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Relationship Between Police Officers' Sleep Quality, Burnout From Shift Work, and Intention to Leave Law Enforcement

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MA, Walden University, 2019

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Forensic Psychology

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Abstract

Occupational stressors in police work are abundant, and high rates of attrition make the recruiting and maintaining of a qualified force challenging. The increased risks that overnight officers face with regard to their mental and/or physical health warrant further research to ensure that burnout does not interfere with officers' well-being or performance. The purpose of this quantitative nonexperimental study was to examine whether sleep quality for police officers involved in shift work leads to burnout or the intention to leave law enforcement. Shift work theory and Kundi's destabilization theory provided the framework for the study. Archival data from 212 police officers and survey data from 84 officers were analyzed to assess the relationship between sleep quality, level of burnout, and intention to leave law enforcement. Officers working the third shift in the survey did not report lower sleep quality. Sleep quality was not related to officers' shift work, and third shift officers did not report increased intention to leaving law enforcement. These determinations may be used as a foundation to build future research that reveals a connection between shiftwork and retention. This information could be used to promote positive social change by aiding law enforcement leaders and decision makers in creating programs to improve the lives of their officers and the communities they serve.

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Dedication

Praises be to God for blessing me with the knowledge, opportunity, and persistence to keep moving through this journey. This dissertation is dedicated to my family, as their love and support has enabled me to fulfill my purpose and dreams. Words are insufficient to explain the depths of my love for each of you. To my daughter, you have exponentially inspired me daily, from the moment we met. My hope is that this accomplishment will be a guide for you to continue to manifest greatness in who you are and everything you touch. To my mother, thank you not only for the vast number of talents you bestowed upon me, but for the wisdom to use them to achieve my highest potential. To my father, thank you for showing me how strength and kindness can be wrapped in humor to share with everyone. To my sister, you and your family continue to be a blessing to every part of my life; you will always be my rose. To the rest of my family and dearest friends, your support has been invaluable, and my victories are yours to share, as without your support the outcome would not be to this successful end (beginning). Ancora Imparo.

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Chapter 1: Introduction to the Study

Law enforcement professionals are expected to make decisions that can be a matter of life or death. Police departments, the media, and citizens often place an unrealistic expectation on the ability of officers to perform regardless of the utilization of night, long, and irregular shifts. Overnight shifts are unavoidable for many segments of the U.S. workforce; with the high levels of stress placed on police officers, the sleep loss due to shift work can add to the struggles to recruit police officers. Once the elusive police recruit is successfully identified, then the time and expense of extensive training can occur. Evidence showed long and irregular overnight shift work by police officers can lead to short sleep, culminating in a higher risk of burnout (Peterson et al., 2019). Given these issues, it is imperative researchers continue to study the relationships between working overnight shifts and the ability of modern police departments to retain valuable professionals to uphold law and order.

Background

As an 11-year management veteran in an industry that involved shift work, I noted in my personal experience the third shift had the lowest retention. With having personally been involved in the hiring and scheduling of over 800 security officers, I was drawn to the topics of improved training and retention to promote a more engaged employee and higher customer satisfaction results. Through many conversations with colleagues, I detected these concerns were also important to the local and federal law enforcement agencies. As I began the doctoral process, I continued to reflect on these problems and their possible impact on an officer’s safety and the community.

When an emergency occurs, the officer responding to the call is expected to be able to handle the situation (mentally and physically), resulting in successful protection of the community (McCandless, 2018). Decision-making skills are paramount in a law enforcement professional's success. The need for police officers to maintain self-control is vital to their safety. Pilcher et al. (2015) promulgated self-control is affected by the quality and quantity of sleep. An officer lacking in self-control might not be able to protect the community or could be involved in an unjustified fatal use of force. Officers who suffer from poor sleep hygiene can be susceptible to burnout and make mistakes based on their diminished decision-making ability. Pilcher et al. established vigilance decreased when working in environments that require overnight shift work. "The rate of officers dying from police accidents, for example, has surpassed the rate of officers dying from homicide" (Violanti, 2012, p. 2). I chose Kundi's (1989) destabilization theory and Barton et al.'s (1995) shift work theory as frameworks to examine the relationships between working the third shift and retention. Using data from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) study, I analyzed the relationship among variables to determine whether an officer's intention to leave was affected by the shift they worked. Additionally, I designed a quantitative survey to gather data from officers regarding their sleep quality, burnout, and intention to leave.

When the public observes the media's portrayal of civil unrest between community members and police officers, the civilian spectators are often confused and frustrated (Intravia et al., 2018). The social climate can appear unbalanced and unjust, with persons hurling opinions regarding speculative fault with little connection to the

facts regarding the incidents (Intravia et al., 2018). Regardless of a person's opinion regarding these national debates, most individuals depend on the police to protect them from harm. Likewise, the police depend on community members to help them fight crime by establishing a social control environment in which moral, law-abiding values are followed (Schreurs et al., 2018).

Advanced methods of protecting the welfare of those who are sworn to serve the local community could be beneficial to police officers. One method would be to use mindfulness-based resilience training (Christopher et al., 2018). Another advanced method used to reduce organizational stress, sleep difficulty, burnout, and aggression could be imagery-based training programs to strengthen coping strategies (Arble et al., 2017). To provide data that could be used to develop these training advancements, I investigated the relationship between the variables involved in the stressors.

Lammers-van der Holst and Kerkhof (2015) studied the ability of police officers to tolerate shift work and what influence working third shift had on their overall health. This study included seven variables considered indicators of good health and work balance: sleep quality, sleep quantity, fatigue, physical health, mental health, recovery needs, and work–life balance. Martin et al.'s (2015) research results showed negative effects of overnight shift work were noted in officers who were classified as evening types. In other words, self-perception as a "night owl" (i.e., a person who thrives in evening work/life) does not negate the negative physical effects of working the overnight shift.

Fekedulegn et al. (2013) performed a quantitative study with the BCOPS data that indicated shift work was a work stressor for police officers, which could lead to high-stress adverse health risks including mortality. These researchers established officers working the third shift took leave for being sick more than twice as often as their first-shift coworkers. Many factors could cause police officers to have a negative work–life balance (McCarty & Skogan, 2013). Researchers who examine burnout by considering factors such as health, motivation, perceived danger, job performance, emotional exhaustion, and tension with administrative staff/policies can produce beneficial decisions (McCarty & Skogan, 2013).

Pilcher et al. (2015) found auditory comprehension is less effective when individuals work at night while performing a difficult task. Research that could identify lower quality performance indicators on the night shift (due to lack of sleep quality) could help police departments provide training so officers could mitigate the risk of errors from the fatigue associated with lack of quality sleep. The goal is longer retention for police personnel through training and coping strategies for officers who work the overnight shift. Police recruiting and training are a significant investment for police agencies. Therefore, it is valuable to determine the tools needed to mitigate any negative effects of working the overnight shift.

When investigating a proper police-staffing model, researchers should consider both internal and external variables. External factors such as level of crime, community population density and demographics, economics, and number of service calls can determine what level of staffing is needed. In addition, internal factors like workload,

service times, and response times are dependent on how many officers a department has the funding and stable staffing to maintain (McCabe & O'Connell, 2017). Determining the potential link between retention and poor sleep quality would be another factor to consider when examining the ideal police staffing model.

My initial review of the literature revealed a vast amount of data pertaining to the lack of sleep being detrimental to an individual's health and productivity. The examination of the literature also showed a substantial amount of data indicating police officers have a stressful occupation compared to the general population. Peterson et al. (2019) stated heightened burnout risk caused by poor sleep, short sleep, working third shift, or long shift hours may decrease a police officer's rate of recovery from the demands of the job. Additionally, a large amount of research focused on the financial and operational cost of high turnover to business. Police administrations are not immune to the negative results of the inability to recruit and retain officers. These areas of research have included many important variables that should be understood to address the variety of elements affecting successful policing. There appeared to be a gap in the literature regarding the relationship between police officers' sleep hygiene and retention.

Problem Statement

Law enforcement professionals face many daily challenges that often make a career in policing stressful (Deschênes et al., 2018). Research has indicated a seemingly endless list of negative physical and mental stressors observed in the police community (Deschênes et al., 2018). The challenges of providing a 24-hour, 7-day-a-week workforce are not unique to police departments. Doctors, nurses, truck drivers, factory workers,

firefighters, and security personnel are other occupations (like policing) utilize shift work to meet the demand for around-the-clock services. Research has shown working the third (overnight) shift has many components that can reduce a healthy lifestyle. A police officer's health can be negatively impacted by the characteristics of shift work (Kirschman et al., 2014). Kirschman et al. (2014) suggested the occupational hazards for police officers are often higher due to the unique issues of overnight shift work. Law enforcement professionals encounter a myriad of demanding and stressful situations daily. Furthermore, officers working third shift often experience lack of work–life balance, extended time away from family, stress from administrative pressures, intense media scrutiny, and untreated health issues (Violanti et al., 2017).

There are common occupational stressors all officers encounter regardless of which shift they have predominantly worked. These general stressors stem from two main sources: environmental and organizational factors (Bishopp et al., 2018). One problem prevalent in the officers who work the third shift is poor sleep hygiene. Research has indicated the negative personal effects and health risks of overnight workers in a variety of careers, including police officers (Violanti et al., 2017). The BCOPS pilot study is an ongoing study that for a decade has been used to investigate whether chronic stress is related to a lower awakening cortisol response pattern (Violanti et al., 2017). Unlike the first and second shift officer, the overnight law enforcement professional may be uniquely vulnerable to burnout and have a higher risk of premature termination of their career in law enforcement. The current study could add to the scholarly research regarding the influence of poor sleep hygiene on police officers working the overnight

shift and the possible impact on retention of police personnel. Male officers who worked the night shift showed larger declines in endothelial functions (Charles et al., 2016). Fekedulegn et al. (2013) performed a quantitative study using the BCOPS data to determine whether shift work had a correlation with sickness and absenteeism. The available research indicated many problems with officers assigned to the overnight shift. A gap in the research was observed regarding whether these problems were driving a disproportionate number of officers on the night shift to terminate their career in the police force.

Purpose of the Study

The purpose of this study was to investigate the effect of poor sleep hygiene on third shift officers' retention by performing a secondary quantitative analysis of the BCOPS data. To increase the quality of this study, I developed a quantitative survey to investigate the beliefs of a new set of officers to compare their experiences with sleep quality, burnout, and intention to leave law enforcement (if any) across the first, second, and third shifts. The modern requirements of the law enforcement community are complex; this makes hiring, training, and retaining quality officers a challenge for most departments. Research on many aspects of turnover provided useful insight into how police administrations can create a system of support for their personnel. Schuck and Rabe-Hemp (2018) cited research on the relationship between compensation plans and police officer retention. This relationship is vital to understanding which programs will lead to successful departments. Meade (2015) stated that the available empirical research had not addressed the impact of voluntary turnover on police agency resources and

effectiveness. The current study contributed to the literature by addressing another variable for consideration.

Researching the BCOPS data in this new manner may be valuable if results indicate lower retention and higher burnout are prevalent in third shift officers. A quantitative relationship between working the third shift and retention could provide police departments with useful insight. Departments could develop programs to mitigate the negative effects of shift work, thereby increasing retention. The limited public resources used in recruiting, hiring, and training police officers could be successfully utilized if the effects of shift work could be better understood. According to Manley (2016), the Little Rock (Arkansas) police department was approximately 57 police officers short, with not enough qualified candidates applying to keep up with annual attrition of outgoing staff. Using the data collected from the BCOPS study to conduct a quantitative secondary analysis of the possible link between overnight shift work and sleep quality as it affects retention of a police officer may help police administrations retain their staff longer. Using the BCOPS data, Fekedulegn et al. (2016) published night and evening shifts were associated with poor sleep quality among the law enforcement officers. Future research might address whether additional compensation, such as a third shift differential, has an ability to counterbalance the effects of poor sleep quality with regard to retention.

Research Questions and Hypotheses

For this research, the BCOPS pilot study results were quantitatively examined to determine whether there is a link between shift work and recounted poor sleep health,

specifically whether the officers working the night shift report having burnout based on their combination of Maslach Burnout Inventory (MBI) scores. The archival Pittsburgh Sleep Quality Inventory (PSQI) scores were examined to evaluate whether the officer's shift is related to their conveyed sleep quality (see Violanti et al., 2006). In this quantitative study, the items investigated from the archival BCOPS data were (a) shift worked, (b) MBI comparative scores, and (c) PSQI scores**.**

Also, the primary questionnaire developed by me was used to investigate officers' beliefs regarding the effects of overnight shift work on sleep quality and burnout among all three shifts. The results of a quantitative analysis indicated whether the new study participants proclaimed higher levels of burnout, lower sleep quality, or increased intention of leaving law enforcement (if any) of the third shift officers compared to the first and second shift officers. The shift work theory was used to examine the relationship between quality of sleep, stress, and job satisfaction (see Taylor et al., 1997). The destabilization theory was used to explain how the balance between work, sleep, and family relationships is affected by shift work (see Kundi, 1989). If officers trade sleep hours to spend time with their families, this reduces their ability to function at full capacity at work. The data analysis was intended to indicate whether this also leads to increased turnover intention for the participants in the survey.

The research questions and hypotheses were as follows:

RQ1: Based on the BCOPS archival data set, to what extent, if at all, are any of the three MBI scores related to the officer's work shift?

H_o1: None of the three MBI scores is related to the officer's work shift.

H_a1: At least one of the three MBI scores is related to the officer's work shift.

RQ2: Based on the BCOPS archival data set, to what extent, if at all, are the PSQI global score related to the officer's work shift?

H_o2: The PSQI global score is not related to the officer's work shift.

H_a2: The PSQI global score is related to the officer's work shift.

RQ3: Do officers who work the third shift report higher burnout indicators?

H_o3: Officers working the third shift do not report higher burnout.

H_a3: Officers working the third shift report higher burnout.

RQ4: Do officers who work the third shift report lower sleep quality indicators?

H_o4: Officers working the third shift do not report lower sleep quality.

H_a4: Officers working the third shift report lower sleep quality.

RQ5: Do officers who work the third shift report increased intention of leaving law enforcement?

H_o5: Officers working the third shift do not report increased intention of leaving law enforcement.

H_a5: Officers working the third shift report increased intention of leaving law enforcement.

Theoretical Framework

Selection of the theoretical framework is often considered an important foundation step in the research process (Grant & Osanloo, 2016). As a blueprint for the study, this framework ensures alignment among the problem statement, purpose, significance, and research questions (Grant & Osanloo, 2016). Having an appropriate

theoretical framework allowed me to guide the literature review, methodology, and data analysis in a scholarly manner (see Grant & Osanloo, 2016). The framework allowed me to develop a well-designed study.

Brown et al. (2020) established about one quarter of employees are involved in shift work, which can have a noticeable impact on their quality of life. Brown et al. delineated examples of mental health outcomes resulting from shift work, such as depression, anxiety, cognition difficulty, or substance use. On the continuum of noticeable impact to severe mental/physical health outcomes, shift work research remains a topic of considerable concern. This concern might be amplified in a complex and often dangerous career such as policing.

It is impossible to choose a theoretical framework without considering the researcher's beliefs, assumptions, lived experiences, values, and ethics (Grant & Osanloo, 2016). My personal phenomenology formed the general knowledge about shift work I used to choose an appropriate theoretical framework. I conducted a systematic approach to ensure any preconceived notions or bias did not negatively influence the structure of the study. After identifying these beliefs, I developed a working knowledge of several theories related to shift work outlined in the conceptual framework section.

The stress-strain model states the disruption caused by shift work produces strain that results in disease and complaints (Rutenfranz et al., 1981). The strain model has been used to explain crime and delinquency (Agnew, 1992), criminal behavior (Agnew, 2006), and terrorism (Agnew, 2010). This model can be applied to the relational bond between the officer and the agency, leading to a lack of commitment and perhaps a growing

resentment, which could result in voluntary turnover. Kundi's (1989) destabilization theory and the shift work theory were more closely aligned with the gap identified in the literature. For that reason, the stress-strain model was not used to guide the current study.

In addition to frameworks aligned with the literature review, I attempted to find studies that conflict with my beliefs and collected theories; I discovered no literature to support a positive effect of shift work. On the contrary, when an employee identifies as preferring the night shift, they show signs of the negative consequences of shift work (Martin et al., 2015). The stress-strain model was one of the first models to explain the relationship between negative health impacts and shift work (Taylor et al., 1997). The disturbance of the normal phases of circadian rhythms conflicting with diurnal cycles results in chronic health disorders unless the individual can learn adaptive techniques to mitigate the negative effects (Monk et al., 2013). Researchers have suggested these three areas have a significant impact on the ability to cope with shift work: quantity/quality of sleep, biological clock, and domestic/social relationships (Monk et al., 2013).

The theoretical frameworks best aligned with the current study were chosen after considering various theories and considering arguments in opposition. The shift work theory in combination with Kundi's (1989) destabilization theory served as the theoretical framework for this study. Striving to keep the focus of this study on the retention aspect of shift work, I determined the shift work theory would be an appropriate additional framework because Kundi's destabilization theory focuses on possible poor health outcomes, which was not a focus of this study.

Nature of the Study

I used the quantitative approach as this methodology aligned with the purpose of the study. Quantitative analysis facilitated taking the original BCOPS data and reexamining it to assess the relationship between quality of sleep, burnout, and the night shift officer's intention to leave. A quantitative method also allowed me to examine the questionnaire data for any possible differences between sleep quality, burnout, and officers' intention to leave across the three shifts. Focusing on this possible link would be consistent with Kundi's (1989) destabilization theory of shift work. The dependent variables were burnout, sleep quality, and likelihood of leaving policing. Each of these variables were compared among all three shifts to note any differences in how the third shift officers answered the survey.

The archival BCOPS data were collected from demographic and psychosocial information gathered from the Buffalo, New York Police Department personnel records (see Violanti et al., 2006). Additionally, a longitudinal daily record of items pertaining to the officers' work history and biological data was collected (see Violanti et al., 2006). Ma et al. (2019) detected the officers' stress rating score driven by noticed stressor events in the BCOPS study (2004–2009) was positively and independently related to poor sleep quality, while the link to retention was not studied.

The data from the BCOPS secondary source were analyzed through a linear model using an analysis of covariance (ANCOVA) calculation. The National Institute for Occupational Safety and Health sponsored the BCOPS original study (Contract No. 200-2003-01580). Dr. Violanti is the lead researcher and custodian of the data set for the

BCOPS study. Dr. Violanti teaches at the School of Public Health and Health Professions, Department of Social and Preventive Medicine, State University of New York at Buffalo and is a prolific resource of research involving the BCOPS results. Dr. Violanti is also considered an expert on police stress and health concerns.

In preparing for the current study, I contacted Dr. Violanti to ascertain if the BCOPS study was an ongoing, current study. Dr. Violanti confirmed that the BCOPS data were still being collected. Dr. Violanti provided preliminary permission for me to access the BCOPS data set once I obtained Internal Review Board (IRB) approval. Correspondence with the BCOPS data set custodian confirmed no analysis had been conducted regarding the relationship between shifts worked and officers' retention; therefore, I concluded the current study would be a valuable addition to the scholarly research on this topic.

I reexamined the BCOPS data collected from police officers in the Buffalo, New York Police Department. The payroll records were collected from the Buffalo Police Department from 1994 to 2010 (see Violanti, 2014). The data included demographic data, shift start and end times, type of work performed, sick days and time off taken, and injuries. After variable data were collected, health and sleep quality data were recorded (see Violanti, 2014). The BCOPS study was a cross-sectional epidemiologic study to examine the association between shift work and officers' quality of sleep (Violanti, 2014). The police officers from whom the primary data were collected were not a vulnerable population. Minimal risk as defined by the National Academy of Science (2014) is the likelihood that no greater harm would be experienced by being in the study

than the participant would encounter during their everyday activities. There was no recruiting strategy needed in the current study because the data were collected in the BCOPS pilot study (see Violanti et al., 2006).

The PSQI is a widely used self-report questionnaire given to evaluate sleep quality over a period of 1 month (Buysse et al., 1989). The PSQI is accepted as a reliable and valid instrument to measure sleep quality (Hinz et al., 2017; Mollayeva et al., 2016). The PSQI scoring included seven subscores ranging from 0 to 3. These subscores are combined to develop a global score that ranges from 0 to 21, where a global score of 5 or more is an indicator of poor sleep quality. As the PSQI score increases above 5, the quality of sleep decreases (see Buysse et al., 1989). The seven PSQI components measured are subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep-promoting medications, and daytime dysfunction. The PSQI results from the BCOPS study population are available. Each participant gave their signed, informed consent, and the original BCOPS study was approved by the IRB of the State University of New York at Buffalo and the National Institute for Occupational Safety and Health (NIOSH) (Fekedulegn et al., 2016). I signed a user agreement after the Walden University IRB gave approval. The BCOPS raw data were provided by the statistician from CDC/NIOSH.

The purpose of the primary data collection in the current study was to perform a quantitative comparative analysis to examine whether police officers' quality of sleep, burnout, and intention to leave law enforcement differed depending on which shift they work. To complete this analysis, I conducted a sample survey following the cross-

sectional study method. Cross-sectional data provide a snapshot of participants' responses at the same point in time (Bourque, 2007). I chose this method because there were identifiable differences in the sample group (i.e., which shift the officers worked). This method was also preferable as it was not geographically bound, and I could estimate the prevalence within the whole population from this sample (see Bourque, 2007).

The survey consisted of 18 multiple-choice questions targeting current and former law enforcement professionals. The participation criteria were that the participant be 18 years old or older, and they have been or are currently in law enforcement. I employed a commercially available web-based survey instrument called SurveyMonkey. This instrument allowed for quicker and easier data collection with a direct transfer into analytical software, thereby lowering the occurrence of transcription errors (see Waclawski, 2012). There was a small cost for the upgraded version of this tool, but it was offset by the advantages this tool provided. Much of the general population is familiar with the SurveyMonkey name and has taken surveys from this vendor. This familiarity facilitated sample participation and survey completion.

In addition to demographic questions, the survey contained questions regarding quality of sleep, burnout, and intention to leave law enforcement. Each category of questions was converted to z-scores (standard scores) and aggregated to create an overall composite indicator for burnout, sleep quality, and intention to leave law enforcement. These three indicators were then compared to shifts worked to determine whether any differences existed.

Definitions

Burnout: Characteristics of exhaustion and cynical disengagement (Bakker, 2006).

Involuntary turnover: The situation in which an organization rather than an employee decides to end the employment due to issues such as but not limited to restructuring, layoff, fired for cause, or end of contract (Oguegbe & Edosomwan, 2021).

Job burnout: An employee's level of job-related exhaustion or fatigue (Lu & Gursoy, 2016).

Job satisfaction: The fulfillment an employee finds in their job (Lu & Gursoy, 2016).

Retention: The process of how an organization attempts to keep employees from quitting (BasuMallick, 2020).

Shift work: A variety of shifts that are not traditional day shifts, for example outside the hours of 8:00 a.m. to 6:00 p.m., including standard night shifts, partial shifts, evening work, and rotating third shifts (Rivera et al., 2020).

Sleep hygiene: Behaviors that determine a person's ability to fall asleep and stay asleep (Holbrook et al., 1994).

Voluntary turnover: An employee who leaves a job of their own free will prior to the end of contract or retirement (Oguegbe & Edosomwan, 2021).

Assumptions

The assumptions from the primary BCOPS study were also a consideration in the current study. I had no control over or contact with the original participants in the

BCOPS study. I assumed informed consent was obtained in an ethical manner (see Windle, 2010). Furthermore, I assumed the collection of the original data was complete, accurate, fair, and representative of the measured variables, and the participants answered the questions honestly (see Windle, 2010).

The two measures of sleep quality used in the secondary study, the PSQI and the Epworth Sleepiness Scale, are tools widely accepted in the literature. The validity and reliability were assumed to be as stated in previous studies. Sleep disorders are common and often undiagnosed in the general population; therefore, occurrences in police officers were expected regardless of the shift worked (Garbarino et al., 2019; Ohayon et al., 2002).

Additional assumptions for the primary study were that the participants answered the survey questions honestly and they were (or had been) law enforcement professionals. I assumed the participating officers' shifts fell within the general structure of approximately three 8-hour shifts as defined in the survey. Preliminary analysis was conducted to test the statistical assumptions associated with the ANCOVA calculation. Norusis (2009) stated the variables must be continuous, variables must be in a linear relationship, significant outliers must be nonexistent or removed, and variables must be normally distributed.

Scope and Delimitations

The focus of the secondary analysis was limited to the variables listed in the research questions despite the BCOPS data having many other available variables. These variables were avoided for reasons of practicality. I chose to focus on the relationship

between retention and shift work because of the concerns over shift work made evident in the 11 years I performed as a statewide manager of a security personnel services provider. With over 800 individuals, I had the opportunity to recruit, train, schedule, and observe the consequences of the negative aspects of shift work. In my professional quest to hire and retain the most qualified people available to maintain a 24-hour workforce, I realized the costs (mental, physical, and financial) of shift work were complex.

Due to the need for a 24-hour workday in many vital industries will continue to exist, I set the boundaries of this study to focus on the BCOPS data. Recruiting a comparable number of participants over a decade would have been impossible to complete in the scope of this study. Quantitative secondary data analysis provided a possible means to enable organizational change makers to seek solutions to mitigate the negative aspects of shift work.

Once IRB approval had been given to examine the secondary BCOPS data and initial evaluations were performed, I learned a calculated retention rate had not been performed. BasuMallick (2020) stated a variety of methods for calculation of retention rates is evident among the literature, yet none of these calculations could be performed on these data. At this point, all further evaluations were placed on hold while options for the highest quality project were discussed among my committee. I wanted to ensure the gap in the literature regarding retention and shift work was examined; therefore, I developed a simple primary quantitative survey (see Appendix B) to gather additional data for analysis. By collecting these new data, I endeavored to enhance the understanding of the

relationship between burnout, sleep quality, and intention to leave among the study participants.

Limitations

One possible limitation of using these data for a secondary quantitative analysis was that the original data were collected over a 10-year period prior to 2006; therefore, the data could be considered between 12 and 22 years old. Any potential age limitation was mitigated in view of the fact that the BCOPS study is an ongoing research project in which additional information continues to be obtained from the data participants. Another possible limitation of this study utilizing the BCOPS data was that the police force population demographics have changed. Although the police force of today is more diverse than it was 10 or 20 years ago, the possible bias towards the White male population can be ignored because the current police force is still predominately a White male population. According to the U.S. Census Bureau (ACS PUMS 1-year estimate), 86.7% of police officers are men and 79% of police officers are White (Police officers, 2014).

The secondary study data might indicate a turnover without showing a causal relationship with a singular factor. This was another limitation given no follow-up information was available for collection. Other causal factors, such as third shift officers being exposed to a larger number of trauma stressors than first shift officers (if true), were unaddressed. Many variables could be the reason for the turnover, separate from the time of day or lack of sleep hygiene. Given that I did not perform an analysis on all variables, this could have been a possible limitation. Frank et al. (2017) listed five job

demands and four job resources weigh on an officer's work stress level. A possible limitation of this secondary study was that a multitude of stressors might be mutually responsible for an officer leaving the force. This study would be a beginning point to initiate a line of inquiry.

One limitation of the primary questionnaire was the results were static, time bound, and unable to be used to establish a cause-effect relationship. This survey provided only a glimpse into the phenomenon, and a study with a longer time frame could have a different outcome. A final limitation of this survey was that there was no follow-up to the findings available (see Bourque, 2007).

Significance

Whether the police department is a local, state, or federal agency, the knowledge of how to bolster recruitment efforts would be valuable. In the initial training phase, an organization could develop programs to identify and minimize the negative effects of working overnight shifts. This could result in the organization retaining more officers. If law enforcement agencies could implement programs to counteract the struggles unique to the third shift, they may increase their retention rates among this segment of officers. McCarty and Maume (2016) identified retention is a vital consideration for most departments, both large and small, because there are minimal qualified candidates to recruit from. With the U.S. aging population, it will be important that studies are performed to ascertain what steps can be taken to lead to a higher retention for law enforcement professionals (McCarty & Maume, 2016). The problems many law enforcement agencies face from a lack of available officer recruits and high turnover

rates make it paramount researchers investigate how to retain the valuable trained, professional officer (Keenan, 2017). James et al. (2018) noted intervention programs aimed at increasing sleep hygiene among the Royal Canadian Mounted Police resulted in healthier sleep patterns compared to officers not participating in a fatigue management training program.

Sleep is widely considered a physical and physiological necessity, and any disruption in sleep hygiene is riddled with a myriad of adverse health outcomes. These negative mental and physical impacts include but are not limited to increased occurrences of obesity, cancer, cardiovascular disease and hypertension, diabetes, stroke, depression, mistakes, and accidents (Luyster et al., 2012). Lack of quality sleep has also been associated with post-traumatic stress disorder (PTSD), higher health care costs, increased morbidity, and lower quality of life (Luyster et al., 2012).

This study was also significant in terms of the potential impact on positive social change. First, the study may help further Kundi's (1989) theory that attaining a positive work–life balance is essential to good overall health. Shift work is a necessary part of many occupations, including security and policing. The current study may add to the body of knowledge that helps organizations address the negative aspects officers face when working overnight. If shift work by police professionals is a contributing factor to lower retention rates, police departments may be able to train their employees to handle the negative aspects of working the third shift. Communities depend on police officers to perform their duties at an expert level in the mundane and crisis responses regardless of the shift. If a department can retain a full staff, this could also alleviate the negative

effects on staff who are working frequent overtime. With effective retention tools, department administrators may be able to promote better health and success among officers, which may result in positive community benefits.

Summary

Turnover is a financial and staffing issue many industries struggle with, especially those that necessitate a constant presence, including shift work (Lu & Gursoy, 2016). On any given shift, an officer might experience multiple repeated traumatic events a citizen would never be exposed to, such as dead bodies, molested or abused children, physical confrontations during arrests, rape victims, and persons suffering from extreme poverty or mental health ailments (Burke, 2019). The current study added to the current body of literature and may allow organizations to ascertain whether the compounding effect of poor sleep hygiene due to shift work is or is not evident in officers with low retention rates. Chapter 2 provides a review of the literature on the relationship between sleep quality, burnout, and retention.

Chapter 2: Literature Review

Law enforcement has long been considered one of the most stressful careers, wherein officers are exposed to organizational, occupational, and personal stress (Anshel, 2000). The incomprehensible task of enforcing involves approximately 806,400 police officers in over 17,000 agencies across the United States (Violanti et al., 2017). Retention is vital to the success of law enforcement agencies due to police training being one of the largest investments included in a governmental agency's budget (Kumar, 2019). Training is vital to ensure police officers have the advanced knowledge and skills to best respond to the threats to a community's security needs. Turnover leaves the community not only vulnerable due to lack of police personnel but also at risk for the number of remaining officers to be injured, stressed, or in poor health due to increased work demands. As calls for police reform and civil unrest increase during the current demand to end systemic racism, recruiting and retaining quality police officers is of paramount importance.

The literature is permeated with journal articles that detail the stressful demands placed on law enforcement professionals. The purpose of the current study was to examine the association between officers working third shift and their possible premature voluntary termination of their law enforcement career. This literature review indicated a gap in the literature regarding the relationship between shift work and retention of valuable police recruits. Findings from this study may be used to help police organizations improve the mental and physical well-being of police officers and to make communities safer by eliminating possible added stressors to policing. Shriane et al. (2020) performed a literature review and noted a prevalence of research with indications

individuals who perform shift work often rely on caffeine and daytime napping despite it being contrary to the recommendations of improved sleep hygiene. This review also revealed a lack of research on organizations using the components of sleep hygiene, which can include sleep schedule consistency; avoidance of daytime naps; avoidance of caffeine, alcohol, and nicotine; regular physical exercise; good quality diet; and suitability of shift work.

Literature Search Strategy

Walden University provides doctoral students with a process by which students can organize and track peer-reviewed journal articles to ensure a thorough literature review. This document was used to create a matrix with the following tabs: outline of key words and their alignment to this study, summary of noted article statistics, reference log, keyword log, and the systematic search plan. The following online databases and search engines were used: PsycINFO, EBSCO, SAGE Publications, Academic Search Complete, and Taylor & Francis Database. In addition, I used Google Scholar to exhaust the literature on the research topic. The key search terms and phrases used to investigate include adaptations of the following: *law enforcement*, *overnight shifts*, *poor sleep effects*, *third shift risks to health*, *law enforcement retention*, *police retention*, *police recruiting*, *sleep hygiene*, *BCOPS study*, *shift work risks*, *police turnover*, *police performance*, *police stress*, *sleep quality*, *sleep quantity*, *fatigue and on-duty injury among police officers*, and *police burnout.*

The search methods varied slightly due to the differences in database structures. In the ScholarWorks database, each primary keyword in Column A was searched, and the

total dissertations were documented in Column D. Each subcategory was logged with the name and number of articles in Rows E–Q. After reviewing for relevance, I noted the number of articles saved for subsequent review in parentheses. The subcategory search words that were used were as follows: *psychology*, *retention*, *mental health*, *job satisfaction*, *resilience*, *burnout*, *self-efficacy*, *24-hour shift*, *turnover*, *stress*, *sleep*, *police*, and *wellness*.

In the PsycINFO database, a primary keyword search was performed to discover the total number of articles. To narrow the focus, I conducted a further search of the initial articles by adding the "&" plus "subcategory," and totals were recorded. This total was further narrowed via the "topic" tool to review cross-sectional subcategory overlap, and the number of articles was recorded. Articles were restricted to full text and peer-reviewed articles. The remaining titles were reviewed and recorded, and the number of articles saved for in-depth review was indicated in parentheses. If a primary keyword search yielded 20 or fewer articles, no secondary keyword search was performed, and all primary article titles were reviewed. If the article was deemed relevant, it was recorded in the literature review references and saved for subsequent review. This method of reproducible search inquiry was used for each databases searched.

A SAGE database search by keyword produced such a large number of articles it was not feasible to review them all. This search was narrowed by limiting the article published date to 2016–2020, reducing the results by keyword, and reviewing the top 20 results sorted by highest relevance. The Taylor & Francis Database search produced a large number of results; therefore, the initial result set was broken down and narrowed by

two different keywords (two separate searches). The resulting articles were then cataloged on the keyword tracker spreadsheet, and a review was conducted of the first 20 articles sorted by relevance.

With each passing search of keywords for a specific database, the same articles began surfacing, which indicated the search strategy was saturating the body of research with this approach of keyword filtering. I also noted no keywords were surfacing that were not a part of the primary or secondary list; therefore, the keywords chosen were flushing out the available research throughout the entirety of available literature. The initial searches were not limited to their publication date to ensure the historical body of literature was available for review. As the literature review search continued, a limit on publication dates from 2016 to 2020 was added to focus on current research articles.

The trends that emerged in the literature search with regard to shift work included segments of the employment population that were most often focused on police officers, correctional officers, firefighters, and nurses. Several outlier groups also studied the effects of shift work on students, factory workers, military personnel, offshore workers, and air traffic controllers (Monk-Turner et al., 2010; Müller, 2019; Vickovic & Morrow, 2020; Williams et al., 2019; Wolkow et al., 2015;). Another trend was evident in the amount of research published, frequently cited authors, and published authors. Much of the research regarding police shift work was published by the leader of the BCOPS research, John M. Violanti. The second most prevalent researcher was Desta Fekedulegn, who often coauthored articles with Dr. Violanti. According to the University of Buffalo's News Center, "John Violanti is an internationally known expert on police stress. He is a

researcher and a police veteran who served as a New York State Police trooper for 23 years" (Faculty Experts; John M. Violanti, 2019, p. X).

These methods produced beneficial results to ensure that I included studies related to the current problem. These articles were aligned with the research questions and, where possible, were published within the last 5 years to ensure the latest data were considered. When historical studies were considered, the age of the publication was noted to delineate it from current research. These search strategies allowed me to combine the literature sources by coding the key on the outline tab to ensure that the most relevant articles were collected. The assigned code designation was then noted in the references tab of the spreadsheet (Column A). The total number of raw articles compiled via the databases was considered exhaustive (323,563 total articles). The systematic strategy of narrowing the articles resulted in a total of 116 articles to be synthesized in the literature review on the relationship between police shift work and retention.

Conceptual Framework

According to Grant and Osanloo (2016), the conceptual framework differs from the theoretical framework in that the latter serves as the umbrella under which the entire process aligns. The conceptual framework should allow the researcher to explore the direction in which this quantitative study will guide the constructs, variables, and presumptive relationships that they might hold (Grant & Osanloo, 2016). Adom et al. (2018) differentiated the conceptual framework by its narrowed focus of ideas based on the main variables in the study.

Several theories were noted in the research encountered through this literature review. The examples included the repair and restoration theory of sleep (Lilly, 2019), human capital theory (Forrester, 2019), job embeddedness framework (Forrester, 2019), Maslach burnout (Abate, 2016; Dacey, 2019; McCarty et al., 2019; Peterson et al., 2019), shift work theory (Taylor et al., 1997), strain theory (Agnew, 1992), destabilization theory (Kundi, 1989), and Herzberg's theory of satisfaction (Miller et al., 2009; Monk-Turner et al., 2010). Each of these theories was examined for alignment with the purpose of the current study. The Maslach burnout theory was examined in the secondary data analysis as the MBI scores were part of the data collected. This was not the singular focus of the study as burnout could result from many aspects of policing and I would not have been able to determine whether the burnout was due to shift work. I concluded that the strain theory was more aligned with explaining crime, delinquency (Agnew, 1992), criminal behavior (Agnew, 2006), and terrorism (Agnew, 2010).

Kundi's (1989) destabilization theory has often been cited when discussing the negative consequences of shift work. Kundi's theory brings up many relevant issues regarding shift work, and the overarching resulting outcome as related to health concerns. I uncovered that the literature was populated with a tremendous number of studies addressing the connection between shift work and possible poor health. The gap in the literature was noted regarding whether shift work led to voluntary turnover. Striving to keep the focus of this study on the retention aspect of shift work, I determined that the shift work theory would serve in conjunction with Kundi's destabilization as the theoretical framework. The conceptual framework was based on the prevalent concept

that sleep quality, burnout, and retention are interconnected. This pair of theories provided a general set of ideas tested and validated by other scholars which served as a focal point to guide the research surrounding the relationships of the variables (see Adom et al., 2018).

Eldredge (2017) asserted that among the three interconnected domains that require balance in shift work, if any one shows failure, it could negate advances in the other two areas. Coping strategies would necessitate that an officer's biological clock, quantity/quality of sleep, and their social/domestic relationships could remain in balance despite the shift work (Eldredge, 2017). Kundi's (1989) expression of the differences in day and night shift indicated that age is an additional destabilization risk factor. Between the ages of 20 and 30, the high demands for organizational responsibilities in addition to the larger family demands often destabilize the most capable of recruits when shift work is added to their life (Kundi, 1989). After the age of 45, these demands often decrease, but the damage to their health has often already occurred (Kundi, 1989).

Poor sleep quality is a precursor of health impairment (Kundi, 1989). Many workers who leave shift work discover they could not adapt to the short-term need to maintain balance with less sleep (Kundi, 1989). Additionally, stress from missing important family events due to shift work can lead to chronic strains which result in officers breaking the emotional bonds to their police department (Agnew, 2006).

Literature Review

A vital component of any strategy that seeks to lengthen retention rates within law enforcement is to better understand the reasons some police officers leave the force prior

to retirement (Allisey et al., 2014). In reviewing the literature, several themes have been identified. More than 40% of employees across all careers report that they made errors in their work duties while working non-standard hours (Ferguson et al., 2019). The literature review included articles that studied many general industries that, like policing, work overnight shifts. Much of the literature also began to fall into segments surrounding police retention, turnover, burnout, police shift work, and possible solutions to counteract poor sleep hygiene.

General Industry

Lilly (2019) examined the relationship of psychological distress to shift work among firefighters who work 24-hour shifts as compared to 48-hour shifts to determine the level of sleep quality. There are a host of detrimental consequences related with poor sleep quality in shift work among workers in a variety of industries, such as firefighters, doctors, nurses, EMTs, military personnel, off-shore workers, air traffic controllers, manufacturing workers, and countless others (Lilly, 2019; Lin et al., 2014; Schwab, 2020; Shattuck & Matsangas, 2016a; Shattuck & Matsangas, 2016b; Shattuck et al., 2018; Shortz et al., 2018; Sonati et al., 2016; Stout et al., 2020).

Research often examines the recovery time in relation to shift work to determine if the overnight work hours are a greater issue as compared to the turnaround-time. A short recovery time between shifts might compound the detrimental effects of working the third shift. The issues that arise in a short turnaround time exasperate the overnight work disruption in sleep patterns (Dahlgren et al., 2016; Niu et al., 2017; Patterson et al., 2018; Taouk et al., 2018).

Police Retention

Bowman et al. (2006) described that law enforcement agencies have a complex problem with the recruitment and retention of qualified personnel. Subsequent research should continue to examine why excellent officers are hired and trained and then resign to seek alternate careers (Bowman et al., 2006). Kurtz (2012) declared that findings support that shift work is a source of stress for female police officers and thus a possible difficulty to be addressed when attempting to recruit and retain female officers. When considering a plan to extend police retention, hiring managers should consider pre-career data and trauma events in an officer's tenure to compare to the model for police burnout (Goodman, 1990).

Howes and Goodman-Delahunty (2015) reminded the reader that in addition to the basic financial expenses that occur with officer turnover, the loss of high-level organizational expertise comes at a cost difficult to quantify. The motivation of officer attrition and retention is not as clear as it was in the past when careers had detailed plans of progression. Additionally, sweeping changes are occurring where the recruitment for greater diversity to mirror the multicultural communities the officers service is a necessity (Howes & Goodman-Delahunty, 2015). McCarty and Maume (2016) detailed the trend of law enforcement to receive negative scrutiny, reflecting the world-wide public opinion that policing is a corrupt system. Amplified by social media, events spread like wildfire, and a deficiency of a singular officer is highlighted for the entire world to view. This has added to the increasing difficulty that police agencies have faced to recruit and retain the personnel required to ensure the safety of the community (McCarty &

Maume, 2016). In addition, this decline is evident when it comes to the recruitment of minorities and women into a profession that has been predominantly dominated by White men (McCarty & Maume, 2016).

Turnover

To seek targeted treatment options and countermeasures to turnover intentions, emotional intelligence and organizational commitment in police officers have been researched (Brunetto et al., 2012). Abate (2016) discussed the relationships between turnover, burnout, and job satisfaction in the banking industry. Abate also used the MBI as a measure of burnout and relayed the costs of recruitment, training, and expense of high turnover. Reece (2011) sought to determine if misaligned recruitment job expectations were a source of turnover in police officers. Turnover issues in police officers often stemmed from a combination of factors, including age, length of employment, job satisfaction, and strong economic recovery (Reece, 2011). The disruptions to police's overall effectiveness caused by voluntary turnover were lower productivity, low officer morale, critical loss of manpower, high recruiting costs, and increased training expenses (Meade, 2015).

Shadwick (2020) cited the lack of available research with regards to turnover of police chiefs was concerning. The additional costs to replace and the loss of institutional knowledge when these key executive leaders left were the foremost reason to understand how to prevent turnover among police chiefs (Shadwick, 2020). Developing tools to recognize the characteristics of turnover intention in law enforcement would be crucial to building indicators to focus on retention before intention to leave developed (Brady,

2017). Li (2016) cited that few studies have focused on the succession and turnover among police chiefs and a deeper examination of the influences of the variables contributing to turnover warrant further study. Although implications from these (and others like them) valuable research studies can be used to help reduce turnover, to control economic costs, and staff shortages, the chief position does not traditionally work third shift and therefore was outside the scope of this study.

Ambiguity in the reasons for voluntary turnover in police organizations could also be a source of lack of data (Brady, 2017). In my experience, many human resources departments are focused on recruiting difficulties or disciplinary issues, which leaves no time to focus on capturing turnover intention or prevention programs. Brady (2017) listed the following reasons for focusing research on turnover intentions verses actual turnover. Intentions can be studied in currently employed officers, studies have shown that turnover intention is the best predictor of actual turnover, and it would be difficult to track down previous employees. If caught in time at the intention to leave phase, actions taken might prevent actual turnover (Brady, 2017).

The consequences of turnover can include both direct and indirect costs, loss of morale, community disengagement, and the physical increased demands on the remaining force. Reaves (2015) suggested that 80-90% of law enforcement budgets are their personnel costs. Furthermore, Wilson et al. (2010) warned increased turnover can result in loss of several key law enforcement outputs that would not be replaced by hiring a recruit, such as knowledge, expertise, and community relationships (e.g., leaders or

informants). Lower job satisfaction can lead to turnover, job burnout, and absenteeism according to Lambert et al. (2016).

Burnout

Dacey (2019) asserted that work-family conflict and job burnout are increasingly prevalent in high-stress careers such as firefighters, police officers, and correctional officers. Hur (2013) examined the relationship between an officer's turnover on their crime control performance and found that voluntary turnover had more of a negative impact than involuntary turnover. Job-related burnout among police officers was of concern not only due to of the possible effects on their physical and mental well-being, but also because of the ties to job performance and safety of the public (McCarty et al., 2019; McCarty & Skogan, 2013).

In a study of 36 former police officers, Hilal and Litsey (2020) researched the reason for leaving prior to retirement with no delineation between voluntary and involuntary separation. "The findings highlighted several common themes that law enforcement agencies could address, including leadership training, clear and transparent processes, permanent light-duty assignments, shift flexibility, improved morale, and more focus on personal wellness" (Hilal & Litsey, 2020, p.73). Peterson et al. (2019) cited that irregular, long, overtime, and overnight shifts are a major source of stress that can lead to the three factors of burnout: emotional exhaustion, depersonalization, and perceived lack of personal accomplishment.

Lambert et al. (2019) cited four major dimensions to explore in the work-family relationship with regards to burnout. Shift work is an additional stressor that can intensify

the conflict in an officer's work-family balance. A positive association was determined between stress and burnout in police officers (Griffin & Sun, 2018). Lambert et al. (2016) imparted that supervisory support had a positive association among correctional officers with regards to stress in contrast to an officer's family support which had a negative effect. Whether this burnout then leads to a lower retention rate is a subject that has not been sufficiently addressed in the literature.

Police Shift Work

As multiple researchers have concluded, sleep-wake disturbances along with the duration and structure of sleep are one of most persistent challenges to shift work among police officers (Clements et al., 2020; Dacey, 2019; Dahlgren et al., 2016; Elliott & Lal, 2016; Fekedulegn et al., 2016). Shift work has been shown to be a risk not only to an officer's physical health but to mental health as well (Clements et al., 2020). Results indicated a growing relationship between cancer and circadian disruption (Hunter & Figueiro, 2017). McHill and Wright (2019) purported that the disturbance of daytime sleep and circadian misalignment decreases cognitive performance. Their research results showed that sleepiness and errors occurred with a single night shift as well as across multiple consecutive night shifts.

Nabe-Nielsen et al. (2016) uncovered that over 50% of the officers surveyed preferred the four on/four off night shift, and the officers who did prefer the seven on/seven off were evening types that could easily sleep at different times throughout the day; thus, they felt night work was less demanding than the other two groups studied did. Fatigue and sleep deprivation contribute to a myriad of poor health concerns, increased

risk of injury, and lower job satisfaction results (Scholarios et al., 2017; Senjo, 2011; Sharp, 2016).

Stressors radiate from both operational and organization factors (Crippen, 2018; Kohan & Mazmanian, 2003). Chronic stressful events showed a ranging level of impact depending on frequency of exposure to the different aspects of the job (Van Amelsvoort et al., 2004; Van Hasselt et al., 2008; Violanti & Aron, 1994). Coping styles evident in some officers or that can be taught to officers could be a valuable tool to begin the process of establishing healthy habits of sleep (Kohan & Mazmanian, 2003).

Amendola et al. (2011) compared the advantages and disadvantages of various shift lengths in law enforcement, finding that the ten-hour compressed work week schedule held the most advantages. Bakker and Heuven (2006) indicated that both nursing and policing professionals display decisions that emotional dissonance is negatively related to performance. Additionally, the emotional demands working as a nurse or police officer led to increased instances of burnout. Scheduling demands and low self-efficacy resulted in poor sleep hygiene (Holbrook et al., 1994).

Several studies have endeavored to predict the intolerance factors for shift work (Saksvik et al., 2011; Vila, 2006; Wardman, 1999). Lammers-van der Holst et al. (2016) concluded that the shift work differences in sleep hygiene for police officers in their first two years might be predictive for the individual. If an officer's tolerance to shift work could be determined at the beginning of their career, steps could be taken to mitigate the long-term risks related to shift work. Poor sleep quality was determined to be 70% more prevalent in night shift officers who were overweight (body mass index greater than

25kg/m^2) and these officers had an absentee rate twice that of their fellow officers (Fekedulegn et al., 2013; Fekedulegn et al., 2016). There existed an abundant amount of literature on the negative effects of shift work on police officers' health (Ramey et al., 2012; Violanti et al., 2017; Wirth et al., 2017).

The BCOPS study has been cited in a vast amount of literature with regards to police shift work. Many aspects of the BCOPS data have been researched, to include fatigue and on-duty injury (Fekedulegn et al., 2017; Violanti et al., 2012), the role of leisure time physical activity (Fekedulegn et al., 2018), absenteeism (Riedy et al., 2020), cortisol awakening response (Violanti et al., 2017), fatigue and gender (Violanti et al., 2018), effort-reward imbalance and overcommitment at work leading to burnout (Violanti et al., 2018), and shift duration (Wirth et al., 2011). Police officers were frequently exposed to two types of traumas that can result in PTSD: physical threats to self and witnessing harm to others (Chopko et al., 2018). In addition, poor sleep quality is also a symptom of PTSD and depression; therefore, care would need to be taken to investigate if these issues are involved before attributing negative ramifications to shift work solely.

Solutions

In the United States, approximately one third of workers do not work a traditional day shift (Liira et al., 2015). Liira et al. (2015) concluded there was insufficient evidence to determine if pharmacological interventions are effective in sleep-wake patterns. Kula (2017) suggested that a relationship exists between supervisor support and stress among police officers. Research generally agreed that the higher the stress, the higher the

burnout, and the lower the job satisfaction. Nevertheless, a solution was often not a part of the literature. Bürger and Nachreiner (2018) determined that allowing officers to choose their own shifts (i.e., flex shifts) showed a positive impact and allowed individualization of officers' schedules. Merkus et al. (2015) examined 26 studies on shift work or long duration shifts to determine if a comprehensive model could be developed to address the need for around-the-clock staffing. The health effects and personal/situational factors that arise due to the need for a continuous workforce should be approached with coping strategies to increase an employee's ability to maintain their work/life balance before any long-term effects become permanent (Merkus et al., 2015).

Additional research would educate decision makers to seek solutions to improve the lives of those who are potentially burdened with additional stress due to shift work (Lilly, 2019). Barger et al. (2012) validated a questionnaire to screen shift workers for adverse health and safety issues. Shift work disorder is underdiagnosed by primary care physicians. With a better evaluation tool, a possible increase in sleep disorder diagnoses could be a valuable resource for management to identify those officers most vulnerable to the negative effects of shift work (Barger et al., 2012). Garbarino and Magnavita (2019) exposed a reciprocal relationship between job stress and sleep problems.

An integral part of employee wellness programs will need to address the employee that has additional specific needs due to working the overnight shift (Ma et al., 2019; Roach et al., 2018; Schneider & Harknett, 2019; Schultz & Burton, 2018; Siebenaler & McGovern, 1991). One possible solution with emerging research surrounds "napping" while on shift. Protected sleep for short periods of time requires additional

supervisory support to administer; despite this, the results could be a source of mitigation for the negative effects of shift work (Shea et al., 2014; Lopez, 2017; Martin-Gill et al., 2018). Reiter (2019) set forth that the trouble law enforcement agencies are facing with retention and job satisfaction can lead to the downward spiral of staffing shortages, burnout, lack of promotion opportunities, slacking training, unethical behavior, and stagnation. The suggested remedy is time limits on all assignments at every level of the agency with the goal of impacting job diversity, retention rates, and overall morale (Reiter, 2019).

Conclusions

The importance of getting adequate sleep is a well-known component of good health, yet despite this, police officers commonly do not get the seven to eight hours of quality sleep needed to function at optimum levels (Burke, 2019). The research favors this being a consequence of stressors experienced by officers, leading to poor sleep hygiene. Literature is prevalent that states these stressors come from many internal and external factors that then lead to a long list of negative mental and physical health concerns. It is also well documented that shift work is often a barrier to an individual's quantity and quality of sleep. Work-family balance is also shown to be strained by shift work. What the literature does not clearly show is whether working the third shift leads to lower retention among police officers. In conclusion, this study would add to the body of literature in a meaningful way to further the knowledge base for administrative law enforcement professionals to affect positive police reform through advanced wellness programs.

Chapter 3: Research Method

I used a quantitative, nonexperimental, secondary research design to investigate the relationship between police officers who work the third (overnight) shift and their retention. Mustafa (2011) stated that it is appropriate to use a quantitative research design to examine a relationship between variables through mathematical or statistical manipulation of data. Parylo (2012) suggested that researchers should use correlational analysis to examine data from surveys. In the current study, the primary quantitative survey was used to collect data regarding which shift the officer works.

Data for the current study were also collected from the ongoing BCOPS study. BCOPS study results were quantitatively reexamined to determine whether there was a link between shift work and expressed poor sleep health or, more specifically, whether the officers working the night shift had a lower retention rate than their counterparts. Items that were investigated from the BCOPS existing data were shift worked, MBI, and PSQI rating.

The BCOPS data are owned by The NIOSH. The Occupational Safety and Health Act of 1970 established NIOSH to facilitate research on issues involving worker safety with the goal to empower employers and employees to create healthy work environments (Centers for Disease Control and Prevention, 2018). The BCOPS study was established to research the intersection of stress, sleep, and health biomarkers to provide data for law enforcement agencies.

The current study was conducted to fill a gap in current research regarding the relationship between shift work and retention. In 2018, Dr. Violanti, the lead investigator

of the BCOPS study, confirmed that the proposed relationship had not been examined in previous research projects. To my knowledge, these data had not been used to investigate this topic. This chapter includes the research design and rationale, sample and population considerations, data collection and analysis, research questions, instrumentation, threats to validation, and ethical concerns.

The primary survey consisted of an 18-item questionnaire aimed at assessing the following: demographics, schedule worked, quality of sleep, level of burnout, and intent to leave law enforcement. Answer categories for questions (except demographics) were Likert-type scales. This self-designed survey was developed to gather interval data, perform inferential statistical analysis on the data, and determine whether the results support the hypothesis examined in this study, namely that working third shift is a source of destabilization in an officer's life.

Research Design and Rationale

A secondary data analysis was chosen for this project to evaluate the data from the BCOPS to determine whether the relationship between the variables was significant. If significance exists, it does not provide proof of causality (Creswell, 2014). The independent variable was shift worked and the dependent variables were burnout and sleep quality. Archived data from the BCOPS data set were analyzed through an ANCOVA calculation.

Population

The BCOPS study interviews were held in multiple phases on the following dates: Pilot 1 June 14, 1999, to May 1, 2000; Pilot 2 November 26, 2001, to April 8, 2003;

BCOPS3 June 2, 2004, to October 7, 2009; BCOPS4 February 15, 2011, to August 25, 2015; and BCOPS5 December 16, 2015, to current (BCOPS Questionnaire Comparison, 2016). BCOPS is an ongoing study. The phases of data that were used were determined by the owner of the data set after Walden University IRB approval had been obtained. Dr. Violanti and the statisticians from NIOSH released the data for specific variables to be analyzed for this secondary study after proper approval had been obtained. Participants from the BCOPS 3 study included 464 police officers employed by the Buffalo, New York Police Department who were examined from June 24, 2004, to October 7, 2009. The randomly selected sworn police officer participant pool was detailed after receipt of the data upon Walden University IRB approval (10-06-20-0445691).

Sampling and Sampling Procedures

Participants were selected for the BCOPS study via a stratified sampling technique (Violanti et al., 2006). All participants were over the age of 21 and were informed that participation was strictly voluntary (Violanti et al., 2006). Although the medical data were not relevant to the current study due to the nonmedical nature of the variables being analyzed, the original sample design had strict medical exclusion criteria to ensure the integrity of the sample set (see Violanti et al., 2006). Body composition and psychosocial measures of the original sample set were also collected, although they were not a factor in the current study (see Violanti et al., 2006).

Once the BCOPS data exchange was approved, a differing sample size was used for each research question. Tabachnick and Fidell (2006) suggested that a sample size should be determined by the regression sampling formula of: $N \geq 50 + 8m$ (m = number

of variables). When completing this formula calculation, $N \geq 50 + 8(4) = 50 + 32 = 82$, I ascertained that the number of participants needed to be 82 or more. The data set for the BCOPS exceeded the required sample size in that it consisted of a participation population of 464.

Duffin (2021) reported there were almost 700,000 law enforcement officers in the United States using the FBI's definition, which is those who regularly carry a firearm, have arrest powers, and are paid from governmental funds. I planned to employ a convenience sample technique to recruit participants. According to DePoy and Gitlin (2015), a convenience sampling technique would allow me to enroll participants until the needed sample size was reached. With this technique, I determined the criteria for eligibility and ineligibility for those who volunteered to complete the survey (see DePoy & Gitlin, 2015).

For this study, the analysis centered on comparing officers who work predominately third shift with other officers for their levels of burnout, sleep quality, and intent to leave their law enforcement career. I used a linear regression model to compare the third shift officers with other officers for each of the dependent variables (burnout, sleep, and likelihood of leaving). The desired sample size for the survey was determined by performing a G*Power calculation. In a multiple regression model, to calculate the sample size needed based on a medium effect size ($f^2 = .15$) with an alpha level of $\alpha = .05$, I used the G*Power 3.1 software program (see Faul et al., 2009). With one predictor (third shift), the sample size needed to achieve sufficient power (.80) was 55 respondents.

In the questionnaire (see Appendix B), the first six demographic questions addressed years worked in law enforcement, age, length of shift, weekly hours worked, presence of a second job, and overall health. The independent variable shift worked was determined in Question 7. Research Question 3 regarding burnout encompassed Survey Questions 8–11. These were Likert-type scales designed to ask the participant to choose between 0 and 8 with higher burnout being at the 0 end of the scales. The questions aimed at answering Research Question 4 were constructed in a similar design and asked participants to report their sleep experiences in Survey Questions 12–15. Finally, to evaluate an officer's intention to leave law enforcement in Research Question 5, I developed Survey Questions 16–18(see Appendix C).

Data Collection and Analysis

In this study, the primary data analysis focused on comparing the officers who worked predominately third shift to officers on the other two shifts for their level of burnout, sleep quality, and intention to leave law enforcement. Using a linear regression model, I compared the third shift officers to the other shifts against each of the dependent variables (burnout, sleep, and intention to leave their law enforcement career). For the archival data set, a preliminary data use agreement had been signed by the proposed data recipient and the covered entity principal, Dr. John M. Violanti/NIOSH (2018). Receipt of BCOPS data did not occur until the Walden University IRB had given me permission to proceed. The IBM SPSS Version 25 was used to perform the statistical analysis for this study. The research questions and hypotheses were as follows:

RQ1: Based on the BCOPS archival data set, to what extent, if at all, are any of the three MBI scores related to the officer's work shift?

H_o1: None of the three MBI scores is related to the officer's work shift.

H_a1: At least one of the three MBI scores is related to the officer's work shift.

RQ2: Based on the BCOPS archival data set, to what extent, if at all, are the PSQI global score related to the officer's work shift?

H_o2: The PSQI global score is not related to the officer's work shift.

H_a2: The PSQI global score is related to the officer's work shift.

RQ3: Do officers who work the third shift report higher burnout indicators?

H_o3: Officers working the third shift do not report higher burnout.

H_a3: Officers working the third shift report higher burnout.

RQ4: Do officers who work the third shift report lower sleep quality indicators?

H_o4: Officers working the third shift do not report lower sleep quality.

H_a4: Officers working the third shift report lower sleep quality.

RQ5: Do officers who work the third shift report increased intention of leaving law enforcement?

H_o5: Officers working the third shift do not report increased intention of leaving law enforcement.

H_a5: Officers working the third shift report increased intention of leaving law enforcement.

Years on the Police Force

Retention was determined by years on the police force as gathered in the demographic questionnaire completed by the participant in the BCOPS study (see Violanti et al., 2006). Research has shown that tenure on the force impacts an officer's stress level (see Abate, 2016). According to research, the initial 5 years of an officer's career are the most stressful (Violanti, 1983).

Shift Work

Shift work information for the BCOPS data was obtained from electronic payroll records. Shifts were categorized into day (0400-1159), evening (1200-1959), and night (2000-0359) (Wirth et al., 2017). Shift data were collected throughout the study and standardized to a weekly category according to shift occurrence majority (Wirth et al., 2017). Consistency of this categorization was validated, and about 85% of the officers worked 70% of the time in primarily either a day, evening, or night shift (Wirth et al., 2017).

Instrumentation

Sleep history was collected in the original BCOPS data for the 2004, 2010, and 2015 study collection dates by the self-reported measurement tool, PSQI (BCOPS Questionnaire Comparison, 2016). The PSQI has been shown to have high homogeneity, reliability, and validity (Grandner et al., 2006). The officers in the BCOPS study completed the PSQI questionnaire that measured sleep quality or disturbances they experienced over the previous month. The PSQI is a scaled measurement tool that details sleep disturbances across seven dimensions: sleep quality, sleep latency, sleep quantity,

habitual sleep efficiency, sleep disturbances, sleep medication used, and daytime disfunction (Buysse et al., 1989).

The most widely used measurement indicator for professional burnout was developed by Christina Maslach from her experiences in health care and human resources (Garcia et al., 2015). Schaufeli et al. (2001) examined the validity of the MBI instrument. The MBI, the most popular instrument to access burnout, contains three scales understood in the literature to be of psychometric quality (Schaufeli et al., 2001). The MBI consists of scales regarding three factors: (a) emotional exhaustion, (b) depersonalization or cynicism, and (c) ineffectiveness or personal accomplishment (Maslach, 1982; Maslach et al., 1997). Schaufeli et al. (2001) advised that the internal consistency and factorial validity in the MBI were satisfactory.

There are five different versions of the MBI (originally developed in 1981) that allow specific groups of careers to be more selectively evaluated. The MBI-HSS is given to persons belonging to the following group: human services, nurses, physicians, health aids, social workers, therapists, counselors, law enforcement, and clergy. According to the instrument website, mindgarden.com, the MBI-HSS was revised in 2016. Due to this revision, some categories might have slightly different names for the data set depending on the age of the study.

Kader (1994) contended that questionnaires have their limitations; even so, they often provide the most expedient way to gather large amounts of data from a sample population over a large geographic area in the least expensive manner. To minimize issues with the created questionnaire, I performed an informal pilot study of the survey.

This process included seven police officers known me who were willing to take the survey and discuss their feedback of the process and content. Their feedback helped me ensure content and construct validity for these questions.

I had a brief call or text conversation with each participant to go over any questions that were deemed unclear, misleading, or confusing. All participants agreed that the same one question was confusing; that question was removed from the survey. Different participants identified issues that helped give the second draft a more concise presentation. Next, I had my committee chair (a subject matter expert) establish face validity by making sure that the survey captured the topics under investigation in a manner consistent with law enforcement professionals' expectations. Edits for simplicity and consistency were made. I also had a statistician check the survey to ensure there were no confusing or leading questions and that this tool was aligned with the research questions to provide a sound statistical outcome.

The informed consent disclosure on the new survey assures that the participant was protected from harm and their privacy was secure via the anonymous third-party vendor. The survey and results were processed on a password protected computer to which I was the sole person with access. The internet was also password protected. The study design avoided any factors that create danger, harm, or stress to the participants. The voluntary participants could withdraw their participation at any time. Using Survey Monkey provided confidentiality and privacy. Additionally, this tool ensured that bias in the data collection was avoided.

Threats to Validity

As with all research endeavors, Creswell (2014) explained that the conclusions are only useful if the analysis was performed accurately, and findings are interpreted correctly. A researcher must consider both internal and external threats to validity, by a careful monitoring of the changes with the variables involved in the analysis (Mash, 2019). Violanti and Aron (1994) discussed that a possible internal threat to validity in the BCOPS data could be that police officers might be reluctant to answer questions negatively regarding administrative support or disciplinary actions. Additional threats to internal validity include misclassification due to bias in the other self-reported measures in the BCOPS data.

External threats to validity refer to how generalizable the determinations of the study are to other population samples (Baldwin, 2018). As the BCOPS data is from a medium size police department in a northern metropolitan area, consideration for generalizations should be carefully examined to avoid any error in relating these discoveries to another police population. The BCOPS data possesses several positive factors that can readily be utilized in future studies. For example, the participation rate (10%), random sampling design, and high rate of participant acceptance of invitation to participate are all examples of how the BCOPS data achieved a representative sampling (Violanti et al., 2006).

Ethical Procedures

Participants signed a consent to participate in the BCOPS study. The BCOPS study was approved by both the Institutional Review Board of The State University of

New York at Buffalo and the National Institute for Occupational Safety and Health (Violanti et al., 2006). All participants were informed of the risks, benefits, and purpose of the BCOPS Study (Violanti et al., 2006). Furthermore, the participants were informed that they were free to ask additional questions or to withdraw from the study at any time (Violanti et al., 2006).

Per the data use agreement (2018) (Appendix A), I was not given nor did not attempt to obtain any identifying information. The anonymity of the participants was be relayed in such a manner as to protect deductive disclosure. The data will be stored in a password-protected file on a private computer. For ethical and confidentiality safety, the BCOPS data was not shared outside my Walden dissertation committee. Per the user agreement, the raw data will be returned to the BCOPS administrator, Dr. Violanti, upon completion of this study.

The survey began with the informed consent disclosure (Appendix B). The questions are also available in the same appendix. The privacy of the Survey Monkey tool has been outlined in Chapter 1 of this proposal. The results were completely anonymous, and the I did not attempt to determine any data about the participants. The resulting survey data will be kept on a password protected thumb drive (in a fireproof safe) and kept for the five years required by Walden University policy.

Chapter 4: Results

The purpose of this study was to investigate the effect of poor sleep hygiene on third shift officers' retention, specifically to examine whether police officers' quality of sleep, burnout, and intention to leave law enforcement differed depending on which shift they worked. Of the 464 participants, only 212 had complete data on shift work, PSQI, and burnout (28 retirees were excluded from the analysis). Archival data (N = 212, from police officers in the Buffalo, New York Police Department) and primary data (N = 84, anonymous survey participants who were current or former law enforcement officers over age 18) were collected to complete the study. The results were used to address the five research questions and hypotheses:

RQ1: Based on the BCOPS archival data set, to what extent, if at all, are any of the three MBI scores related to the officer's work shift?

H_o1: None of the three MBI scores is related to the officer's work shift.

H_a1: At least one of the three MBI scores is related to the officer's work shift.

RQ2: Based on the BCOPS archival data set, to what extent, if at all, are the PSQI global score related to the officer's work shift?

H_o2: The PSQI global score is not related to the officer's work shift.

H_a2: The PSQI global score is related to the officer's work shift.

RQ3: Do officers who work the third shift report higher burnout indicators?

H_o3: Officers working the third shift do not report higher burnout.

H_a3: Officers working the third shift report higher burnout.

RQ4: Do officers who work the third shift report lower sleep quality indicators?

H_o4: Officers working the third shift do not report lower sleep quality.

H_a4: Officers working the third shift report lower sleep quality.

RQ5: Do officers who work the third shift report increased intention of leaving law enforcement?

H_o5: Officers working the third shift do not report increased intention of leaving law enforcement.

H_a5: Officers working the third shift report increased intention of leaving law enforcement.

Table 1 displays the frequency counts for selected variables. Table 2 displays the descriptive statistics for selected items pertaining to burnout, quality of sleep, and intention to leave law enforcement. Table 3 displays results from the one-way ANOVA tests and Kruskal-Wallis tests used to answer Research Questions 1 and 2. Table 4 displays the Spearman correlations findings used to answer Research Questions 3 through 5.

Data Collection

The 18-question survey for the new data collection (see Appendix B) went live on Survey Monkey on September 27, 2021. The recruitment flyer was posted on my LinkedIn and Facebook social media platforms. Individual emails and text messages sharing the recruitment flyer with friends and colleagues were also sent. I encouraged everyone to share it with their connections to create a snowball disbursement effect. I also posted the recruitment flyer on the Reddit forum. The flyer was also cross posted to a forum for police professionals. On September 30, 2021, the number of surveys

completed surpassed the required 55. I allowed volunteer participants to continue to take the survey throughout the weekend and ended the data collection period on October 4, 2021. The data collection period lasted 7 days, resulting in a sample size of 84 anonymous respondents. There were no discrepancies in the data collection from the original plan.

The archival data set (N = 212) from the BCOPS study was received from the statistician on November 17, 2020. I signed a data use agreement in May of 2018, and the owner of the data, Dr. John Violanti, signed the same agreement in September of 2020. A preliminary SPSS frequency analysis was performed on the data, at which point I determined a retention rate could not be calculated using this secondary data set. Further analysis was put on hold until changes in the study occurred.

Descriptive Statistics

Table 1 displays the frequency counts for the demographic variables and survey items. Years worked in policing ranged from 0–3 years (11.9%) to over 15 years (47.6%) with a median of 12.5 years. Ages of the officers ranged from under 35 years (28.6%) to 55–64 years (11.9%) with a median of 39.5 years. Most of the police officers worked 8-hour shifts (81.0%), most divulged no second jobs or responsibilities requiring time commitments (57.1%), and almost all of those who had other time commitments revealed 11–20 hours per week (36.9%). Average hours worked in law enforcement per week ranged from 30 hours or fewer per week (4.8%) to over 50 hours per week (23.9%) with a median of 45.5 hours. Most officers rated their health as either generally healthy (66.7%) or somewhat healthy (22.6%). There were 42 police officers working the first

shift (50.0%), 23 officers working the second shift (27.4%), and 19 officers working the third shift (22.6%).

Table 1

Frequency Counts for Selected Variables From the New Data Set

Variable	Category	*n*	%
Years worked in policing [a]	0–3 years	10	11.9
	3–6 years	14	16.7
	6–10 years	5	6.0
	10–15 years	15	17.9
	15+ years	40	47.6
Age [b]	Under 35	24	28.6
	35–44	21	25.0
	45–54	29	34.5
	55–64	10	11.9
Hour length of normal shift	8 hours	68	81.0
	10 hours	12	14.3
	12 hours	4	4.8
Second job or responsibility time commitment	I do not have another job	48	57.1
	Takes 11–20 hours a week	31	36.9
	21 or more hours per week	5	6.0
Average hours worked in law enforcement per week [c]	30 or fewer hours a week	4	4.8
	31–40 hours a week	9	10.7
	41–50 hours a week	51	60.7
	51+ hours a week	20	23.9
Overall health level	Very healthy	5	6.0
	Generally healthy	56	66.7
	Somewhat healthy	19	22.6
	Unhealthy	4	4.8
Shift worked (majority of the time)	First shift	42	50.0
	Second shift	23	27.4
	Third shift	19	22.6

[a]*Mdn* = 12.5 years. [b]*Mdn* = 39.5 years. [c]*Mdn* = 45.5 hours.

Table 2 displays the descriptive statistics for the survey items measured burnout, quality of sleep, and intention to leave law enforcement. Item 8, "How likely is it that you would recommend a career in law enforcement to a friend or colleague?" was rated on an 11-point metric from 0 = *extremely likely* to 10 = *not at all likely* (*M* = 5.54, *SD* = 2.84). Item 9, "Overall, how would you rate your level of burnout?" was rated on an 11-point metric from 0 = *none at all* to 10 = *unbearable* (*M* = 4.80, *SD* = 2.14). Item 10, "To what extent are you proud to be a police officer?" was rated on an 11-point metric from 0 = *absolutely* to 10 = *not at all* (*M* =1.42, *SD* = 2.14). Item 11, "About what percentage of your days do you enjoy your job as a police officer?" was rated on an 11-point metric from 0 = *most days* to 10 = *hardly ever* (*M* = 2.45, *SD* = 2.56). Item 12, "How would you describe your sleep quality (how well you sleep)?" was rated on an 11-point metric from 0 = *I feel sluggish and physically (or mentally) exhausted most of the time* to 10 = *I am rested and feel ready to protect and serve* (*M* = 4.98, *SD* = 2.68). Item 13, "For the majority of your shift how alert do you feel?" was rated on an 11-point metric from 0 = *extremely sleepy, takes effort to stay awake* to 10 = *extremely alert* (*M* = 6.79, *SD* = 2.24). Item 14, "To what extent do you have a problem falling asleep at bedtime?" was rated on an 11-point metric from 0 = *serious problem* to 10 = *no problem at all* (*M* = 6.33, *SD* = 3.35). Item 15, "On average, how many hours of good sleep do you get most nights?" was rated on a 6-point metric from 1 = *three hours* to 6 = *eight hours* (*M* = 3.99, *SD* = 1.05). Item 16, "To what extent have you decided to leave law enforcement completely within the next 12 months (whether you have acted on it or not)?" was rated on an 11-point metric from 0 = *No, I am staying until retirement* to 10 = *Yes, leaving* (*M*

= 3.42, *SD* = 3.31). Item 17, “If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months?” was rated on an 11-point metric from 0 = *not at all* to 10 = *very likely* (*M* = 2.14, *SD* = 3.07). Item 18, “If you had it to do over, how likely would you be to become a police officer?” was rated on an 11-point metric from 0 = *extremely likely* to 10 = *not at all likely* (*M* = 3.18, *SD* = 3.18).

Table 2

Descriptive Statistics for Burnout, Quality of Sleep, and Intention to Leave Law Enforcement

Item	*M*	*SD*	Low	High
8. How likely is it that you would recommend a career in law enforcement to a friend or colleague? [a]	5.54	2.84	0.00	10.00
9. Overall, how would you rate your level of burnout? [b]	4.80	2.14	0.00	10.00
10. To what extent, are you proud to be a police officer? [c]	1.42	2.14	0.00	9.00
11. About what percentage of your days do you enjoy your job as a police officer? [d]	2.45	2.56	0.00	9.00
12. How would you describe your sleep quality (how well you sleep)? [e]	4.98	2.68	0.00	10.00
13. For the majority of your shift how alert do you feel? [f]	6.79	2.24	0.00	10.00
14. To what extent, do you have a problem falling asleep at bedtime? [g]	6.33	3.35	0.00	10.00
15. On average, how many hours of good sleep do you get most nights? [h]	3.99	1.05	1.00	6.00
16. To what extent, have you decided to leave law enforcement completely within the next 12 months (whether you have acted on it or not)? [i]	3.42	3.31	0.00	10.00
17. If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months? [j]	2.14	3.07	0.00	10.00
18. If you had it to do over, how likely would you be to become a police officer? [a]	3.18	3.18	0.00	10.00

Note. $N = 84$.

[a] Ratings based on an eleven-point metric: 0 = *extremely likely* to 10 = *not at all likely.*

[b] Ratings based on an eleven-point metric: 0 = *none at all* to 10 = *unbearable.*

[c] Ratings based on an eleven-point metric: 0 = *absolutely* to 10 = *not at all.*

[d] Ratings based on an eleven-point metric: 0 = *most days* to 10 = *hardly ever.*

[e] Ratings based on an eleven-point metric: 0 = *I feel sluggish and physically (or mentally) exhausted most of the time* to 10 = *I am rested and feel ready to protect and serve.*

[f] Ratings based on an eleven-point metric: 0 = *extremely sleepy, takes effort to stay awake* to 10 = *extremely alert.*

[g] Ratings based on an eleven-point metric: 0 = *serious problem* to 10 = *no problem at all.*

[h] Ratings based on a six-point metric: 1 = *three hours* to 6 = *eight hours.*

[i] Ratings based on an eleven-point metric: 0 = *No, I am staying until retirement* to 10 = *Yes, leaving.*

[j] Ratings based on an eleven-point metric: 0 = *not at all* to 10 = *very likely.*

Answering the Research Questions

Research Question 1 was, “Based on the BCOPS archival data set to what extent, if at all, are any of the three MBI scores related to the officer’s work shift?” and the related null hypothesis was $H_0$1: “None of the three MBI scores will be related to the officer’s work shift.” To answer Research Question 1, Table 3 displays the results of the one-way ANOVA and Kruskal-Wallis comparisons for the subscales exhaustion, cynicism, and professional efficacy across shift categories based on the sample with N=212 participants. There were significant differences between the shifts for cynicism based on both the one way ANOVA test (F[2,209] = 3.45, p = .03) and the Kruskal-Wallis test (H = 6.98, p = .03). Bonferroni post hoc tests exposed cynicism scores were significantly lower (p = .03) for the third shift (M = 9.63) compared to the second shift (M = 14.10). There was a borderline significant difference between the shifts for professional efficacy based on the one way ANOVA test (F[2,209] = 2.85, p = .06) and significant difference based on the Kruskal-Wallis test (H = 7.76, p = .02). Bonferroni post hoc tests uncovered professional efficacy scores tended to be higher (p = .06) on the third shift (M = 30.91) compared to the second shift (M = 27.82). No significant differences between the shifts were observed for exhaustion based on the one way ANOVA test (F[2,209] = 1.19, p = .31) or the Kruskal-Wallis test (H = 3.56, p = .17). This combination of findings favors the alternative hypothesis.

Table 3

Comparison of Subscales Exhaustion, Cynicism, Professional Efficacy, and Sleep Global Component Score Based on Shift: One-Way ANOVA and Kruskal-Wallis Test

Variable and shift	*n*	*M*	*SD*	η	*F*	*p*	*H*	Sig.
Exhaustion subscale				.11	1.19	.31	3.56	.17
Day	119	11.84	6.97					
Afternoon	61	11.77	6.86					
Midnight	32	9.75	7.31					
Cynicism subscale				.18	3.45	.03	6.98	.03
Day	119	12.74	7.61					
Afternoon	61	14.10	8.29					
Midnight	32	9.63	7.67					
Professional Efficacy subscale				.16	2.85	.06	7.76	.02
Day	119	28.45	6.35					
Afternoon	61	27.82	5.72					
Midnight	32	30.91	5.57					
Sleep Global Component score				.08	.70	.50	2.53	.28
Day	119	8.41	3.38					
Afternoon	61	8.48	3.26					
Midnight	32	7.66	3.98					

Note. $N = 212$. Archival data from the BCOPS data set.

Research Question 2 was, “Based on the BCOPS archival data set, to what extent, if at all, are the PSQI global scores related to the officer’s work shift?” and the related null hypothesis was $H_0$2: “The PSQI global score is not related to the officer’s work shift.” To answer Research Question 2, Table 3 displays the results of the one-way ANOVA and Kruskal-Wallis tests for the Sleep Global Component scores based on shift. There were no significant differences between the means for the Sleep Global Component scores (F[2,209] = 0.70, p = .50) or the Kruskal-Wallis test (H = 2.53, p = .28). This provided no support to reject the null hypothesis for Research Question 2.

Research Question 3 was, “Do officers who work the third shift report higher burnout indicators?” and the related null hypothesis was $H_0$3: “Officers working the third shift do not report higher burnout.” Research Question 3 was answered in Table 4, which displays the Spearman correlations for burnout with working the third shift. A total of four correlations (survey questions 8, 9, 10, 11) were done, with one being significant at the $p < .05$ level. Working the third shift had significantly lower scores for Item 9, “Overall, how would you rate your level of burnout?” (r_s = -.29, p = .007), providing no support to reject the null hypothesis for Research Question 3.

Research Question 4 was, “Do officers who work the third shift report lower sleep quality indicators?” and the related null hypothesis was $H_0$4: “Officers working the third shift do not report lower sleep quality.” Research Question 4 was answered in Table 4, which displays the Spearman correlations for quality of sleep with working the third shift. A total of four correlations (survey questions 12, 13, 14, 15) were calculated, none of

which were significant at the $p < .05$ level. This provided no support to reject the null hypothesis for Research Question 4.

Research Question 5 was, "Do officers who work the third shift report increased intentions of leaving law enforcement?" and the related null hypothesis was $H_0$5: "Officers working the third shift do not report increased intentions of leaving law enforcement." Research Question 5 was answered in Table 4, which displays the Spearman correlations for intention to leave law enforcement with working the third shift. A total of three correlations (survey questions 16, 17, 18) were done; none were significant at the $p < .05$ level. This provided no support to reject the null hypothesis for Research Question 5.

Additional Findings

The eleven items from Tables 2 and 3 were correlated with six demographic variables (law enforcement experience, age, length of the shift, weekly hours working another job, average hours per week in law enforcement, and overall health level). Out of the resulting 66 correlations, four were statistically significant. Hour length of an officer's shift was found to be significantly correlated with lower scores for Item 15, "On average, how many hours of good sleep do you get most nights?" ($r_s = -.28$, $p = .009$) and with higher scores for Item 17, "If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months?" ($r_s = .27$, $p = .01$).

Table 4

Spearman Correlations for Burnout, Quality of Sleep, and Intention to Leave Law Enforcement Items With Working Third Shift

Item	Work third shift
8. How likely is it that you would recommend a career in law enforcement to a friend or colleague?	-.02
9. Overall, how would you rate your level of burnout?	-.29**
10. To what extent, are you proud to be a police officer?	.06
11. About what percentage of your days do you enjoy your job as a police officer?	.02
12. How would you describe your sleep quality (how well you sleep)?	.00
13. For the majority of your shift how alert do you feel?	-.20
14. To what extent, do you have a problem falling asleep at bedtime?	-.09
15. On average, how many hours of good sleep do you get most nights?	.05
16. To what extent, have you decided to leave law enforcement completely within the next 12 months (whether you have acted on it or not)?	.00
17. If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months?	.10
18. If you had it to do over, how likely would you be to become a police officer?	-.03

Note. $N = 84$.

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

Having a second job or other responsibility/time commitment was discovered to be significantly correlated with lower scores for Item 14, “To what extent, do you have a problem falling asleep at bedtime?” (r_s = -.31, p = .004). In addition, better overall health levels were shown to be significantly correlated with higher scores for Item 15, “On average, how many hours of good sleep do you get most nights?” (r_s = -.30, p = .006) (no data shown).

Conclusion

In summary, the purpose of this study was to investigate the effect of poor sleep hygiene on overnight shift officers’ retention, specifically, to examine whether police officers’ quality of sleep, burnout, and intention to leave law enforcement differs depending on which shift they work. Research Hypothesis 1 (exhaustion, cynicism, and professional efficacy with the shift) favored supporting the alternative hypothesis (Table 3). Research Hypothesis 2 (Sleep Global Component scores with the shift) was not supported (Table 3). Research Hypothesis 3 (burnout and working third shift) found no reason to reject the null (Table 4). Research Hypothesis 4 (quality of sleep and working third shift) was not supported. Research Hypothesis 5 (intention of leaving law enforcement and working third shift) was not supported. In the final chapter, these findings will be compared to the literature; conclusions and implications will be drawn, and a series of recommendations are suggested.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to investigate the relationship between sleep hygiene, burnout, and the intention to leave law enforcement prior to retirement of third shift police officers compared to those who work first or second shift. The quantitative approach was used to examine data from a large ongoing archival study as well as newly collected primary data. This approach was the best fit to review data from multiple participants in an anonymous, expedient, cost-effective manner. In this chapter, I interpret findings in context of the literature, review the research questions, draw conclusions and implications, and make a series of recommendations.

Amidst the plethora of known police stressors, the research provided broad implications regarding the many negative health outcomes of shift work (Fekedulegn et al., 2013; Violanti, 2012). The current study was conducted to address the gap in the literature regarding possible reasons for lower retention in third shift police officers. I examined whether the MBI or PSQI scores related to the shift an officer works, and whether third shift officers disclosed higher burnout, lower sleep quality, or an increased intention to leave law enforcement. The independent variable (third shift) was compared to the dependent variables (burnout, sleep quality, and intention to leave). Archival data were obtained from the BCOPS longitudinal study, and the MBI and PSQI scores were compared across all three shifts. Current and former police officers were recruited via snowball invitation to participate in an anonymous 5-minute online survey to answer questions about their level of burnout, sleep quality, and intention to leave law enforcement (if any). The analysis trended towards some differences in burnout across

shift work categories. I also determined sleep quality was not related to the officer's shift worked. The officers in the survey who worked the third shift did not report increased intentions of leaving law enforcement.

There were several items of significance noted outside of the research questions for this study. Additional findings showed officers who worked longer shifts generally got less sleep and were more likely to leave law enforcement. Officers who had second jobs had less trouble falling asleep. Finally, those who self-reported as healthier also noted getting more sleep.

Interpretation of the Findings

The results of this study trended towards the levels of burnout being different depending on what shift an officer works. This aligned with McCanlies et al. (2020) who posited that some characteristics of burnout from the BCPOS study may be associated with lower cortisol levels in the officers in this group. Peterson et al. (2019) determined shift work, irregular schedules, length of a shift, and number of hours worked were related to higher burnout in officers. Literature closely aligns with the research findings in the current study was not discovered. The gap in the literature regarding whether third shift police officers have a higher occurrence of lower retention due to burnout is a topic that warrants further examination.

Retention was observed to be a popular research topic among many industries, including criminal justice. In these studies, predictive indicators such as personality types, training levels, working environment, and supervisor attitudes were observed to determine whether an employee showed the intention to leave their position (McCarty &

Maume, 2016; Monk-Turner et al., 2010; Wilson et al., 2010). With the importance of recruiting and retaining qualified police officers, it is surprising that limited research has addressed retention factors in policing. In the context of destabilization theory, Kundi's (1989) research showed there is potential for numerous health concerns when working third shift. Whether this relates to officers' burnout and retention was inconclusive.

Fekedulegn et al. (2016) reported night and evening work schedules were associated with higher occurrences of poor sleep quality among police officers, which contrasts with the current study's findings. This might be due to a much smaller sample size in the current study and insufficient power to detect differences. Despite the original hypothesis that third shift officers would report lower sleep hygiene (perhaps one aspect of wellness), Pease and Raether (2003) had results inconsistent with these determinations. Pease and Raether discerned second shift officers had lower well-being scores than third shift officers. When looking through the lens of the shift work theory, future researchers could focus on sleep, stress, and job satisfaction as related to turnover, and burnout is needed for the law enforcement community. Unexpectedly, the third shift survey participants did not report a lower sleep quality in the current study. I did not investigate the relationship between age or health variables, which may explain some of the results that led to the conclusion not to reject the null hypothesis.

Limitations of the Study

In the current study, the focus was purposefully narrow. An additional qualitative investigation of these topics could yield deeper results. A quantitative research design limits the exploration of participants' experiences; therefore, in a subject as complex as

intention to leave law enforcement, this could be considered a limitation of this study. Recruiting parameters for participants could also be considered a limitation as a consequence of the smaller sample size. The survey participants' general demographics resembled those of the larger population of police officers. The secondary data set did not consider the possible differences in department sizes. Morash et al. (2006) asserted a variety of problems influenced police organizations differently depending on the size of the community and agency.

There are also multiple psychological and medical issues that can influence sleep quality, none of which were considered in this study. Another factor not taken into consideration in this study was the call volume differential for varying shifts of officers. In the complexity of the issues surrounding shift work, the number of covariate variables include but are not limited to mental health, physical health, length of shift, work–life balance, age, sex, workload, and administrative support.

As discussed in Chapter 1, the scope of this study was purposefully narrow to focus on the gap in literature regarding the relationship between retention, burnout, and shift work in the policing community. Any limitations in using a secondary data set were offset by including an original survey in this study to focus on the issues of burnout, sleep quality, and intention to leave law enforcement. Sykes et al. (2018) established a current trend in social inequality research focuses on a mixed methods design to add depth and breadth to a singular method, thereby strengthening the generalizability of findings. In view of inconsistencies in reporting methodological discoveries in qualitative research,

this trustworthiness issue can be mitigated by utilizing quantitative procedures, which provide integrity of reporting standards (Ospina et al., 2018).

Queirós et al. (2017) reported surveys in quantitative research have many benefits, including high representativeness of subject population, quick turnaround time, and minimal cost. In contrast, the reliability of this method of data collection is dependent on the investigator's survey design and the truth of the responses provided by the participants (Queirós et al., 2017). The advantage of a survey not being affected by the investigator's biases can be offset by the method's rigidity and inability to capture emotions of the respondents (Queirós et al., 2017). Regarding the validity of the current study, it should be noted that both internal and external validity may have some limitations. Failure to go further in depth regarding the potential compounding effects of stress and burnout might have affected the external validity of this study (see Theofanidis & Fountouki, 2018). It is important to recognize the complexities of these research topics and inform the reader this was a narrowly focused initial study and future research on this topic is recommended.

Recommendations for Future Research

Queirós et al. (2020) suggested people should consider the hazards facing police officers coupled with the frequent stressful working conditions. Police agencies should consider offering strategies for resilience training and coping skills to help reduce officer stress and burnout. With many research studies available on the multitude of police stressors, there remains a lack of evidence on proactive or reactive programs to reduce stress and burnout among law enforcement officers (Purba & Demou, 2019). A lack of

studies was noticed regarding purposeful retention strategies when I performed my literature review. New research is needed to study the effectiveness of available methods utilized to reduce police officer stressors (Purba & Demou, 2019).

Research also showed not all sleep hygiene programs have lasting results. Redeker et al. (2019) found in a 1-hour training, immediate results showed improvement, yet after a 1-month follow-up interview, poor sleep habits returned. Conversely, in a 5-week sleep hygiene training program for shift workers focused on sleep schedules, planned evening naps, timed exposure to light, and noise reduction, results indicated significantly better sleep quality (Redeker et al., 2019). I recommend replicating the current study with the inclusion of qualitative data gathered addressing the third shift participants with any unique variables seen in shift work.

Given what was uncovered in this study and given what the literature indicated, sleep hygiene is paramount to mental and physical health, job performance, and overall well-being. It is also generally agreed upon high levels of stress and burnout can be a source of turnover. Nevertheless, the literature is lacking a large piece of knowledge regarding the conditions surrounding shift work that may lead officers to leave their career in law enforcement due to sleep quality and burnout. Whether this narrow aspect of retention can be attributed to police officers working the third shift necessitates further research.

Methodological enhancements could be instrumental in developing future research projects to develop a deeper understanding of the relationship between shift work and burnout/retention. Adding a longitudinal approach and using other variables

such as tenure of officer or rank of an officer, may add to the literature and strengthen the field of knowledge in this area. The BCOPS study has been a prolific addition to the literature with regard to shift work and health issues. The contribution of the BCOPS data to the researchers studying the intersection of shift work and policing continues to support new opportunities for discovery.

Policy and Practitioner Recommendations

To address the components of sleep hygiene: sleep schedule consistency; avoidance of daytime naps; avoidance of caffeine, alcohol, and nicotine; regular physical exercise; good quality diet; and suitability of shift work, an organization should have a plan to navigate these complex concerns (Shriane et al., 2020). Morash et al. (2006) detail the multilevel influencers on police stress which include: racial and gender bias, community conditions, lack of family support, lack of social support, organizational conditions, work activities, and performance pressure. In an occupation which can literally be a matter of life and death, these persisting and preponderant problems necessitate an organizational intervention to redesign the aspects of how to protect officers from the incidence of physical and psychological ailments.

On a macro level, long term state and national initiatives are needed to intervene on behalf of the policing community. This has been seen in other industries, such as government legislation on regulations for pilots and truck drivers. A literature review performed by Queirós et al. (2020) identified 108 studies that utilized a variety of questionnaires to measure burnout or occupational stressors for the policing community. The World Health Organization recognized burnout to be included as an occupational

risk in their latest revision of the International Classification of Diseases (ICD, 2019). To measure burnout and stress among police officers it is vitally important to choose an accurate measurement instrument prior to developing programs for stress reduction, improving resilience, mitigating signs of burnout, or preventing suicide (Queirós et al., 2020). McCarty et al. (2019) gathered survey data focused on burnout from approximately 13,000 police officers throughout almost 90 agencies across the United States. The strongest indicator of burnout was high workload and decreased work-life balance (McCarty et al., 2019). Contrastingly, when larger agencies initiated flexible working schedules to improve wellness in officers it was documented to weaken social structures (Bürger & Nachreiner, 2018).

At a local micro level, how does this information help management make decisions about which foci should take precedence in the many topics a struggling police organization might have to choose between? The aforementioned difficulties aside, the need to develop countermeasures to negate the harmful aspects of poor sleep hygiene, burnout, and turnover are a reality that must be addressed. Perhaps, due to the complexity and almost insurmountable variables involved in these issues, a more individually designed program could be developed department by department with guidance recommendations from a national regulatory agency. Patterson et al. (2020) tackle the controversial topic of whether public safety shift workers (police, fire, and emergency medical services) should be allowed to nap during their duty. Considering these negative aspects of napping on duty (poor public image, deficiencies from sleep inertia, and cost of overlapping coverage), their research concludes napping can be a great benefit to the

over 50% of emergency services personnel who report severe negative consequences of shift work. The extreme fatigue and low sleep quality seemed to be improved by on shift napping, which resulted in lower blood pressure, anxiety, and feelings of burnout, decreased daytime sleepiness, and better recovery between shifts (Patterson et al., 2020).

Implications

In the emerging field of forensic psychology, the desire to impact social change is a factor in working between the intersection of the psychology and criminal justice fields. This study has a potential impact to drive positive social change at the individual, family, organization, and community levels. Research providing clues to the complex interworking issues involved in policing is necessary to drive decisions for policy makers to move forward with criminal justice reform. On the opposite end of the spectrum, we owe it to the individual officer and their family to keep learning about how to improve their well-being in a career riddled with both mental and physical dangers. As aforesaid at the beginning of this project, as a community, we depend on the police to protect and serve us in every aspect of our personal safety and security. Often with increased difficulty, lower resources, longer hours, and under the scrutinizing ever present eye of social/national media, we ask our officers to deal with poor sleep hygiene and burnout without any failsafe to ensure they have the support they need to perform as required.

Hilal and Litsey (2020) identified several common themes agencies could address to combat the causes of police turnover, which financially impact the agency and individual. These themes revealed several programs that could impact the long-term retention of police officers until their retirement. Programs needed included leadership

training, concise and transparent administrative guidelines, long-term light-duty assignments, flexible shifts, morale improvements, and a focus on officer well-being (Hilal & Litsey, 2020). Each research study focusing on a segment of the policing dilemma, as the one I performed, may provide a beneficial clue to piece together a solution. Society would profit where officers and their community are mutually supported and fostering each other's well-being.

Conclusion

As I conclude this research project, it may serve as a reminder that the beginning of the retention focus starts with recruitment and the initial training of officers. Kumar (2019) defines police training as the process by which knowledge, skills, and core values are shared with incoming personnel. Retaining this huge human capital investment is needed for the agency and beneficial to the community. Furthermore, ensuring perceptions are aligned to improve retention is a vital to the success of law enforcement agencies (Kumar, 2019). An agency might want to weigh the costs (financial and moral) of developing an intervention program to combat the effects of burnout. Understanding the negative aspects of shift work might be more successfully mitigated by strategies in the initial and ongoing training.

The goal of this study was to research the gap in literature which could examine a relationship between working third shift and increased levels of burnout or intention to leave law enforcement. A predominant amount of the research surrounding these topics focused on physical health concerns or lower performance of those who work the third shift as compared to their first or second shift counterparts. Kundi's destabilization theory

proposes a fluid equilibrium between the three aspects of working the third shift: work, sleep, and family (Kundi, 1989). This examination framework along with the shift work theory guided the focus of determining the connection of retention to working overnight.

In favor of expedient cost and time concerns, a quantitative research design was chosen. To achieve the stated investigation goals, I used a quantitative, nonexperimental, secondary research design utilizing the BCOPS study. The BCOPS is a highly regarded ongoing longitudinal study through which many research questions involving shift work, and policing are examined. This segment of the study was supported by the creation of a brief primary quantitative survey to ask the participants their experiences regarding their level of sleep quality, burnout, and intention to leave law enforcement. This information was then compared across the three shifts.

In pursuance of the investigation into the quality of a third shift officer's sleep and/or if burnout influences their intention to leave law enforcement, I established five research questions. First, the focus was on exhaustion, cynicism, and professional efficacy with a shift as examined in the BCOPS archival data set through the respondents' MBI score. This calculation was determined to be favor the alternate hypothesis. Secondly, the global sleep component scores were compared across shift using the PSQI scores in the BCOPS data. These scores were discovered not to be related to the officer's shift. Next, I examined if the officers working third shift conveyed higher burnout indicators. The findings were that officers working the third shift did not report higher burnout. The fourth research question examined if officers reported a lower quality of sleep while working the third shift, and this was not supported in the results.

Finally, I investigated if the third shift officers had a higher intention of leaving law enforcement and ascertained they did not.

I would like to encourage researchers to continue to investigate the crucial issue of police sleep quality, burnout, and retention. As A society's first line of safety and security defenses, supporting police officers' health and well-being is in everyone's best interest. Policy makers depend on current and ongoing research to lead their decisions on how best to implement improved training, prevention, and intervention strategies. With the purpose to exceed the demands of public scrutiny and retain their most valuable assets, police departments may be more successful if their officers have a work-life balance coupled with physical and mental well-being. Expecting officers to deal with all the dangers and demands of policing while simultaneously helping others without providing the proper support for them seems to be counterintuitive. For that reason, in a meritorious strategy development endeavor, a sleep hygiene training plan and burnout prevention remedies are indispensable for the entire police force regardless of what shift they work.

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Appendix A: Data Use Agreement

DATA USE AGREEMENT

This Data Use Agreement ("Agreement") is made and entered into as of this 2nd day of May, 2018 by **John M Violanti/NIOSH ("Covered Entity")**, and **Misty Ladd** ("Data Recipient"). This agreement covers any and all data provided to the Data Recipient by the Covered Entity which was obtained from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) study.

WHEREAS, Covered Entity may Disclose or make available to Data Recipient, and Data Recipient may use, disclose, receive, transmit, maintain or create from, certain information in conjunction with research; and

NOW, THEREFORE, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

SCOPE AND PURPOSE

1. This Agreement sets forth the terms and conditions pursuant to which Covered Entity will Disclose certain data to the Data Recipient.

2. Except as otherwise specified herein, Data Recipient may make Uses and Disclosures of the **Limited Data Set** necessary to conduct the only research described herein: (***include a brief description of the research***) **("Research Project").**

For the proposed research project, the BCOPS pilot study results will be quantitatively re-examined to determine if there is a link between shift work and reported poor sleep health or more specifically, if the officers working the night shift have a lower retention rate. In the proposed quantitative study, the items that will be investigated from the BCOPS data are: (1) shift worked, (2) tenure the officer worked, and (3) the Pittsburgh Sleep Quality Inventory (PSQI) rating.

OBLIGATIONS OF DATA RECIPIENT

1. Data Recipient agrees to not Use or Disclose the Limited Data Set for any purpose other than the Research Project herein named or as Required by Law.

2. Data Recipient agrees to use appropriate safeguards to prevent Use or Disclosure of the Limited Data Set other than as provided for by this Agreement.

3. Data Recipient agrees to report to the Covered Entity any use or disclosure of the Limited Data Set not provided for by this agreement of which it becomes aware, including without limitation, any disclosure to an unauthorized person or group, *within five (5) days of its discovery.*

4. Data Recipient agrees to ensure that any agent to whom it provides the Limited Data Set agrees to the same restrictions and conditions that apply through this Agreement to the Data Recipient with respect to such information. This includes all members of the dissertation committee.

5. Data Recipient agrees not to attempt to identify the de-identified information contained in the Limited Data Set or contact any individual that may be part of such data.

6. Data Recipient will indemnify, defend and hold harmless Covered Entity and any of Covered Entity's affiliates, and their respective trustees, officers, directors, employees and agents ("Indemnitees") from and against any claim, cause of action, liability, damage, cost or expense (including, without limitation, reasonable attorney's fees and court costs) arising out of or in connection with any unauthorized or prohibited Use or Disclosure of the Limited Data Set or any other breach of this Agreement by Data Recipient, agent or person under Data Recipient's control.

7. Data Recipient agrees to include all respective persons who have contributed to the collection and /or development of the data specified in this agreement in any manuscript and publication resulting from the research specified in this agreement.

8. Upon completion of the study, Data Recipient agrees to return all data to covered entity and destroy all copies of the data from any and all hard or electronic devices that recipient may employ.

D. TERM AND TERMINATION

The provisions of this Agreement shall be effective as of the date of signing by the covered entity and data recipient and shall terminate when all of the Limited Data Set provided by Covered Entity to Data Recipient is returned to Covered Entity.

E. MISCELLANEOUS

The parties agree to take such action as is necessary to amend this Agreement from time to time as is necessary for Covered Entity to comply with the requirements of this agreement.

No provision of this Agreement may be waived except by an agreement in writing signed by the waiving party. A waiver of any term or provision shall not be construed as a waiver of any other term or provision.

The persons signing below have the right and authority to execute this Agreement and no further approvals are necessary to create a binding agreement.

In the event of any conflict between the terms and conditions stated within this Agreement and those contained within any other agreement or understanding between the parties, written, oral or implied, the terms of this Agreement shall govern. Without limiting the foregoing, no provision of any other agreement or understanding between the parties limiting the liability of Data Recipient to Covered Entity shall apply to the breach of any covenant in this Agreement by Data Recipient.

This Agreement shall be construed in accordance with and governed the laws of the state or jurisdiction of the covered entity

IN WITNESS WHEREOF, the parties have executed this Agreement effective upon the Effective Date set forth above.

COVERED ENTITY John M. Violanti _____ Title: Principal Investigator Date _____

DATA RECIPIENT *SIGNATURE:* **Misty Ladd** Misty Ladd

Title: Student A00445691 Date: 2 May 2018

IN WITNESS WHEREOF, the parties have executed this Agreement effective upon the Effective Date set forth above.

COVERED ENTITY John M. Violanti _____ Title: Principal Investigator Date 9-3-20

DATA RECIPIENT *SIGNATURE:* Misty Ladd Misty Ladd

Title: Student A00445691 Date: 2 May 2018

Appendix B: Survey

Demographic/General Questions:

1. How long have you worked in policing?

☐ 0-3 years

☐ 3-6 years

☐ 6-10 years

☐ 10-15 years

☐ 15+ years

☐ Retired

☐ Left law enforcement prior to retirement

2. What is your age?

☐ 18 to 24

☐ 25 to 34

☐ 35 to 44

☐ 45 to 54

☐ 55 to 64

☐ 65 to 74

☐ 75 or older

☐ Prefer not to respond

3. How long is your normal shift?

☐ Eight hours

☐ Ten hours

☐ Twelve hours

4. I have a second job or reoccurring responsibility that...

☐ I do not have another job

☐ Takes 11-20 hours a week

☐ Takes 21-30 hours a week

☐ Takes 31-40 hours a week

☐ Takes 41+ hours a week

5. My average hours worked in law enforcement per week are...

☐ Less often than 10 hours per week

☐ 11-20 hours a week

☐ 21-30 hours a week

☐ 31-40 hours a week

☐ 41-50 hours a week

☐ 51-60 hours a week

☐ 61+ hours a week

6. What do you consider your overall health level?

☐ Very healthy

☐ Generally healthy

☐ Somewhat healthy

☐ Unhealthy

☐ Very unhealthy

Survey questions:

7. What shift do you work (the majority of the time)?

☐First Shift (any variety of day shift: 0600-1400, 0700-1500, 0800-1600, or 0900-1700)

☐Second Shift (any variety of swing shift: 1400-2200, 1500-2300, 1600-2400, or 1700-0100)

☐Third Shift (any variety of overnight shift: 2200-0600, 2300-0700, 2400-0800, or 0100-0900)

Burnout Section:

8. How likely is it that you would recommend a career in law enforcement to a friend or colleague? (Choose one on a scale from zero to ten)

Extremely likely				**Likely**				**Not at all likely**
☐	☐	☐	☐	☐	☐	☐	☐	☐

9. Overall, how would you rate your level of burnout? (Choose one on a scale from zero to ten)

None at all				**Moderate**				**Unbearable**
☐	☐	☐	☐	☐	☐	☐	☐	☐

10. To what extent, are you proud to be a police officer? (Choose one on a scale from zero to ten)

Absolutely				**Sometimes**				**Not at all**
☐	☐	☐	☐	☐	☐	☐	☐	☐

11. About what percentage of your days do you enjoy your job as a police officer? (Choose one on a scale from zero to ten)

Most days				**50% of the time**				**Hardly ever**
☐	☐	☐	☐	☐	☐	☐	☐	☐

Sleep Section:

12. How would you describe your sleep quality (how well you sleep)? (Choose one on a scale from zero to ten)

I feel sluggish & physically (or mentally) exhausted most of the time				**I get by**				**I am rested and feel ready to protect & serve**
☐	☐	☐	☐	☐	☐	☐	☐	☐

13. For the majority of your shift how alert do you feel? (Choose one on a scale from zero to ten)

Extremely sleepy, takes effort to stay awake				**Neither alert nor sleepy**				**Extremely alert**
☐	☐	☐	☐	☐	☐	☐	☐	☐

14. To what extent, do you have a problem falling asleep at bedtime? (Choose one on a scale from zero to ten)

Serious problem				**Slight Problem**				**No problem at all**
☐	☐	☐	☐	☐	☐	☐	☐	☐

15. On average, how many hours of good sleep do you get most nights? (Pick from the dropdown): 3, 4, 5, 6, 7, 8

Intention to Leave Police Work Section:

16. To what extent, have you decided to leave law enforcement completely within the next 12 months (whether you have acted on it or not)? (Choose one on a scale from zero to ten)

No, I am staying until retirement				**It has crossed my mind**				**Yes, leaving**
☐	☐	☐	☐	☐	☐	☐	☐	☐

17. If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months? (Choose one on a scale from zero to ten)

Not at all				**Likely**				**Very likely**
☐	☐	☐	☐	☐	☐	☐	☐	☐

18. If you had it to do over, how likely would you be to become a police officer? (Choose one on a scale from zero to ten)

Extremely likely				**Unsure**				**Not at all likely**
☐	☐	☐	☐	☐	☐	☐	☐	☐

Appendix C: Survey Question/Research Question Alignment

Survey Question Number	Survey Question	Research Question*
1.	How long have you worked in policing?	Demographic/General Question
2.	What is your age?	Demographic/General Question
3.	How long is your normal shift?	Demographic/General Question
4.	I have a second job or reoccurring responsibility that takes "x" hours per week	Demographic/General Question
5.	My average hours working in law enforcement per week are:	Demographic/General Question
6.	What do you consider your overall health level?	Demographic/General Question
7.	What shift do you work (the majority of the time)?	Independent variable; shift worked (1st, 2nd, or 3rd)
8.	How likely is it that you would recommend a career in law enforcement to a friend or colleague?	Burnout Section; Research Question #3- survey questions 8,9,10,11. Converted questions to standard Likert scales with high burnout being at the zero end of the scale Likert type scale with high burnout being at the ten end of the scale
9.	Overall, how would you rate your level of burnout?	RQ#3
10.	To what extent, are you proud to be a police officer?	RQ#3
11.	About what percentage of your days do you enjoy your job as a police officer?	RQ#3
12.	How would you describe your sleep quality (how well you sleep)?	Sleep Section; Research Question #4- survey questions 12, 13, 14, 15. Converted questions to standard Likert scales with high sleep quality being at the ten end of the scale
13.	For the majority of your shift how alert do you feel?	RQ#4

14.	To what extent, do you have a problem falling asleep at bedtime?	RQ#4
15.	On average, how many hours of good sleep do you get most nights? (Fill in the blank) ____	RQ#4
16.	To what extent, have you decided to leave law enforcement completely within the next 12 months (whether you have acted on it or not)?	Intention to leave Section; Research Question #5- survey questions 16,17, 18. Converted questions to standard Likert scales with high intention to leave being at the ten end of the scale
17.	If you could find a similar law enforcement job with at least equal pay, how likely are you to leave your current organization in the next 12 months?	RQ#5
18.	If you had it to do over, how likely would you be to become a police officer?	RQ#5

Appendix D: CITI Program Completion Certificate

CITI PROGRAM

Completion Date 07-Aug-2020
Expiration Date N/A
Record ID 37778592

This is to certify that:

Misty Ladd

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w1ffcdd31-00d2-45cd-a085-8527f86088dd-37778592