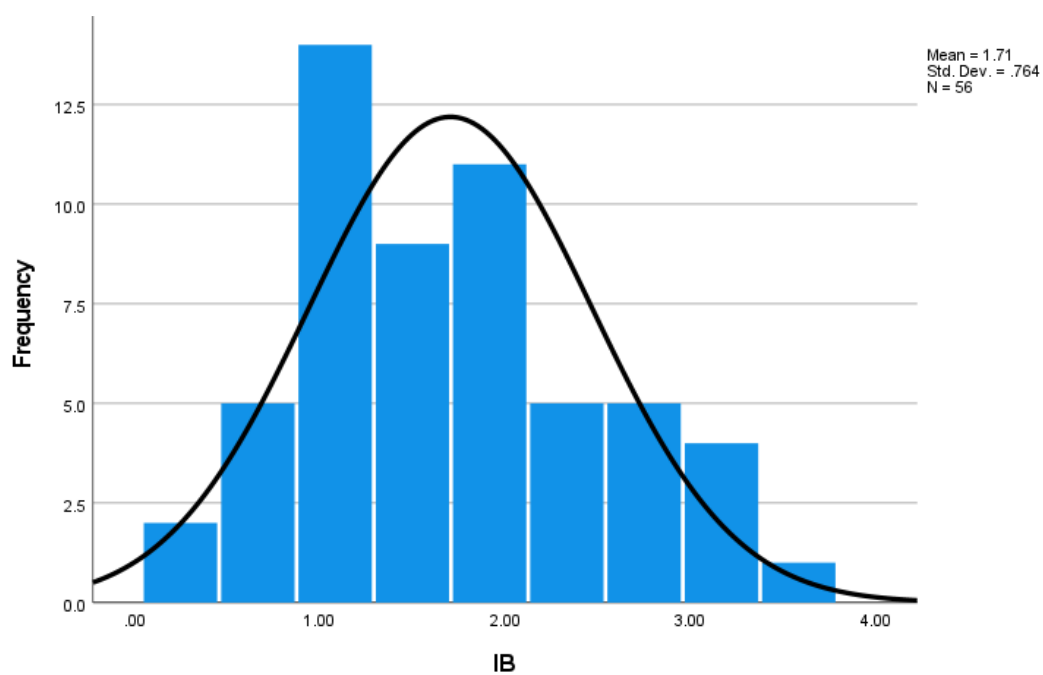
Figure J2. IB.
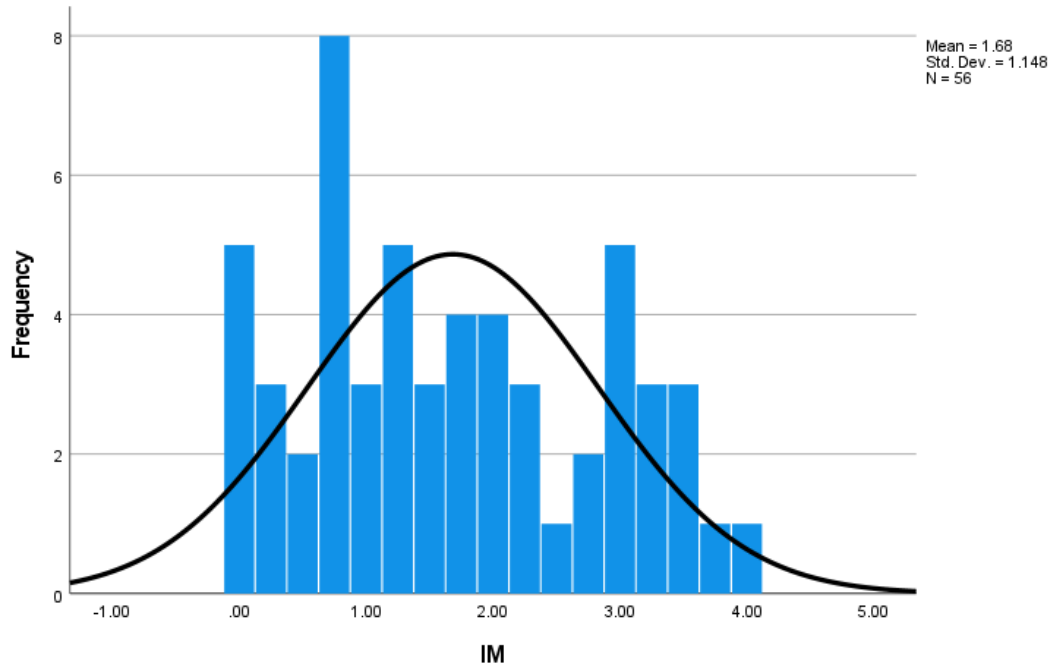
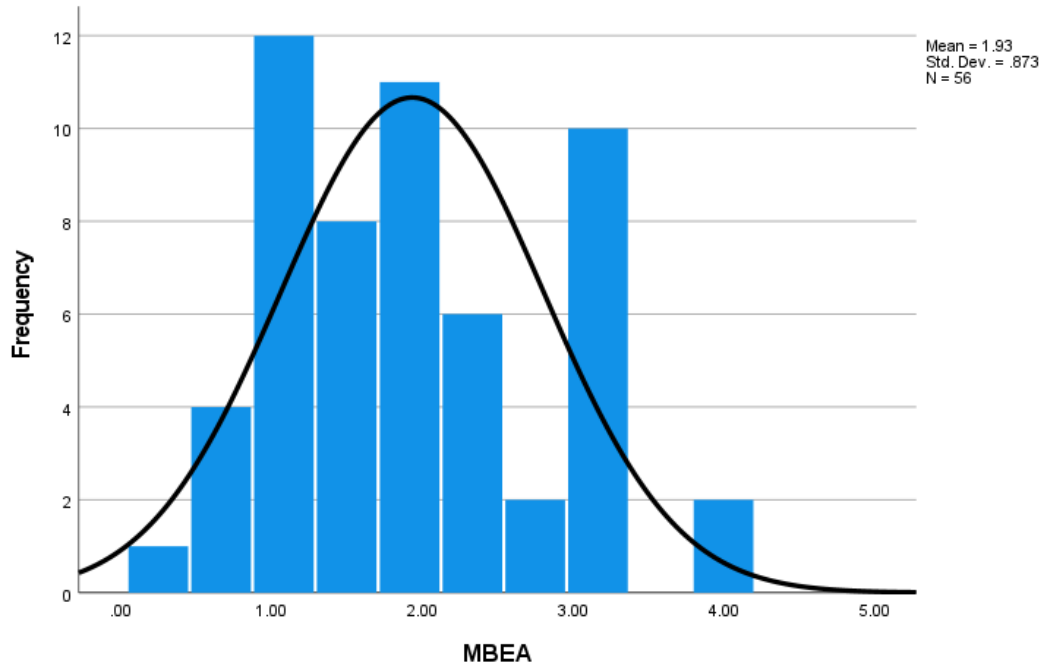*Figure J3.* IM.

Figure J4. IS.
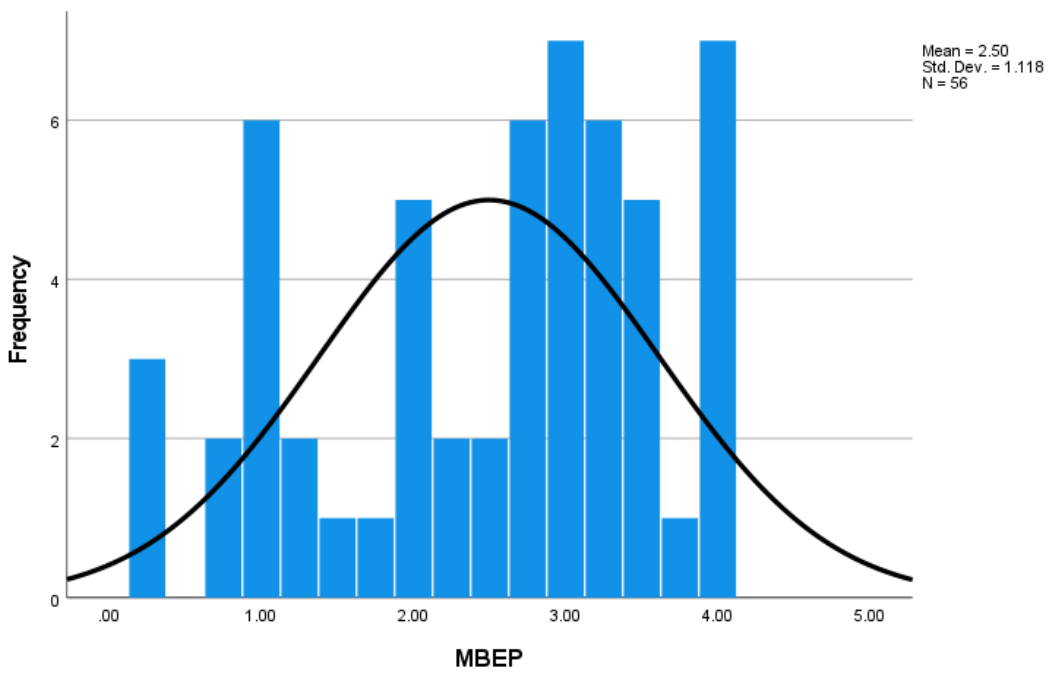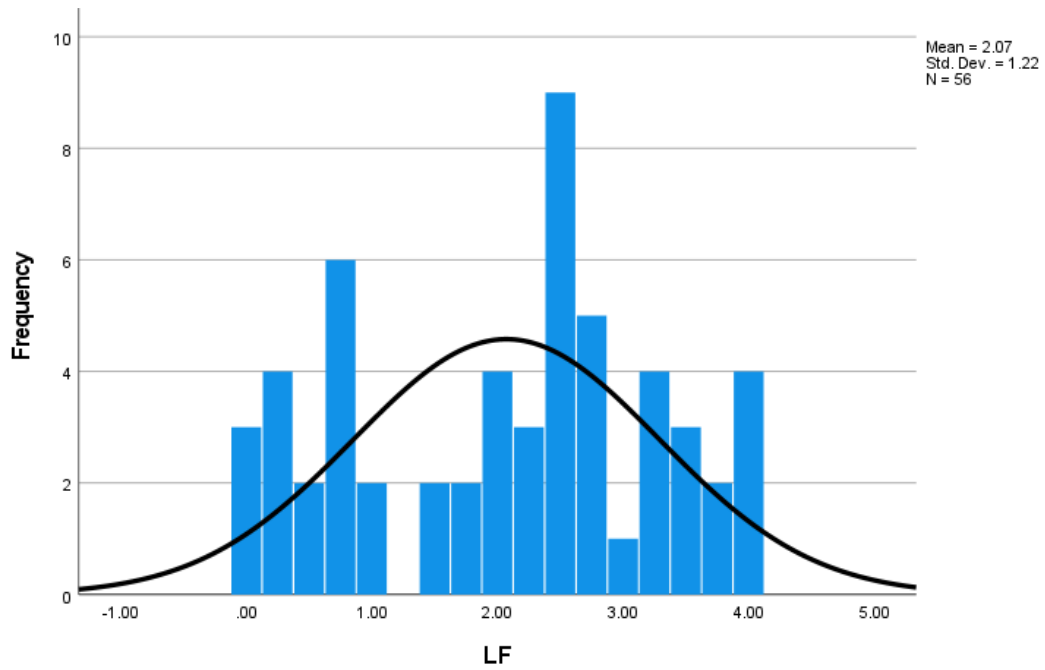
Figure J5. IC.
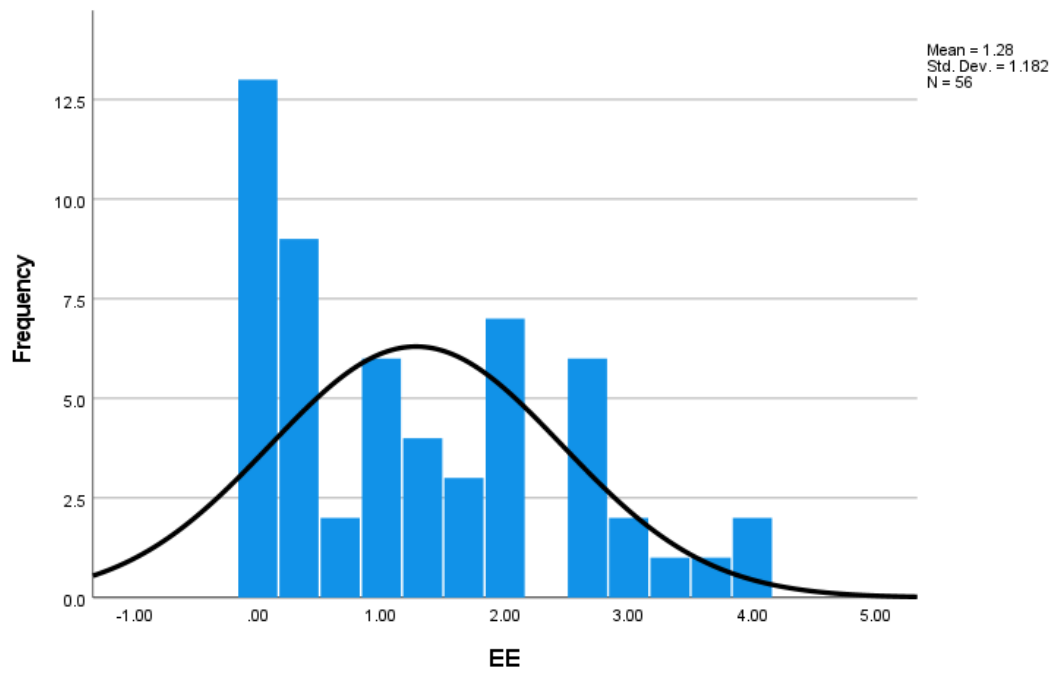

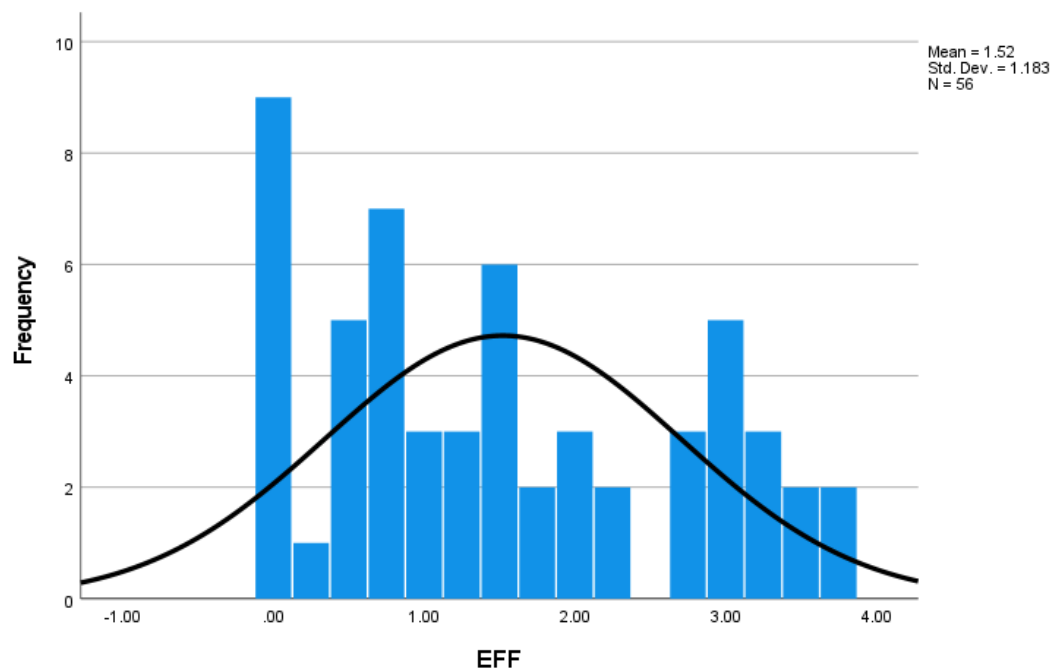*Figure J6.* CR.

Figure J7. MBEA.

Figure J8. MBEP.
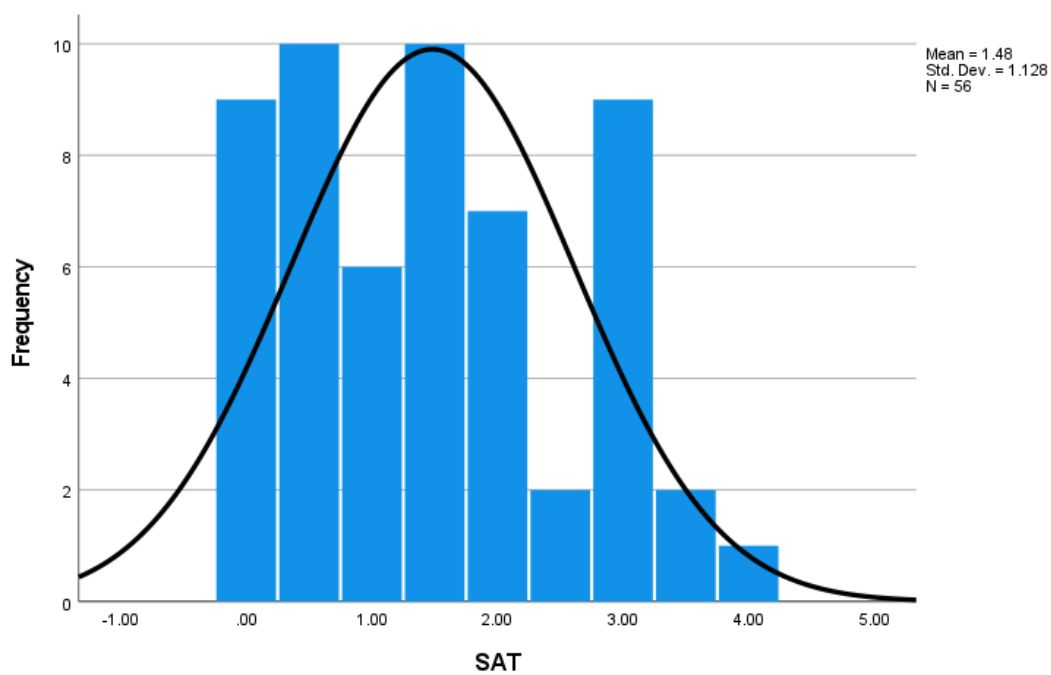
Figure J9. LF.

Figure J10. EE.

Figure J11. EFF.

Figure J12. SAT.