

Walden University

College of Social and Behavioral Sciences

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Walden University
2020

Abstract

Rotating Work Schedules and Work-Life Conflict for Police

by

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MBA, Ashford University, 2011

BA, Ashford University, 2010

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

This cross-sectional quantitative study addressed whether self-reported work-family conflict differ significantly between officers on rotating shifts and officers on non-rotating shifts. The study collected primary data through a self-administered survey with closed-ended questions. The theory of work-life balance guided this study by providing an understanding of how individuals experience fulfillment and stress from their roles in family life and their careers. Data using the Work-Family and Family-Work Conflict Scale were collected through surveys from police officers ($N = 76$) who were married or living with a partner in a county in the Pacific Northwest. Responses were measured on Likert scales, and a composite score was created to measure the level of family life conflicts. The statistical method for data analysis was independent-sample t-test. Findings indicated significant difference in work-family conflicts, $t(74) = -1.99$, $P < .05$. The officers on rotating shift schedules reported higher level of work-family conflict ($M = 5.52$, $SD = 1.33$) than those on non-rotating shift schedules ($M = 4.88$, $SD = 1.44$). Positive social change implications stemming from this study include recommendations to police administrations to find a way to identify employees who are most and least affected by rotating shift work and then create schedules that help them cope with the conflicts created by such schedules.

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Dedication

I dedicate my dissertation work to the many men and women in law enforcement, and the families, friends, and communities that support them.

I also dedicate this work and give special thanks to my wife Michelle L. Dingman and my wonderful daughters Emma and Amaya for being there for me throughout the entire doctoral program. You truly have been my best cheerleaders.

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Chapter 1: Introduction to the Study

Shift work has been one of the common practices of organizations to cope with the fast-changing demands of industries (Khan, 2013). Organizations engage their employees at different shifts to ensure that they can handle their customers from all over the world. Shift work is defined as working any schedule outside of the commonly recognized eight hours that usually fall between 07:00 to 18:00 hours (Reily, Waterhouse, & Atkinson, 1997). The embrace of shift schedules allows organizations to cover the working hours in different parts of the world. Apart from business organizations, other fields also consider the use of shift work to ensure that their services are available at any time to their customers' need. Police officers are engaged in shift work to provide services for their citizens; however, instead of fixed shift work, police officers are often asked to perform rotating shift work wherein their work schedules vary from week to week or in some cases, even day to day (Khan, 2013). As public safety is a 24-hour operation, many police officers are rotated in a shift plan in which they are assigned to respective duty rosters. In this regard, Bell, Virden, Lewis, and Cassidy (2015) account for alarming implications of police officers who work for more than 12 hours in a single day.

The rotating shift work of police officers entails the need to report to work at various times. Accordingly, it is vital to note that in certain circumstances, rotational shift work affects the number of hours they spend for themselves as well as for their families. Police officers have adopted rotating shift work schedules and are expected to prioritize the need to report for duty (Khan, 2013). There has been extensive research into the

impacts of rotating shift work schedules on employees' health, sleep, medical problems, and productivity (Crew, 2006). Rotating shift work was also reportedly associated with off-shift consequences such as work-family conflict, poor physical well-being, and psychological distress (Galatzer-Levy et al., 2013).

Background of the Study

Current literature provides insight into how and why rotating shift work schedules affect the well-being and family lives of workers. Most of these studies did not focus on police officers; however, their findings should apply to police officers and police work. Reilly, Waterhouse, and Atkinson (1997) provided a definition for shift work and an understanding of how and why shift work impacts the employee. Bartel, Offermeier, Smith, and Becker . (2004) demonstrated how some work schedules affected an employee's ability to perform simple, repetitive tasks.

Several researchers noted negative physical effects from shift work. Furlan et al. (2000) suggested that rotating work schedules contribute to an increase in cardiovascular disease. Furthermore, Hossain et al. (2003) demonstrated how work schedules affect sleep pathology, employee performance, and health. Also, Sakata et al. (2003) found that employees who had rotating shift work schedules had a much higher rate of hypertension, along with an increase in alcohol use and higher levels of body fat and cholesterol. Van Amelsvoort, Schouten, and Kok (2004) found that shift workers had a higher rate of recorded sick time usage than daytime workers. Finally, Dula et al. (2001) found that employees working night shifts showed a notable decline in work performance, productivity, and alertness. Moreover, Crew (2006) examined how shift work schedules

influenced workers' biological and psychosocial systems, as well as their performance, and concluded the effects were harmful. Similarly, Cavallo, Jaskiewicz, and Ris (2002) provided insight into how rotating shift work schedules negatively affected employees' moods while at work, at home, and on their days off.

Previous research on police officers focused on work-related stress and the implication this had on their job performance (McCoy & Aamodt, 2010). Police officers experience high stress as they juggle with their work and family (Galatzer-Levy et al., 2013). The changing work conditions of police officers increase the stress they experience physically, socially, and organizationally (Demerouti, Geurts, Bakker, & Euwema, 2004). Previous researchers focused on physical implications as well as work outcomes of police officers, such as their health conditions and their respective performance measures (Jena & Goswami, 2012). These researchers focused on the work-related stress, types of illnesses developed, and the level of fatigue experienced by police officers given the nature of their work. Chen and Diker (2008) considered how work-related stress among employees affect family life. However, the focus was not specifically on the impact of rotating shift work on the family stress of police officers.

Current statistics indicate that an estimated 40% of law enforcement officers experience domestic violence in their families (Bennett, Hess, & Orthmann, 2007). Additionally, Khan (2015) and the National Center for Women & Policing (2015) both demonstrated ongoing problems with domestic violence and divorce rates among police officers. Barnes-Farrell et al. (2008) also suggested that implications of shift work

characteristics should be considered for the off-duty well-being of workers such as work-family conflicts, physical well-being, and mental well-being.

Demerouti et al. (2004) considered social implications of the rotating shift work of the Dutch Military Police Force but did not specifically focus on its impact on domestic life. Handy (2010) specifically focused on the family life of shift workers in a New Zealand petrochemical plant; however, this study focused on workers with fixed shifts. The nature of police work involves rotating shift work, which complicates their capability to commit to social events including important family occasions (McCoy & Aamodt, 2010). The fast-changing schedules of police work negatively affect family life (Khan, 2013).

Problem Statement

Rotating shift work is a fact of life for many police officers. Such schedules can create stress for officers and affect their family lives (Khan, 2013). Similarly, conflicts in family life may affect how they perform their jobs. Policing is considered critical because police officers protect people and property. Therefore, Khan (2013) suggests the need for police officers to focus on the demands of their jobs because they put themselves at risk during operations. There has been extensive research in how rotating shiftwork affects the health and performance of police officers; however, it is not well understood how rotating shift work affects police officers' family lives. Past research on the impact of shift work examined only divorce rates in this context. McCoy and Aamodt (2010) observed that police officers had lower divorce rate than the national average but did not examine whether divorce rates differ between officers on rotating

shifts and those on regular work hours. This aspect of the lives of police officers remains to be understood.

Purpose of the Study

This quantitative study examined whether officers on a shift schedule experience more conflict in their family lives than do those on a traditional daytime schedule. The comparison was made between police officers on shifts and those on a traditional daytime schedule. This cross-sectional comparison provided empirical evidence in examining whether shiftwork is a significant stressor on the family lives of police officers.

Research Questions and Hypotheses

This study answered the following research question through testing a null hypothesis:

RQ: Does self-reported work-family conflict differ significantly between officers on rotating shifts and officers on non-rotating shifts?

H_0 : Officers on rotating shifts do not report significantly greater work-family conflict than officers on non-rotating shifts.

H_a : Officers on rotating shifts report significantly greater work-family conflict than officers on non-rotating shifts.

Theoretical Framework

The study is grounded in the theory of work-life balance (Clark, 2000). According to the theory of work-life balance, individuals experience fulfillment and stress from their roles in family life and their careers. The theory of work-life balance has focused on providing

time for both family and career, respectively. Work-life balance is important for an individual's psychological well-being. Healthy work-life balance is evidenced by high self-esteem, satisfaction, and an overall sense of harmony in life. With rotating shift work, some of these aspects may be affected positively or negatively. Rotating shift work has been regarded as a stressor to family life by some, while others may perceive this as an opportunity to support family life.

This study examined whether shift work affects work-family conflict of police officers. The theory of work-life balance is a good fit for this study because this approach has been used in various past studies to identify a link between police officer stress and family outcomes. Furthermore, these factors will provide guidance while identifying a link between rotating shift work and family-related outcomes.

Nature of the Study

A quantitative approach was employed to examine the relationship between rotating shift work schedules and work-family conflict for police officers. The definition of work-family conflict is broad in this context and includes participants' reports of pressures they experience in relation to family life. The study tested the research hypothesis by a cross-sectional design.

This design is considered appropriate because data were collected at one point in time and analyzed comparatively between two groups of officers working on two kinds of schedule. The independent variable in this study is the type of work schedule, and the dependent variable is the extent of the self-reported work-family conflict. The dependent variable was measured by participants' responses on the Work-Family Conflict Scale,

from the Work-Family and Family-Work Conflict Scales developed by Netemeyer, Boles and McMurrian (1996).

Definitions

The following is a list of terms that will be used in this study:

Family life. This is defined as the routine or the activities that a family have together (Khan, 2013).

Police officers. They are identified as the group of people responsible for enforcing the law, investigating crimes, and making arrests (Khan, 2013).

Shift work. This is defined as the work in recurring periods in which workers do the same jobs in the rotation (Khan, 2013).

Rotating shift work. This is defined as the change or variety of work schedules according to a set of schedules. In this case, employees rotate through all shift schedules, such as day shift, swing shift and night shift (Khan, 2013).

Fixed or steady shift work. This is similar to rotating shift; however, in this case, employees are assigned to one of the recurring shifts indefinitely. For example, either the eight-hour day shift or the night shift (Khan, 2013).

Work-family conflict. This is a form of inter-role conflict in which the general demands of, time devoted to, and strain created by the job interfere with performing family-related responsibilities (Netemeyer et al., 1996).

Family-work conflict. This is a form of inter-role conflict in which the general demands of, time devoted to, and strain created by the family demands interfere with performing work-related responsibilities (Netemeyer et al., 1996).

Work-life balance. This is the concept of proper prioritizing of career and lifestyle (Galatzer-Levy et al., 2013).

Work-related stress. This is defined as the pressure or the demands placed on workers (Galatzer-Levy et al., 2013).

Assumptions

The study conducted was a quantitative study, and the assumption made was that it is a method that should be used to test pre-specified concepts, constructs, and hypotheses that make a theory. Quantitative methodologies lean towards explaining and confirming whether observed phenomena and their systematic association approves the forecast made by the theory. Whereas quantitative methods are typically theory-driven and deductive, qualitative approaches are data-driven and inductive. In quantitative methods, hypotheses are derived deductively from the theory and have to be then falsified through confirmatory study (empirical investigation). The philosophical assumption is the theoretical framework utilized by the researcher in collecting, analyzing and interpreting the data that is collected in the study. Philosophical assumptions entail two aspects which include epistemology and ontology assumption. The ontological assumptions made during the research is that the research design should start with theories and hypothesis.

The epistemological assumption is that the facts stated in the study should have an objective reality and the variables have to be identified.

In a study conducted by Andreassen et al. (2017), the researchers reported that there exists an assumption that between self-reported working conditions and health are owed to reporting bias. The findings were based on the study that aimed to explore the association of working conditions, individual differences, and work holism amongst shift-working nurses. On the other hand, it is imperative to note that researchers have engaged in several procedures: for instance, baseline examination of mental health results or control of personality trait, for instance neuroticism, trusting that this method reflects more impartial relationships. A different assumption is that employing measures examined by others than the individual himself or herself, or cumulative data to work-unit-level, makes the links more objective. However, as pointed out by Christensen (2014), it is valuable to distinguish between general assessments of the work environment and its related factors when considering possible errors of self-reporting. The current studies do not attempt to measure characteristics of the work environment in which the employees are situated, but instead focus on aspects of work in the individuals' perceived reality. Thus, there was an assumption that employees evaluate work so as to align it with their personal standards (Christensen, 2014). This appraisal of work may have psychological consequences, that is, affecting the individual emotionally, cognitively and behaviorally, which in turn may affect the health of workers

Scope and Delimitations

This quantitative study includes three delimitations. First, the police officers participating in the study were gathered through convenient and quota non-probability sampling techniques based on their availability, their willingness to participate in the study, and their convenience as required by the researcher. As such, the sampling techniques did not provide a sample representative of the population. Nevertheless, I did include recruitment criteria that guided selecting the research participants depending on their convenience.

The second delimitation was that the study focused on a specific population of police officers within the geographical area of Oregon. This delimits the cultural diversity considered in this study. Cultural differences may have a different impact on family life and shift work. Thus, the cultural aspect of the topic will not be considered in this study.

Third, this study was delimited through the measures of the survey questionnaire. The constructs considered in this study were based on the definition of the survey questionnaire involved in this study. Therefore, other definitions of work-family conflict and shift work will be excluded in the study.

Limitations

There were also several limitations involved in this study. The first limitation was that the positions and departments of police officers were not considered as a differentiating factor in the study. The functions of police officers may differ, and the work-related stress they experience may differ. Moreover, another limitation was elicited

through different shifts and roles assigned to police officers in their duty station, for example, night shifts lasting more than 12 hours and daytime shifts lasting 4 hours. However, this study focused on police officers in general and did not control for potential differences due to different work backgrounds. This study was also limited to the participants within the geographic area considered in the study. The survey instrument considered in the study also limited the extent to which the construct of work-family conflict was measured. The self-report instrument used in this study was also limited to the willingness of participants to provide honest and objective responses to the survey items. The study was also limited to potential bias in participant recruitment because a nonrandom sampling technique was used.

Significance

This study addressed an area of policing that has not been adequately researched. The results of this study provided necessary insights into how rotating shift work schedules affected police officers and their families. Information derived from this study should aid police departments in managing effective and healthy work schedules for police officers, their families, and the organization. The findings of the study could also be useful for designing training programs for police officers on how to manage work and family life. Furthermore, insights from this study can aid police department academies in developing curricula that better equip police officers and their families with the tools and knowledge necessary to have long and healthy careers and marriages, regardless of whether or not they are involved in rotating shift work. The curricula or training programs to be developed could also focus on the needs of spouses in order to aid police

officers in handling the nature of their work. The results of the study may also inform revisions to policies and guidelines on how employees on shift work should be treated for police officers specifically.

Summary

Rotating shift work has been experienced by nearly all police officers during the course of their careers (Perez, 2011). The average police officer works for more than 8 hours, with those in high crime areas working more than 20 hours (Burke, R. J., & Cooper, 2008). In addition to strenuous shifts, police problems are further compounded when there is lack of clear policies limiting the number of working hours. Such schedules can create stress for officers and affect their family lives (Khan, 2013). The purpose of this study is to explore the effects of rotating shift work of police officers on their domestic lives. The aim of the research is also to identify all aspects of outcomes via self-reporting by such officers. This study examined the effect of rotating shift work of police officers to their domestic lives by comparing the self-reported outcomes of police officers who have rotating shift work and those who are not on rotating shift work. Existing literature has expressed the need to extend studies by analyzing the overall impact of shift work on family life , considering the possible positive and negative outcomes, as reported by those who have experienced or are experiencing such outcomes (Khan, 2013).

Chapter 2 provides a discussion of relevant literature on rotating shift work and family life. Chapter 2 also provides a summary of the available literature on the phenomenon in order to highlight the gap that this study seeks to address.

Chapter 2: Literature Review

Introduction

Many police officers work on rotating shifts. Literature has suggested that such schedules can create problems for employees and subsequently affect their family lives (Smizinski, 2015; Waggoner, 2012; Violanti et al., 2012; Vijayalakshmi, 2012). Shift work has been one of the common practices of organizations in response to the fast-changing demands of industries (Khan, 2013). Organizations engage their employees at different shifts to ensure that they are able to handle their customers or clients at all times. Shift work is commonly defined as the “regular” or non-overtime work beyond the 7 a.m. to 6 p.m. workday (Smizinski, 2015). The origin of shift work is generally traced back to about 1860. In fact, the first workers to be assigned shift work were police officers and firefighters (Smizinski, 2015).

There are negative health effects linked with rotating shift work such as chronic physiological and psychological impairments (Di Millia et al., 2013; Ramney et al., 2012; Vogel, Braungardt, Meyer, & Schneider, 2012). Moreover, rotating shift work is linked with other concerns such as poor work-family balance, physical unwellness, and psychological distress (Galatzer-Levy et al., 2013; Tuttle & Garr, 2012). Previous researchers recommended more studies to identify the positive and negative effects of police officers’ family lives as a result of shift work (Mcdowall & Lindsay, 2014; Patterson, Chung, & Swan, 2013; Ramney et al., 2012). It is not well-understood how rotating shift work affects police officers’ family lives due to the paucity of studies on this subject (Patterson & Chung, 2012; Rudell, 2012; Schwab, 2014; Subha & Devika,

2014). The purpose of this quantitative cross-sectional comparative study is to explore the effects of rotating shift work of police officers on the lives of their family members, including spouses, children, live-in parents, and others living in their homes or nearby.

In order to search and identify relevant studies in this literature review, the following databases and search engines were used: EBSCO Host, JSTOR, Science Direct, Psych Articles, and Google Scholar. The key search terms and phrases that were input to various online databases included the following: shift work, job performance, work-family balance, circadian misalignment, police and shift work, job satisfaction, stress and shift work, sleep disorders and shift work, and psychological stress and shift work. Using these keywords (both individually and in combinations), relevant studies were generated. Those that were deemed relevant to the study were included in the literature review. Most of the literature included was published between 2011 and 2015 to ensure that the latest findings and reports were included in the review. A few seminal sources published before 2011 were also used.

This chapter provides an expanded review of the research problem discussed in the previous chapter. The first section presents the search strategy of the literature. The second section discusses work-family balance theory. Next, relevant studies will then be organized in categories, progressing from the broad subject matter towards the gap to be studied. In this process, six major sections will be discussed: (a) health effects of shift work, risk factors, and occupational stress; (b) psychological stress and rotating shift work; (c) job satisfaction and rotating shift work; (d) job performance and rotating shift

work; and (e) work-life balance and rotating shift work. Finally, the chapter summarizes the gaps in the research literature this study is aimed to fill.

Theoretical Framework

The work-life balance theories of Clark (2000), and Greenhaus and Allen (2011) provide the theoretical framework for this study. One of the major impacts that police shift work has is on the work-life balance of police officers and their families. Clark developed a theory of work-life balance, which she calls work-life border theory (Clarke, Koch, & Hill, 2004). According to Clark,

Work-family border theory explains how individuals manage and negotiate the work and family spheres and the borders between them in order to attain balance. Central to this theory is the idea that 'work' and 'family' constitute different domains or spheres which influence each other...Given their contrasting purposes and cultures, work and home can be likened to two different cultures where there are differences in language or word use, differences in what constitutes acceptable behavior, and differences in how to accomplish tasks (p. 121).

Furthermore, Clark proposed that the concept of work-life balance may be somewhat misleading, in the sense that employees and their families aspire to a perfect work-life/family balance. The model articulated is that of a continuum, with perfect balance at one end and the absence of balance at the other end (Clark, 2004). Determining the level of work-life/family balance for an individual worker and their family is a matter of locating that particular employee-family relationship somewhere along the work-

life/family continuum. Clark developed a set of variables that can influence an employee's work life balance as a way to estimate the level of work-life/family balance. They are role conflict, job satisfaction, family functioning, and organizational commitment. All of these variables play a role in discussing the impact rotating shift work schedules have on police officers and their family lives (Poulose & Sudarsan, 2014).

Clark's work/family border theory posits that "work" and "family" are independent but also interrelated entities, consisting of two different open systems. As such, external forces and pressures influence the systems that are both open. In the context of police work, for example, each police officer occupies both the domains of work and family. Furthermore, individuals occupied with both systems make daily transitions between the two domains of the family world and the work world. Each individual, employee, or police officer has the ability to mold both of these domains and modify the borders between them. Nevertheless, it is also the case that both worlds strongly influence individual employees.

Greenhaus and Allen (2011) extended the work on work-life/family balance theory developed by Clark (2000), and others (Gattrell et al., 2012) to include the important concept of role conflict in work-life/family balance theory. The researchers proposed that three different but related kinds of role conflict be included so as to involve all of the participants in the a work-life balance situation, including officers, spouses, and children. In order to provide a corroborative measurement of work-life balance that

would allow the theory to be further tested and validated, the three different kinds of conflict are based on time, strain, and behavior, respectively.

Time-based conflict occurs when the time spent devoted to the responsibilities of one role conflicts with the time needed to spend devoted to the responsibilities of another of the individual employee's roles. For example, extensive shift-work places demands on a police officer that starts to conflict with his duties as a husband and father. Strain-based conflict could occur if psychological strain places demands on an individual in one role that impacts another of their roles. For example, a police officer assigned to work multiple consecutive shifts may lead to an argument with his or her partner. This puts a psychological strain on the police officer, possibly resulting in a foul mood when reporting to the precinct to begin their shift and creating unnecessary tensions between colleagues. Furthermore, Greenhaus, Collins, and Shaw's (2003) role conflict expansion on the work-life/family balance theory argued that strain based work-family conflict could very well be the most challenging for an employee whose work environment posed extensive physical, emotional, or mental demands. Behavior-based conflict occurs when specific behaviors effective in one role are inappropriate for another role.

Shift work is rarely restricted to weekdays, and so finding reliable childcare on weekends or holidays becomes difficult for many police officers that are regularly assigned shift work, causing various work-family issues (Karaffa, Openshaw, Koch, Clark, & Harr, 2014; Gattrell et al., 2012). Karaffa et al. (2014) began their study with the assumption that police work creates a number of marital difficulties. There are many factors that add stress to police officers' marriages, including shift work, long hours,

unconventional schedules, and subsequently divided commitment between work and family roles. There are three kinds of role conflict: time, psychological, and behavioral. Recognizing the importance of these sets of problems, Karaffa et al.'s study was one of the first to investigate the impact of police work on spouses. According to the work-family border theory (Clark, 2000), the roles and duties of one sphere have tendencies to spill over into another. For example, if police officers carry work-related stress and behaviors into the home, they often experience difficulties in their family relationships. The results of the study indicated that officers and spouses generally agreed on what stressors caused the most problems and how spousal support could mitigate the effects of these stressors. In addition, both officers and their spouses reported relying on friends and family for support more than on professional sources when dealing with work-family balance issues. The important role that emotional and mental support from family members and friends should not be underestimated (Karaffa et al., 2014).

McDowall and Lindsay (2014) set out to address the gap in the extant work-life balance literature by addressing individual-focused approaches in order to develop interventions that would lead to a competency-based work-life balance framework that would lead to knowledge, skills, and abilities to better deal with work-life imbalances in police officers in a major UK police force. A mixed-methods research design was developed, and 356 subjects took online surveys, followed by 20 in-depth semi-structured interviews. Once the data were collected and analyzed, a framework of eight competencies was developed, covering a range of strategies for dealing with life-family balance issues including boundary, flexibility, and expectation management. The

researchers argued that their approach extended the work-life border theory of Clark (2000), which highlighted a proactive and solution-focused program (Nasurdin & O'Driscoll, 2012). Consistent with the theoretical framework of this dissertation, Nasurdin and O'Driscoll (2012) pointed out the relevance of the work-life border theory of Clark to the study of police officers, shift work, and corresponding issues with work-family balance.

The stresses created by rotating shift work schedules carried out by many police officers often involve an attempt to balance the two domains of work and family (Kalliath, Kalliath, & Chan, 2015; Kumarasamy, Pangil, & Isa, 2015; Karunanidhi & Chitra, 2013; Vijayalakshmi, 2012). Time-based role conflict could occur if time devoted to one role creates difficulties for and places demands on an individual. For example, an employee (i.e., police officer) may be in a problematic situation if work and family responsibilities start competing for that police officer's time (e.g., working overtime causes the individual to not adequately engage with her or his small children.) In fact, time-related conditions that are common to policework such as long hours, schedule inflexibility, shift requirements, and overtime/evening duties are consistently relevant to work-family conflict. In fact, all three different role conflicts— time-based, stress-based, and behavior-based—are often related to a police officer's attempt to meet all the responsibilities that come with each role of their lives (Kinman, McDowall, & Cropley, 2012). This can be seen in Figure 1.

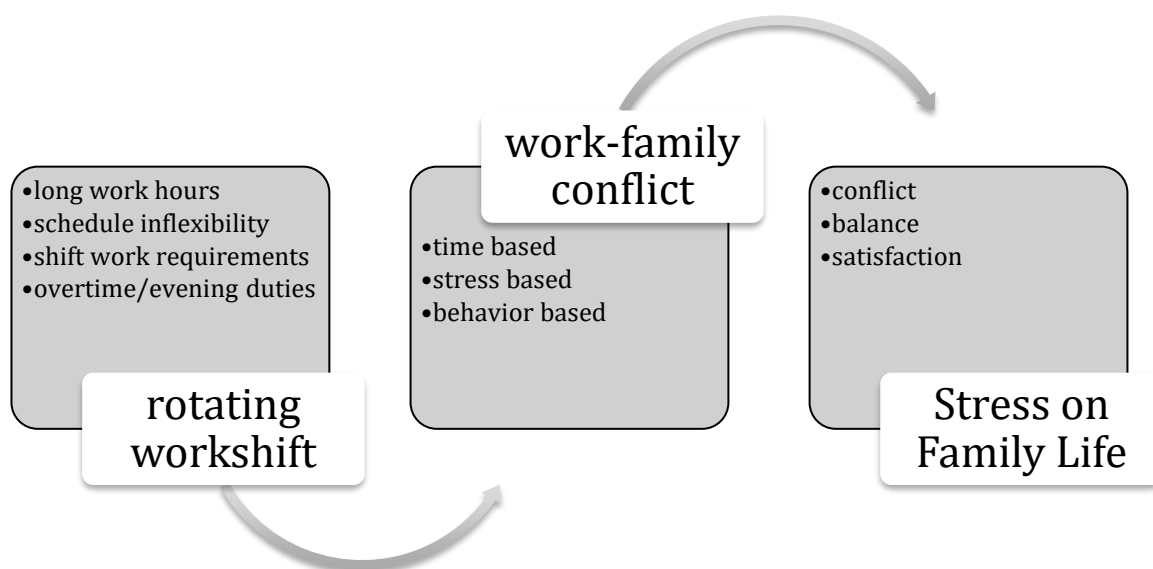


Figure 1. The theoretical framework demonstrates the effect of rotating work shift on work-family life such as work-family conflict and stress on family life.

Physiological Impairments Related to Rotating Shift Work

There are numerous validated and well-researched negative health effects associated with rotating shift work, including circadian misalignment, shift work sleep disorder (SWSD), fatigue, lowered work performance, and other chronic physiological and psychological impairments that could have substantial impacts on police officers (Di Millia et al., 2013; Ramney et al., 2012; Vogel et al., 2012). All of these negative health effects consequently have the potential to present a number of difficulties for the families of those police officers subject to shift work. For example, health insurance and hospitalization are known to place potentially heavy financial burdens on families, which, in turn, could lead to turmoil and stress between police officer and spouse. In addition,

studies have focused on physical implications as well as work outcomes of police officers such as their health conditions and their respective performance measures (Kinman, McDowall & Cropley, 2012). These studies have focused on the work-related stress, types of illnesses developed, and the level of fatigue experienced by police officers given the nature of their work. As Kinman et al. (2012) stated,

Police officers have been found to experience high levels of operational and organizational stressors, and are at considerable risk of emotional exhaustion, psychological distress, burnout, and PTSD. The demands inherent in police work can have a negative impact on family life, with police officers at high risk of marital dissatisfaction, divorce, and domestic violence. (p. 1)

Circadian misalignment.

Experts argue that the circadian rhythm regulates the physical body of each human. This regulation includes the biological processes that occur within any given 24-hour period. For example, circadian rhythm also moderates the sleep-wake cycle. With the advent of shift work, however, human beings are required to be in the opposite state of the naturally occurring pattern of being awake during the day and sleeping during the evening. Researchers became interested in coming to a better understanding of the alternating cycle of sleep and waking, and how it is related to daytime and nighttime.

Researchers have found that shift-work may lead to the misalignment of the body's natural circadian rhythms, causing shift-work sleep disorder (SWLD), and other problems. Smith and Eastman (2012) began their study with the assumption that there are at least two issues that might contribute to the health, performance, and safety problems

associated with night-shift work: (1) circadian misalignment between the internal circadian clock and activities such as work, sleep, and eating, and (2) chronic, partial sleep deprivation. The authors go on to argue that typical countermeasures, such as caffeine, naps, and melatonin intake, along with increased education, are typical parts of most fatigue risk-management plans, and may not be adequate to thoroughly address the health issues. Alternatively, Smith and Eastman (2012) argued that these approaches are insufficient due to the fact that they fail to deal with the underlying cause of the problems, which is a circadian misalignment. Smith and Eastman (2012) proposed methods to teach employees how to reset, or phase-shift, the human body's circadian clock so that it better aligns with night work, day-sleep schedules. This would have the counteracting effect of reducing circadian misalignment, which would, in turn, create the proper conditions for adequate sleep and biological functioning.

Some of the methods proposed for avoiding circadian misalignment, and its associated sleep-disorders, are wearing sunglasses at the appropriate time, always sleeping in the dark, even if there is light outside, and otherwise controlling the body's exposure to light and dark in different, modified ways (Postnova, Robinson & Postnov, 2013; Zhou et al., 2012). Since the circadian rhythm effect is correlated with the day-light/nighttime shifts in natural light, simulating similar patterns by the use of these techniques could realign the body's natural circadian rhythm. Results obtained by Zhou et al. (2012) proposed that sleep-restricted individuals are likely to underestimate their own neurobehavioral impairment, especially during the nighttime of the circadian rhythm. Boivin, Boudreau, and Tremblay (2012) used a combined fieldwork and

laboratory investigation into the circadian rhythms in two groups of police officers working seven consecutive eight to 8.5-hour night shifts as part of a rotating schedule. As part of the study, each subject was exposed to wide-spectrum bright light at night, orange-tinted goggles at sunrise, and maintenance of a regular sleep or darkness episode during daylight. Orange-tinted glasses have been shown to inhibit the melatonin-suppressing impact of light substantially more than neutral density safety glasses. Melatonin is a hormone secreted by the pineal gland that is part of the regulation process of the average human's natural sleep cycle. Bovin et al. (2012) made use of a mixed linear model in order to analyze the data, specifically psychomotor performance and subjective alertness, during night shift work. In the process of the experiment, the test group members' reaction speed decreased substantially. Subjective alertness also diminished during night shifts. The results again suggested that the wearing of the tinted safety glasses while sleeping prohibited the melatonin-suppression effect, which demonstrated that safety goggles could be used to re-align the body's circadian rhythms up to a point (Di Milia, Rogers, & Akerstedt, 2012).

Another study on the relationship between circadian rhythm misalignment and sleep disorders, conducted by Boudreau, Dumont, and Boivin (2013), set out to examine the extent to which circadian adaptation to night shift work impacted police officers' psychomotor performance, sleep patterns, alertness and mood, levels of melatonin in the blood, and heart rate variability. The sample population included dozens of police officers. The police officers were asked to spend 48 hours in the laboratory, both before as well as after a series of seven consecutive nights of shift work. Melatonin levels in the

bloodstream of police officers was monitored and studied. The natural hormone melatonin is produced and secreted by the human body's pineal gland. The pineal gland, and melatonin production and secretion are inoperative during daytimes when there is daylight. When the sun goes down and darkness sets in, the pineal gland starts secreting melatonin. Accordingly, there is generally a sharp rise in melatonin levels in the bloodstream during nighttime, causing individuals to feel less alert while the body prepares for its needed healthy sleep. In other words, a rise in melatonin in the bloodstream makes sleep and needed rest all the more appealing to human beings once evening and natural darkness arrive. In fact, melatonin, like cortisol, can be used as a biological marker in order to test for the following factors- psychomotor performance, sleep patterns, alertness and mood level.

In the study carried out by Boudreau et al. (2013) police officers were subjected to a laboratory with alternating sleep periods that were pre-scheduled and monitored by the researchers. Accordingly, Boudreau et al. (2013) considered individuals adequately adapted to night shift work so long as their peak salivary melatonin secretion occurred during any given daytime sleep period. The findings of the study showed that time after time, the police officers' melatonin levels were considerably lower than required in order to be classified as being sufficiently adapted to sleep work. That is, it was shown that shift work, especially during nighttime, had a detrimental effect on police officers' levels of melatonin. Because of the importance of proper sleep to law enforcement professionals, Boudreau et al. (2013) argued that additional, longitudinal studies on atypical work schedules such as those of many police should be carried out so the long-

term clinical consequences of fluctuating levels of melatonin and any corresponding circadian misalignments in the human body, or the bodies of police officers, can be further examined. In a similar vein, the research conducted by Niu et al. (2011) pointed out that when the natural circadian rhythm of police officers became disrupted, especially those scheduled to work the night shift, it caused irregular sleep patterns and fatigue, which could issue forth in possible occupational health risks correlated with reduced watchfulness and work performance. Police officers cannot afford weakened attentiveness due to the inherent risks of the type of employment, which deals with actual street crime as well as the unpredictability of criminals. Disturbed circadian rhythm in humans has been associated with a variety of mental and physical disorders and has shown to produce negative effects on work safety, performance, and productivity.

Ma et al. (2014) interviewed all 365 active duty police officers working in the Buffalo, New York Police Department. A working premise of Ma et al.'s (2014) research was that shift work, common among police officers, is associated with circadian misalignment, which may possibly lead to various disorders of the cardiovascular system, including myocardial infarction and ischemic stroke. These findings concerning the relationship between shift work, circadian misalignment, and cardiovascular disease reiterated other studies dealing with the same topic (Zimmerman, 2012; Pearsall, 2012). This research also showed that individuals working in law enforcement are more easily susceptible to a higher level of stressors, as well as being at a greater risk of cardiovascular disease. Pursuing a similar line of research, Zimmerman (2012) began his study with the assumption that working as a police officer is a high-stress occupation, and

therefore individual police officers could be prone to increasing incidences of cardiovascular disease such as hypertension. This premise is based on numerous epidemiological studies, which show that police officers face potentially high risks of cardiovascular morbidity and mortality.

Similar to the studies on cortisol and melatonin, the objective of Charles et al. (2011) study was to investigate any connections between sleep duration, and biomarkers of metabolic functioning among police officers such as leptin, a hormone produced in a human being's fat cells. Leptin is the hormone which regulates the body's sense of satiation and fullness, or feelings of hunger and starvation. When leptin levels rise abnormally above an individual's peak threshold this tells the body that more energy is needed to carry on normal functioning, which triggers feelings of hunger and the body's natural desire for food and nourishment. In response, the individual will eat more and put on weight. In other words, when leptin levels are abnormally high, the individual is at risk for excessive weight gain and obesity.

Fatigue

Mental and/or physical exhaustion is often a chronic disorder associated with inadequate sleep and other forms of sleep deprivation. The literature shows that shift-work is a common causative factor leading to fatigue. Take for example the study conducted by Basińska and Wiciak (2012). This study was concerned with articulating the effects of police officer fatigue and suggested that the more police officers working shift work and other potentially disruptive schedules are fatigued, the more sick days they use, the more difficulties they find in successfully managing professional and personal

relationships, the more mistakes are made in departmental and court paperwork, and the more police officers tend to fall asleep while on duty. All of these factors lead to the conclusions that fatigued and burned out police officers are at a higher risk of being seriously injured or killed because of lack of focus and full awareness of danger signs, in addition to potentially putting the citizens they serve at risk (Kapade-Nikam & Shaikh, 2014).

The study conducted by Jong-Min, Jae-Hwan, Woo-Jin, and Hae-Ouk (2015) looked into the factors that may impact the health of police officers by focusing on a set of variables and factors including, job stress, psychosocial stress, and fatigue, especially due to the irregular work schedules like shift work that are part and parcel of many police officers' regular work schedule. The sample population included police officers who self-admitted into the National Police Hospital in order to examine their levels of stress and other disorders related to shift work such as fatigue. The result of the study showed that more than half of the police officers interviewed, who self-reported elevated levels of work stress, fatigue due to shift work, and well as psychosocial stress, were at high risk for poor health. The researchers proposed that findings from their study could be used as comparative data in further studies that can contribute to the early prevention of disorders related to police work (Jyothisree & Jyothi, 2012).

The research program designed and conducted by Waggoner et al. (2012) took advantage of a combined field and laboratory research design for measuring the impact of consecutive night shift work on the sleepiness, vigilance, and vehicle operating performance of police patrol officers. The results of the study suggested that shift work

had a negative impact on all three variables—sleepiness, vigilance, and vehicle operating performance—of the police patrol officers who took part in the research program. A study conducted by Senjo (2011) compared the effects of sleep deprivation to excessive drinking of alcohol and argued that the results of sleep deprivation on motorists are similar to impairments caused by driving under the influence of alcohol and/or drugs. A reason for the comparison is the similarity of the symptoms of each, including impaired speech, inability to balance, weakened hand-eye coordination and sleeping behind the wheels of their vehicles. Senjo (2011) also argued that police officers often fail to take the time to relax and calm down, even when overworked and fatigued.

Sleep disorders

Individuals with sleep disorders often develop poor health, reduced safety outcomes, and reduced job performance (Fossum et al., 2013; Pearsall, 2012). Moreover, sleep disorders have been found to be twice as prevalent among police officers compared to the general public. In addition, sleep disorders sadly often remain undiagnosed and untreated, especially in the field of law enforcement (Pearsall, 2012). As Pearsall (2012) put it,

Law enforcement officers work is characterized by demanding schedules; long and irregular work hours, frequent night shifts, and substantial overtime.

Insufficient rest or irregular sleep patterns — coupled with the stress of the job — can lead to sleep deprivation and possibly sleep disorders. The result can be severe fatigue that degrades officers' cognition, reaction time and alertness and impairs their ability to protect themselves and the communities they serve. (p. 1)

This is an important finding and more research needs to be conducted investigating the relationship between inadequate sleep, deficiencies in police work, and their possible impacts on job performance and, subsequently, issues dealing with work-family balance issues.

Fossum et al. (2013) conducted an extensive literature review examining effects of shift and night work in the offshore petroleum industry by using various databases as resource materials, including PsycINFO and PubMed. The research uncovered numerous variables associated with shift work in the petroleum industry, including effects on health, sleep, re-adaptation of circadian rhythms, safety, working conditions, family-and social life and elevated employee turnover intentions. Make note that this list of variables associated with various sleep disorders, identified in the petroleum industries where employees often work shift work similar to police officers, is similar to the various sleep disorders associated with police shift work. Hence, researchers investigating the impact of shift-work on work/family balance could learn from studies conducted in the offshore petroleum industry. The results showed that shift workers reported many more sleep problems than day workers. Because the data dealing with the mental and physical health, family and social life, and accidents yielded inconsistent results, Fossum et al. (2013) called for more research in this area (Lammers-van der Holst & Kerkhof, 2015; Lin et al., 2012). More research in police work with respect to these findings is also warranted because this presents a gap in the academic literature that needs to be addressed.

Rajaratnam et al. (2011) argued that undiagnosed sleep disorders may have an adverse effect on the health of police officers which, again, pose potential risks to the

public they serve. The research design involved 3693 police officers from the United States and Canada who participated in an online screening survey, resulting in 1264 officers from a municipal police department and a state police department participating in an on-site survey. Rajaratnam et al. (2011) conducted a study whose goal was to quantify any associations between sleep disorder risks and any self-reported health, safety, and performance outcomes of a large number of police officers participating in the study. The complex results established a variety of quantifiable variables associated with a sleep disorder and reduced work performance. For example, it was discovered that one-third (33%) of the sample population of police officers screened positive for obstructive sleep apnea; twenty-eight percent reported excessive sleepiness on the job; and twenty-six percent reported falling asleep while driving, at least one time a month. Of those respondents who screened positive for sleep disorders, including obstructive sleep apnea, they also demonstrated a heightened occurrence of physical and mental health conditions, including diabetes, depression, and cardiovascular disease (Zimmerman, 2012). In addition, eighty-five percent reported making an error or safety violation which they accredited to fatigue; and, finally, ninety-two percent reported that they intentionally skipped work (absenteeism) at least once a month due to insufficient sleep and corresponding sleep disorders (Karhula et al., 2013). Even though the study involved over three thousand police officers, Rajaratnam et al. (2011) nevertheless recommended that more studies be carried out in order to gain more knowledge on the relationship between shift work, and sleep disorders, fatigue, and poor work performance in policing.

Chang et al (2015) conducted a study whose purpose was to investigate the relationships, if any, between any sleep disorders and metabolic syndrome (MetS), a disorder of the metabolic system, in a sample of Taiwanese male police officers. The annual health examinations of 796 male police officers were used as the foundational database for the study. The sample group was divided into five different clusters, each relative to a different pre-established duration of sleep. The duration of sleep permitted the officers as part of the study spanned from five hours per day up to the recommended eight hours per day. The global Pittsburgh Sleep Quality Index was utilized in order to classify the quality of the police officers' sleep as either good or poor. These researchers found that sleep deprivation, deriving from their shift work as police officers, resulted in MetS in a significant number of the Taiwanese police officers tested. Due to the findings that there is a positive connection between MetS and sleep disorders, the researchers recommended that police officers assigned to shift work should be screened for MetS, a metabolic disorder impacting the organs of the digestive tract.

Investigating this literature has revealed numerous examples of empirical evidence of negative health effects of rotating shift work on police officers and other professions that also typically maintain hectic shift work schedules. Circadian misalignment has been shown to cause sleep disorder, chronic fatigue, and lowered work performance in police forces and others that were tested and examined. In order to combat circadian misalignment, researchers have had success with a variety of adaptations, including controlling the levels of lightness and darkness by using outdoor light exposure, or having subjects wear sunglasses, sleeping in the dark, or making use of

a small bright light during night work (Boivin et al., 2012). This process is referred to as phase-shifting, or the resetting of the body's natural circadian rhythms by modifying alternating light/dark sources, which are perceived by the optic system and to relevant parts of the brain (Smith & Eastman, 2012).

Research studies discovered in the literature have also emphasized the importance of recognizing the detrimental effect of excessive fatigue as it relates to shift-work. When law enforcement personnel, and others assigned shift work, become fatigued, they cannot perform their duties in an optimal manner. Research has shown that the more police officers and others are plagued by on the job fatigue, the more sick days they use and, subsequently the more they are absent from work. Fatigued workers also make more administrative mistakes, fall asleep on duty, have poorer driving records, and have more difficulties managing their personal and professional relationships. In addition to the host of physiological disturbances caused by shift work discussed in this section, there is also the prevalence of psychological stressors associated with shift work.

Psychological Stress and Rotating Shift Work

Oftentimes police officers are willing to sacrifice their health and safety by accepting the increased workloads that often come with shift work. One of the primary reasons police officers accept increased workload is to provide extra income for their families. However, increased workloads lead to strain, stress, exhaustion, and sleeping disorders, and work-family balance issues becomes skewed due to the poor physical and/or psychological and emotional states of police officers. The consequences are the negative impact that such strain and stress have on their relationships with their spouses,

and on the quality of their family life in general. In addition to the physiological effects of rotating shift work, shift work also burdens police officers and places them at high risk for resulting family-related issues (Chung et al., 2012).

While police work is dangerous, work-related risks go beyond the streets and crimes. Scientific evidence shows that the stresses, strains, and pressures police officers face also put them at higher risk for hypertension, insomnia, increased levels of destructive stress hormones like cortisol, heart disease, post-traumatic stress disorder (PTSD), and suicide (Korre et al., 2014; Robinson, MacCulloch & Arentsen, 2014; Walsh, Taylor & Hastings, 2013; Violanti et al., 2012). These facts stem from the psychologically stressful work environments of police work, which are filled with danger, high demands, human misery, exposure to excessive violence, death and destruction. These stressors clearly have the potential to become compounded and exacerbated by the negative impacts of shift work described in this chapter.

Researchers such as Lammers-van der Holst and Kerkhof (2015) have conducted extensive studies on the levels of cortisol, a type of hormone experts dub “the stress hormone” because higher than normal levels of this hormone in the human body are a direct indication of high levels of stress in biological organisms such as human beings. Like circadian misalignment, cortisol levels in the body could stand as critical biological intermediary markers that can indicate when chronic stressors like shift work could have an effect on multiple physiological, endocrine and hormonal functions. Therefore, armed with this knowledge, researchers could determine whether chronic work stressors are negatively influencing someone by examining their cortisol levels. The experimental

example of a study conducted by Lammers-van der Holst & Kerkhof (2015) included 25 novice police officers. The results of the laboratory experiments showed that a high percentage of the novice police officers exhibited heightened levels of cortisol during their first six months working the front-line of neighborhoods. Additional studies on levels of cortisol in police officers conducted by researchers such as Lammers-van der Holst and Kerkhof (2015) should be conducted so that researchers can gain a better understanding of whether psychological stress can be related to corresponding physiological risk factors leading to major health problems.

A major premise of the research conducted by Kurtz et al. (2014) was that work in law enforcement is one of the most stressful occupations and that work-induced stresses and strains can lead to various impaired psychological outcomes. While arguing that it is common for law enforcement officers (LEOs) to have health issues resulting from work-caused stress, Korre et al. (2014) advanced the hypothesis that there was a relationship between time served as a police officer and perceived stress encountered at the workplace. The research design for the study conducted by Korre et al. (2014) included the use of a questionnaire, which was intended to assess the relationship between police work and an array of 22 different duties that typically are associated with law enforcement policies and practices. Two groups were surveyed: one of police chiefs' views of their typical officers, and the other of frontline officers' personal perspectives. The results showed that both groups identified many regular worksite stressors they experienced working in law enforcement on a day-to-day basis, including rotating shift work. One significant finding is that both groups essentially identified the same set of

psychological stressors that confront police and their families (Hesketh, Cooper & Ivy, 2014).

Robinson et al. (2014) acknowledged that police work, because it involves rotating shift work, could end up becoming a stressful line of work and they drew attention to the fact that police officers generally experience a range of unavoidable day-to-day stressors simply in undertaking their duties. Risk and stress, especially those assignments on the front lines in the street dealing with crimes, comes with the territory so to speak. This is the reason police academies and departments are especially keen on recruiting individuals with good resilience skills and who can manage their psychological stress levels in constructive ways (Avdija, 2014). Walsh et al. (2013) investigated the education of police officers and wanted to determine the propensity for law enforcement personnel to experience burnout or post-traumatic stress disorder (PTSD). As most occupational health departments recognize, stress, burnout, PTSD, etc. are bad for the mental health and wellbeing of police personnel. In fact, employee burnout can affect workers' health, motivation, and job performance, and increase worker turnover (McCarty & Skogan, 2012). McCarty and Skogan (2012) investigated the relationship between workplace burnout and home and family life, a path of study that is under-investigated. Difficulties balancing work and life responsibilities, the support or lack thereof that police officers receive from coworkers and supervisors, the fairness of personnel policies, and several personal factors contributed to burnout levels. Similar research has uncovered comparable findings (Violanti, et al., 2012). Furthermore, in law enforcement, psychological burnout has been credited to a host of job-related and

personal factors, including health liabilities related to late shift work, problems with supervisory personnel, as well as other organizational factors (Queirósa, Kaiselerb, & Leitão, 2013).

In another study, Amendola and Weisburd (2012) focused on the impact of shift-work on overall police performance. Rather than having police officers work 40 hours during a 5-day work week, many police officers are put on compressed work schedules, where they work consecutive four 10-hour or three 12-hour work shifts, and then have two or three days off in a row. In order to determine the impact of such compressed police work schedules, Amendola and Weisburd (2012) conducted research that involved a sample of randomly chosen 275 police officers in Detroit, MI., and Arlington, Texas. The research was designed such that three different types of shift work would be carried out for six months: five consecutive 8-hour days, four consecutive 10-hour days and three consecutive 12-hour days.

The latter two schedules, which go beyond the typical 8-hour workday, are called compressed work schedules because they work considerably longer hours for four or three consecutive days, and then have a few days off. Once the schedules were determined, the sample of police was divided into three groups, each corresponding to a different shift work schedule. The work included day, evening and midnight shifts. The findings indicated the compressed work schedules offered many advantages when compared to the traditional 8-hour shifts. This is because the research showed police officers actually get more sleep, report a significantly higher quality of work life, and end up working less overtime when they are scheduled to work a compressed shift work

schedule. Amendola and Weisburd (2012) called for more research on this important topic because there is not yet an adequate base of knowledge on the topic of shift work and how it impacts police officers and their families. The findings that compressed work schedules led to higher on-the-job performance of police officers are something that police management should heed (Kumar, 2014). Furthermore, the police officers surveyed reported that 12-hour shifts improved both police morale at the worksite as well being beneficial to their family lives. Police officers who work the compressed 12-hour shift schedule in the main spend more time with their families, the findings concluded. Moreover, a large number of police officers reported that their spouses expressed overall satisfaction with the compressed work schedule (Fisher, & Ritchie, 2015; Amendola & Weisburd, 2012; Amendola et al., 2011). Compressed police work schedules should be studied more in order to see how they impact officers' family life, and overall work-life/family balance.

Nevertheless, the conclusion according to the extensive study conducted by Bell et al. (2015) on the effects of 13-hour work shifts on police officers' sleep, cognitive abilities, health, quality of life, and work performance suggested that there are no apparent advantages to compressed work schedules compared to the typical 8-hour a day, 40-hours a week schedule. In addition, Bell et al.'s (2015) research concluded that there are certain liabilities associated with compressed-hour shift work for police officers (Schwab, 2014; Dreadfulwater, 2013; Connors, 2012; Rudell, 2012). Similarly, the research project by Schwab (2014) was designed to test the hypothesis that a four day, 40 hours compressed workweek schedule would provide a foundation for police officers to

balance the equilibrium between their work, family, and social lives. To test this, a comparative analysis of the schedules for the United States Secret Service Emergency Response Team (USSS ERT) was used. The USSS ERT currently uses a traditional five-day 40 hour work week schedule. As part of the study's design, for one week, the work schedule was changed to a compressed workweek schedule. The results of the research disclosed that compressed shift work schedules do not help law enforcement officers of the USSS ERT balance their work, family, and social lives. Given these kinds of discrepancies about the benefits and burdens of working lengthy compressed work schedules, more studies should be conducted on compressed work shifts to determine whether they do in fact lead to improved quality of life for the affected officers and their families.

This concept of role conflict, whether time-based or psychology-based, where the professional role of police officer comes into conflict with that police officers' role of spouse and parent, reiterates how central the relevance of the chosen theoretical model based on work-life-family border theory is to the study of rotating shift work and its impact on the families of police officers. Fundamentally, it is with this notion of role conflict that studies on modified or compressed work schedules—where an officer would work four consecutive 10-hour work days and then have a few days off in a row—were conducted (Amendola & Weisburd, 2012; Amendola et al., 2011). Researchers working on this topic have also stressed the importance of developing further studies on compressed work schedules as a way to address the conflicts that may arise when shift

work and subsequent reduced job performance start to have negative impacts on police officers and their familial relations and obligations (Bell et al., 2015; Schwab, 2014).

Work-Family Balance and Rotating Shift Work

Work-life balance is important for both employees and employers in organizations. Work-life imbalance weakens workplace satisfaction and affects the quality of family life (Kumarasamy, Pangil, & Isa, 2015; Shobitha & Sudarsan, 2014; McCarthy et al., 2013). Rotating shift work is often associated with issues outside of work, including work-family balance, physical well-being, and psychological distress (Galatzer-Levy et al., 2013; Tuttle & Garr, 2012).

According to Kinman, McDowall, and Cropley (2012), police officers can experience high levels of operational and organizational stressors, as well as possibly being subject to high levels of emotional exhaustion, psychological distress, burnout, and PTSD. As a result, the inherent demands of police work can have a negative impact on work-family balancing management; therefore, law enforcement personnel are often at high risk of discontent in marital relations, marital separation, and divorce. There is also evidence of domestic violence (Kinman et al., 2012). Even though work-family system and work/family conflicts have been studied in other industries, Kinman et al. (2012) argued that the nature and consequences of the work-family phenomenon have not been systematically examined in police officers working in the United Kingdom. Taking advantage of the tri-partite model developed by Greenhaus and Allan's (2011), the respective role played by time-based, strain-based and behavior conflicts in the work-family balancing of police work were examined. Kinman et al. (2012) devised a three-

dimensional measure of work-life conflict that encompassed time-based, strain-based and behavior-based conflict (Greenhaus & Allan, 2001). Interestingly, after surveying hundreds of police officers across the U.K., and analyzing the data, the results suggested that the levels of the three-role conflict construct were moderately high. Those police officers surveyed also reported that all three of these work-life conflicts diminished substantially their job satisfaction levels and levels of organizational commitment.

Subha and Devika (2014) were interested in the overall perceptions of work-life/family balance in the lives of female police officers working in the Coimbatore district in Tamil Nadu, India. Typical of most police officers, female police often worked hectic, rotating shift schedules. Using a convenient sampling technique, a group of 200 female police officers was interviewed, and data from the extensive semi-structured interviews was collected and analyzed. The interviews were designed to identify and elicit the various factors that caused dissatisfaction among female police officers and led to perceptions of unhealthy imbalances in their work and family spheres of operation while taking into consideration the shift work. The multiple roles in work and family can be the source of multiple satisfactions for female police officers but, on the other hand, the combination of career and family roles can often lead to work-family conflict, overload, and stress. The findings of the study revealed that the majority of female police officers felt dissatisfied with the quality of their work-life balance, and had to confront a host of family related issues and problems due to their hectic shift-work. These findings are consistent with other studies investigating the relationship between police shift work

and work-family balance issues (Agoos, Langan, & Sanders, 2014; Khan, 2013; Duxbury & Higgins, 2012).

Shu-Yu et al. (2014) investigated the impact of shift work on the marriages of nurses. The findings showed that married nurses were at a 44% higher risk for poor family functioning than their single counterparts. Furthermore, married nurses who worked non-night or rotation shifts had a significantly higher percentage of the poor familial relations. These types of family relations became especially evident when compared to those of married nurses working regular 8-hour day shifts. These insights from the nursing profession might be applicable to police work (Matthews, 2011).

Duxbury and Higgins (2012) conducted an extensive study involving over 4500 police officers working in 25 different police departments across Canada. The research specifically focused on an in-depth investigation of the causes and consequences of work-life conflict and role overload within police organizations across Canada. The researchers claim their study of the relationship between police work and work-life conflicts was the first study of its kind undertaken on such an immense scale within a policing environment. The research program was designed to identify actions that both police officers and police organizations can take to reduce the dual stressors of work-family imbalance and role overload, and the negative impact each one has on the other. As more families are working harder, in some instances both parents, conflicts between their family lives and their work lives are increasing. Such increases have led to numerous studies focused on work-family balancing, but fewer studies on role overload, defined as

having too many responsibilities and too little time in which to attend to them. In discussing shift work, Duxbury and Higgins (2012) stated,

The high use of long and ever-changing shift arrangements within the police department is a cause for concern given the empirical evidence linking these types of shift arrangements to disruption in bio-rhythms, physical and mental health problems, exhaustion, and challenges with respect to work-life balance, and problems at home. (p. 17)

Time spent at work is time not spent home with one's spouse and family, and so time spent at work, as compared to time spent at home, offered me an important and concrete measure of one dimension of employment that affects individuals and their families. What they found was that when asked to identify their biggest concern in life, working parent police officers responded with "time." Hence, the higher work demands imposed by shift work have been found to be positively correlated with amplified amounts of stress and depression. In addition, increased levels of work-life conflict have also been shown to lead to increased intent to turnover, and increased absenteeism (Duxbury & Higgins, 2012). Duxbury & Higgins (2012) also found that full-time police officers, of both genders, who worked overtime shift hours were at high risk for work-family conflict, role overload, and stress because they were unable to adequately address the time needed to deal with the conflicting need to spend time addressing their family role responsibilities. Such conflict, in turn, was often associated with decreased physical and emotional well-being as measured by feelings of depression, self-reported life satisfaction levels, and as their overall health and energy levels.

Agocs et al. (2014) argued that researchers have not adequately explored the challenges of female police officers as research has substantiated most are also mothers, who in turn reported handling the majority of their household's domestic labor; the latter was learned by Agocs et al. (2014) from a relatively small sampling of 16 female officers who were also mothers. This has ramifications for work-family balance, due to the stresses and strains that female police perceive may spill over into their work life, potentially causing problems with fellow officers, not to mention the additional tensions it may cause at home.

Gattrell et al. (2012) took issue with how work-life categories could and should be defined, because these researchers felt there was too much negative focus in the literature, rather than, as sometimes could be the case, work-life challenges as an enriching experience among employed parents. Therefore, Gattrell et al. (2012) developed a three-factor framework through which future studies in the academic literature could and should address the problematic definitions of work-life balance, and equity among the different role players, primarily parents and spouses. The recommendations of the study included were: a broader definition of work-life/family balance that included marginalized parents, a more thorough definition of parenting and employment as potentially life-enriching (Hancke et al., 2014). All of these findings and suggestions are relevant to studies concerned with the relationship between shift work and life/family balance issues. Further research is needed in this area.

Social work is another profession which compares to police work. Kalliath, Kalliath, and Chan (2015) investigated the moderating effects of family-home social

support and emphasized how important such support can become, especially when role conflicts and other kinds of demands place undue burdens on employees and the relationships they have with their spouses and children. The research used the tri-partite model developed by Greenhaus (2000) of work-family balance; namely, time-based conflict, behavior-based conflict and strain-based conflict on psychological strain experiences of the sample of Australian social workers who participated in the study. After the data was collected, hierarchical multiple regression analysis was used to test the moderating effects of social support on the relationship between work-family conflict and psychological strain, along with the three role-based conflict dimensions. The results of the study, however tentative, nevertheless pointed out how prevalent the different types of role conflicts seem to interfere with social workers and their attempts to build strong and binding relationships with their families. Due to the tentativeness of their study, Kalliath et al. (2015) recommended that additional studies to be conducted on social workers, their workplaces and their work schedules, in order to arrive at a more thorough understanding of the nature of work-family conflict experienced by social workers in order to identify other ways for supporting them. Like studies of the nursing profession, research conducted on the social work profession could be used to further the research in the policing profession concerned with how rotating shift work schedules could affect work-family balancing among police officers.

According to Karunanidhi and Chitra (2013), there has, over the years, been an increase in the number of policewomen entering the law enforcement profession. Given that stress is often an unavoidable problem in police work, Karunanidhi and Chitra (2013)

studied the impact of police work stress on the psychosocial well-being of female officers. The study used a creational research design and was conducted among 826 policewomen working in Chennai City, India. After the data was analyzed using Pearson's correlation and multiple regression analysis, the results revealed that certain psychosocial variables, including occupational stress, attitude toward one's work, and mental disorders, accounted for decreased levels of the psychological well-being of policewomen. More studies of female police officers, their levels of workplace stress, and the negative impact it could have on work-family balance issues need to be conducted because such studies have implications for the recruitment and training of policewomen that could be designed to better enhance their psychological well-being.

Vijavalakshmi (2012) studied work-life/family satisfaction reports of female police personnel in Hyderabad, India, who work irregular hours while also doing their best to address their domestic responsibilities. Through structured questionnaires data was collected pertaining to the female officers' perceptions of work responsibilities, their domestic caring responsibilities, and their perception of work-life balance satisfaction. The overall findings suggested these female officers perceived working irregular hours did diminish their perceptions of a full-balanced work and home life. Likewise, Vimala and Muthulaskhmi (2012) discovered in their research that stresses of work and family demands are causing anxiety and burnout in female officers, especially women police officers who are trying to balance family and work responsibilities.

Rabe-Hempand and Humiston (2015) raised the issue of maternity leave for female police officers in the United States and investigated the extent to which adequate

maternity leave was being granted. If no adequate time is allocated, this could cause problems in the family, potentially leading to work-life imbalances. The findings suggested that not only was maternity leave a reality but that it has been slowly morphing into family leave, with agencies also reporting investments allocated to paternity leave, as well as shared family leave. While prior research had suggested a lack of policy concerning maternity leave in American police departments, this research confirmed that maternity leave policies in police departments have been established. Despite the organizational conflicts that these policies may create, due to non-married officers expressing concerns, it provides families with adequate time, hence addressing one of the categories of Greenhaus (2011) on work-family role conflict.

Grosswald (2015) used a sample to represent the workforce of the United States from the National Study which was conducted on the changing workforce (Families & Work Institute, 1999) in order to examine the correlation between negative work-to-family spillover and shift work. Likert-scale frequency responses were used to measure negative spillover to questions concerning time, energy, and mood for family, as compared to time devoted to one's job. The data was examined using statistical analyses comprised of multiple regression analysis, ANOVA and t-tests. The findings disclosed that, with wage earners with families ($n = 2,429$), shift work showed a significant relationship to high negative work-to-family spillover when controlling for standard demographic characteristics as well as education and occupation. (p. 31).

Especially relevant to the relationship between shift work and negative family-work balances was the data from the study conducted by Grosswald (2015), which also

demonstrated that distinctions among split shifts, rotating night and evening resulted in the highest levels of negative spillover when taking into account workers with rotating shifts. Additional work-related factors affecting negative spillover between the two domains of work and family included: the number of hours worked, desire for fewer work hours, adequate support from management, professionalism and autonomy of work, and an organizational culture that supports the police officers' families.

Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scale

Work-family conflict scale was used as the instrument in the current study. This scale was developed from the Work-Family and Family-Work Conflict Scale. Previous researchers have used the work-family conflict scale in the context of work-family balance.

Wayne et al. (2013) used the work-family conflict scale to explain the processes by which family-supportive organizational perceptions are associated with employee affective commitment in 408 couples. The results suggest that family-supportive organizational perceptions were positively correlated with employee commitment. Another study used the work-family conflict scale to examine the influence of mentoring support and perceptions of a supportive work-family culture on the level of work-family conflict, affective commitment, and job satisfaction of employees in Fortune 100 organizations (De Janasz et al., 2013). In the study conducted by De Janasz (2013), the role of a mentor was significantly correlated to less work-family conflict.

Haslam et al. (2015) also validated the use of the work-family conflict scale. The authors used expert informant and consumer feedback approaches in two separate samples of parents of 12-year-old children (n = 305 and n = 264). The results suggest the work-family conflict scale has good internal consistency, construct validity, and concurrent and predictive validity.

Summary and Conclusions

The literature has shown that rotating shift work schedules impact the family life of police officers in a myriad of ways, both negative and positive. The effects of rotating shift work on police officers was also examined by comparing officers who work rotating shifts with officers who do not work rotating shifts. Numerous physical health effects of rotating shift work have been identified and discussed, including circadian misalignment, fatigue, and sleep disorders. Numerous cases of psychological stress have also been associated with rotating shifts in police work. All of these disorders can have a direct impact on a police officer's family and their abilities to effectively manage work-family balance issues.

This literature review also identified and analyzed a variety of strategies and procedures that have been developed to mitigate the negative impact rotating shift work has on police officers and their family members. For example, medical studies on the human endocrine system have led to the identification of biological markers, such as the hormone cortisol, that can be used to identify possible cases of police officers who are headed towards serious imbalances in their work-family relationships, leading to

excessive levels of stress. Most experts would argue that police work and its stress is unique in many ways. Police officers, in their role of protecting the citizenry from crime, often confront serious violence, destruction, and even death. In fact, their own lives are at risk every time a police officer goes to work. The stresses and strains associated with shift work, along with the inherent risks of the work, pose serious concerns that need to be addressed.

The literature shows few studies on how rotating shifts affect police officers' family lives. None have empirically identified factors that either exacerbate or mitigate the impact shift work has on working police officers, and the strength of the relationships they are responsible for developing with their family and other loved ones. This study helps to fill this gap by examining police shift work and its impacts on officers' families and their well-being. In fact, for each topic discussed, including the health and psychological disorders as well as the possible mediating factors of job satisfaction, job performance, and work-family balance, numerous gaps in the literature were identified and discussed, providing strong evidence that the main research gap was validated. Therefore, the goal is to add to the empirical and scientific knowledge base on the topic. This will be accomplished by examining the actual perceptions of police officers and law enforcement professionals through conducting in-depth interviews with police officers, both on the job as well as at home.

Chapter 3 will provide the proposed methodological plan for the study. Given the problem and the identified gap in the literature, a quantitative cross-sectional comparative research study will be able to address the lack of understanding regarding the experiences

of police officers who consistently work rotating shift schedules, and how their work responsibilities impact their family lives. Chapter 3 will also provide descriptions of the role of the researcher, participant selection process, instrumentation, procedures for recruitment, participation, data collection, data analysis plan, and issues of trustworthiness.

Chapter 3: Research Methodology

Introduction

The purpose of this quantitative study was to explore the effects of rotating shift work schedules of police officers on their domestic lives through self-reporting. This study compared the self-reported quality of family life between police officers on rotating shift work schedules and those not on rotating shift work schedules. By allowing police officers to identify their family lives in relation to their shift work schedules, this study leads to a greater understanding of the costs to them and their families as a result of such schedules. This may lead to more informed personnel and scheduling decisions and a lessening of stress for those who need such relief.

This chapter discusses the research design, operationalization of the dependent variable, and data collection method. The discussion provides a description of the target population and samples considered in this study. The computation of the minimum sample size, as well as the sampling technique employed in the study, are also presented. The details of the instrument, as well as the data collection and data analysis procedures, are included in this chapter. A discussion on the ethical considerations utilized in the study are provided. Finally, the chapter closes with a summary of the research methodology used.

This study tested the following set of hypotheses:

RQ: Does self-reported work-family conflict, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales (Netemeyer,

Boles, & McMurrian, 1996), differ significantly between officers on rotating shift and officers on non-rotating shift?

H₀: Officers on rotating shift do not report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales (Netemeyer, Boles, & McMurrian, 1996).

H_a: Officers on rotating shift report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales (Netemeyer, Boles, & McMurrian, 1996).

Research Design and Rationale

A quantitative cross-sectional comparative research design was employed because this study compared family lives between two groups of police officers. A quantitative study makes use of numerical values to represent the extent to which family life is related to rotational shift work among police officers. The independent variable in the study is the kind of work schedule, and the dependent variable is the self-identified work-family balance.

A cross-sectional design was considered because the data in this study were collected at one point in time. A comparative research design is focused on identifying potential differences between independent groups in terms of the dependent variables (Babbie, 2012). A non-experimental design was employed in this study because the

variables were measured based on existing conditions. There was no manipulation of the independent variables or use of interventions involved in the study. Police officers from the field were considered as a basis for collecting data and examining potential relationships between the variables. Although two groups of participants were compared in the study, random assignment of police officers to the two groups was not possible; therefore, participants who were engaged in rotating shift work and participants who were not engaged in rotating shift work were grouped based upon their current assignment to one of those two groups. The study collected primary data through a self-administered survey with closed-ended questions. Responses were measured on Likert scales. A composite score was created to measure the family life variable.

Study Population

The target population for this study was police officers in the state of Oregon. According to the statistics retrieved from the FBI data reported in 2015, a total of 10,571 law enforcement employees with a cumulative of 5884 male and 654 female officers employed on a full-time basis. The statistics further indicated that the state of Oregon has a cumulative of 207 law enforcement agencies coupled with a total of 2,326 civilians involved in the profession.

For the purpose of this study, steady dayshift and steady nightshift were considered in the non-rotational group. The samples were selected from police officers who were either married or cohabiting within the state Oregon. To obtain a sampling frame, I received permission from the senior management of five police departments to gain a list of their officers' contact information. The chief of police of every department

was contacted for permission to recruit police officers who were either married or living with a life partner.

To reduce the difficulty of recruiting police officers, this study used police data collected by the Law Enforcement Management and Administrative Statistics (LEMAS) as a backup plan for the recruitment of police officers. LEMAS is known to collect data periodically from state and local enforcement agencies (Stinson & Watkins, 2014; Maguire, 2003). Therefore, this study was exposed to a rich source of information from the enforcement agencies with officers divided into steady and rotational shifts. In addition to the data that were retrieved from LEMAS, I compiled a list of police officer emails from every police department in Douglas County Oregon; namely, Roseburg Police Department, Winston Police Department, Myrtle Creek Police Department, Sutherlin Police Department, and the Douglas County Sheriff's Office. The number of email addresses available to me included 206 police officers. After speaking with the administrations of each of the above-named departments, I learned that of the 206 police officers, 42 officers were currently working on a fixed schedule, while the others were working on a rotating schedule. Further information was sought from those selected as to length and duration of their fixed schedule or how long they had been on a rotating schedule.

The complexities resulting from the process of recruiting police officers from the identified departments supplemented with data from LEMAS could have led to the adoption of a backup plan, consisting of an expansion of the sample population from Douglas County, Oregon, to include police officers from other counties in Oregon. Such

expansion would have exposed me to nearly 170 additional police officers, half of whom were currently on fixed schedules.

The recruitment material contained the eligibility criteria set for the study. The eligibility for participating in the survey was that the police officer was either married or living with a life partner. Police department administrators and chiefs were willing to help in the recruitment process for this study. The participants for the study were selected by the use of a set exclusion and inclusion criteria, which can be seen in table 1.

Table 1

Police Department Work Shifts

Married Officers or Officers Cohabiting with a Partner					
Working in One of the Following Work Shifts					
Day Shift		Night Shift		Rotating Shift	
Officer	Contact	Officer	Contact	Officer	Contact

Sampling and Sampling Procedures

The sampling units were police officers who worked either on a rotating shift schedule or on a fixed daytime or fixed nighttime schedule. The police officers were from Douglas County, Oregon, and included both men and women who were married or living with a partner. Two sampling methods were incorporated: convenience and quota sampling. This study adopted the use of these sampling methods because of the voluntary participation of the officers and subsequent convenience of those in shifts manifesting characteristics similar to those in the larger population. Furthermore, Bryman and Bell (2015) contend that quota sampling is effective because the researcher selects the sample on the basis that they seem most helpful for a study. Accordingly, the lack of an appropriate sampling frame of the police officers and the problem of recruiting and classifying the sample prompted the use of these two sampling methods.

As a nonprobability sampling technique, quota sampling enabled me to segment the police officers into respective shifts, marital, and gender sub-groups as stipulated by Anastas (1999) as a justification for the adoption of this method. Moreover, convenience sampling complemented the quota sampling as I looked for distinctive features amongst the most available police officers, for example, those who live with a partner or spouse who were willing to participate in the study. Therefore, these procedures were helpful in minimizing cases of bias during the sampling process given that police officers were drawn from a diversely large population. Additionally, the police officer participants may or may not engage in rotating shift work. However, participants did have a family life at

the time when the survey was conducted. Family life includes living with a partner or being married, with or without children. Prospective participants were also English literate.

The criteria included groups divided into two types of work schedules: rotating shifts and non-rotating shifts. Criteria included:

- Must complete an informed written consent and willingness to be part of the study were included.
- Must be married or living with a cohabitant.
- For the first group, must be working on a rotating work schedule.
- For the second group, must be working on a non-rotating work schedule.

The emails of prospective participants were obtained from administrators of police agencies. The emails were assumed and adopted as the sample for the study. Participants who were married or currently engaged in family life were invited to participate in the study. The recruitment material contained the eligibility criteria set for the study. All prospective participants were provided with an email invitation to enrol in the study. However, only those who agree to participate in the study were considered in the data collection phase (Leedy & Ormrod, 2010).

A sample size calculator was used to compute the minimum number of participants of the study. If the study is looking for a relative standard error of ten percent, then the minimum sample size is 100 participants. If the study is looking for a relative standard error of five percent, then the minimum sample size is 386 participants. The sample size

calculator software program used was from the National Statistical Service website. Several factors are considered in conducting a power analysis, specifically the type of analysis used for the study, the effect size, the significance level, and the desired power (Faul, Erdfelder, Buchner, & Lang, 2013). The participants were given questionnaires to gauge the life-family conflict that exists between the two groups using a Likert Scale of five points (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree). The data obtained through the questionnaires was the dependent variable, life-family conflict, a quantitative variable. The study considered a correlation analysis and an independent sample t-test for the statistical test to examine potential relationships and differences between family lives of police officers in rotating shift work and those who are not.

Procedures for Recruitment, Participation, and Data Collection

Data collection and recruitment of participants lasted for a total of 4 weeks. An ex-post-facto design was employed in this study. This design is a quasi-experimental study that examines how an independent variable that is present prior to the research in the participants affects the dependent variable. Accordingly, only one data collection period was necessary. The survey was not started until after the approval of the Institutional Review Board (IRB) of the university, after which a formal letter of intent to conduct the study was sent to the police departments in Oregon. The letter included the purpose of the study, the role of prospective participants in the study, and how the information would be disclosed and used. Once permission from the department heads was granted, a list of prospective participants was obtained from the respective human

resource departments. The list contained email addresses of both married and cohabitant officers, which were used to contact prospective participants.

An initial invitation letter was sent to prospective officers on the list of blind-carbon-copy (BCC) emails. Since the invitation letters were sent to multiple police officers, the utilization of BCC enabled me to send emails to multiple police officers without them knowing who else got the email. The email invitation contained a description of the study as well as the role of the researcher and the participants in the study. Those who were interested in participating in the study were asked to click on the link provided which directed them to the informed consent form, which allowed participants to decide whether to participate in the study. Prospects who agreed to participate in the study were asked to click the “agree” button in Survey Monkey (Yilmaz, 2013). After that, they were directed to the survey questionnaire utilized in the study. Only prospective participants who agreed to participate in the study were directed to the survey. Participants who disagreed with the informed consent form were thanked for their time. The survey questionnaire included the demographic information of participants as well as the measure for family life. Participants were also asked whether they were working in rotating shift work, and if so, how often changes in schedule occur. The demographic information was used to describe the sampled participants in the study.

All participants who completed the survey questionnaire were thanked for their participation in the study. The data gathered through Survey Monkey was compiled and sent back to me in an Excel file. In the ongoing survey process, it can be determined from the screening questions whether the number of responses have met the target amount in

each shift quota. SPSS v21.0, a statistical software package, was used to read the Excel file and save it for the statistical analysis.

Variables and Measurement

Prior to being directed to the survey questionnaire, a list of screening questions was asked of participants. Participants (police officers) who qualified for the inclusion criteria were directed to the survey questionnaire.

The Dependent Variables - work-family conflict and family-work conflict.

The survey questionnaire consisted of 10 questions aimed to measure the dependent variables of work-family conflict and family-work conflict. The dependent variables had two models of conflict: work-family conflict scale and family-work conflict scale. First, work-family conflict is a form of inter-role conflict where the general demands of the job, time devoted to the job, and strain created by the job interfere with performing family related responsibilities. Work-family conflict relates to employment, family, and personal life outcomes. These include work outcomes, such as job satisfaction, organizational commitment, and employee turnover. Many different theoretical perspectives are used to understand work-family conflict to include: work-life balance, role theory, conservation of resources, job demands and resources, and life course theories.

Next, Family-Work Conflict is a form of inter-role conflict in which the general demands of the family, time devoted to, and strain created by the family demands interfere with performing work-related responsibilities (Netemeyer et al., 1996). As a specific form of inter-role conflict, family-to-work conflict occurs when the pressures

from the family and work domains are mutually incompatible, and as a result, participation in the work role is made more difficult by virtue of participating in the family role (Greenhaus & Beutell, 1985). Ultimately, this form of conflict is derived from scarcity theory (Goode, 1960), which assumes that personal resources, such as time and energy, are finite and that the devotion of greater resources to one role necessitates that devotion of lesser resource to others. In that, individuals who participate in multiple life roles have a difficult time devoting equal or adequate time to both.

As stated, the study is grounded in the theory of work-life balance by Clark (2000). The theory of work-life balance has focused on providing time for both family and their career. This study examined whether shift work affects work-family conflict of police officers. The theory of work-life balance is used to identify a link between police officer stress and family outcomes. For this study, the theory of work-life balance is used to identify a link between rotating shift work and family-related outcomes. Work schedules may directly impact work-family conflict but not family-work conflict. Thus, the focus of this study is on work-family conflict, while family-work conflict is not relevant to this study. However, family-work conflict is discussed, as it is part of the Work-Family and Family-Work Conflict Scales and could have some relevance to future studies.

The Work-Family and Family-Work Conflict Scales (Netemeyer, Boles, & McMurrian, 1996) in Appendix A were utilized to measure the family life of the police officers. More specifically, five questions were related to work-family conflict and five questions were related to family-work conflict. A six-point Likert-type scale (1=strongly

disagree, 2=disagree, 3= somehow disagree, 4= agree somewhat, 5= agree, 6= strongly agree) was utilized in measuring the responses to the questions about the work-family conflict. According to Netmeyer, Boles, and McMurrian (1996), confirmatory factor analysis has shown that the internal reliability between the responses to the ten questions is high with the Cronbach's alpha ranging from .82 to .90. This determines that the instrument on work-family and family-work conflict is valid and reliable in measuring the construct of conflict. The dependent variables of work-family and family-work conflict are quantitative variables computed by the composite scores, which are the average responses of each of the five question items measuring Work-Family and Family-Work Conflict.

The Independent Variable -Type of Current Work Schedule (Rotating Shift vs. Non-Rotating Shift)

Participants were asked whether they currently participate in rotating shift work (Yes/No) and how long (in months) they have been working on such a schedule. The study obtained two independent variables: type of current work shift, a binary measure; and time working on the rotating shift (Starting from 0 months), a quantitative measure. As a quantitative variable, the number of months on the work schedule could be measured. At the same time, the independent variable would be treated as a quantitative variable through examining the time effect on the family conflict. The independent variable is a binary variable (rotating shift/non-rotating shift schedule).

In sum, this study examined the relationship between two independent variables and a dependent variable. The two independent variables are a nominal measure and a

ratio measure: the dependent variable. The analysis examined the effect that the type of work shift and time working on the shift have on the level of family conflict.

Data Analysis Plan

The independent sample *t*-tests were performed to see whether the two groups (by work schedule types) differ significantly in the level of family conflict. The statistical significance of the difference in the means of the family conflict between the two groups was tested. An independent sample *t*-test was conducted to address the research question to determine whether self-reported work-family conflict differed significantly between officers on rotating shift work schedules and officers on non-rotating work schedule. Independent sample *t*-test was conducted to determine whether continuously measured dependent variables are significantly different when the independent variable has only two categorical groups, since gender showed only two groupings, male and female. The dependent variable is the continuous measured principals' utilization of equity-related data to promote student learning, while the independent variable is gender which has two unrelated groups.

A significance level of .05 was used for hypothesis testing. There are significant differences in the measures of the different dependent variables between the two independent groups if the *p*-value of the *F* statistic is less than the level of significance value. For the hypothesis set in the research questions, if $H_0: \mu = 1$, then the null hypothesis is accepted, and the conclusion is that there exists a significant difference between the independent groups under 5% level of significance. If $H_0: \mu \neq 1$ or $H_a: \mu = 1$, then the

alternative hypothesis (H_{a1}) is accepted and the conclusion is that there exists no significant difference between the independent groups under 5% level of significance.

The effect size is the measure of the strength of the relationship between independent and dependent variables (Cohen, 1988). The common assumptions made when carrying out a *t*-test include normality of data distribution, adequacy of sample size, scale of measurement, and homogeneity or equality of variance in standard deviation. For the purpose of this study, a medium effect size was employed to ensure that the analysis was not too strict or too lenient in identifying significant relationships and differences. The significance level involves the confidence that the statistical result is true (Cozby, 2009). For this study, a 5% significance level was employed. The power of the analysis was set at 80% because this is the standard considered in most research studies. Based on the factors considered, the G*Power calculation was that at least 128 participants should be collected for the study. This should be equally distributed to the two groups considered in the study. The recruitment of the participants into their respective groups will remain different based on their working schedules. After ascertaining their different working schedules, no communication was made to the participants regarding the two groups involved in the study.

Threats to Validity

Validity is an imperative concept in the process, particularly the research design. According to Salkind (2010), validity is broadly divided into external and internal validity. Whereas there exist other types of validity, for example, construct, content and face to face, all are important as they help make inferences and generalizations based on

the results achieved, benchmarked with expected results (Dyson & Brown, 2006). For this study, internal validity plays a crucial role in defining whether the administered test will measure what is intended (Creswell, 2014). Evidenced by causal relationships, internal validity is typically pursued purposely to measure and ensure that a research study is sound as attributed by Creswell (2014). In order to improve the accuracy of measures in a study, scholars have stipulated the embrace of rigorous sampling processes, sound research design, and implementation of research processes based on standardized instructions (Creswell, 2014; Rubin & Babbie, 2010).

As such, internal validity is defined as the degree to which a particular test measures what it purports to measure (McBurney & White, 2010). Moreover, internal validity usually manifests the outcome of observations from a study and ensures they are guided by independent variables and not other, external factors. Studies have continuously identified various ways of improving internal validity; for example, embracing standardized instructions. Whereas internal validity deals with the accuracy of measures and subsequent quantification of its intent to measure, external validity concentrates on the degree to which the accuracy results of a study can be subjected and generalized to other corresponding groups.

Similarly, to internal validity, external can also be improved through the rigorous process of sample selection; for example, the use of random sampling methods to select research subjects. Moreover, there is the threat of internal validity to this study promoted by the research design, sampling process, and overall dependent variable. As such, the threat to validity was checked through appropriate instrumentation and alignment of the

sampling methods adopted for this study. Furthermore, threats to internal validity were mitigated by ensuring the study was completed within the four-week period. This ensured that data collected is relevant and timely at the time that conclusions are drawn. The validity of the study is also strengthened through ensuring the validity and reliability of the questionnaire used in the study. A validated survey instrument was used in the study to ensure the items in the questionnaire were able to measure the constructs of the study.

Another important aspect in data collection was to ensure confidentiality and anonymity of the participants' information. Maintaining the confidentiality and anonymity of participants encourages participants to respond to the survey questionnaire items honestly. In determining the life-family conflict variable through the questionnaires and interviews some questions could be so sensitive as to prevent the participants from answering, or doing so honestly. The data obtained can be generalized which makes the data credible and reliable.

One major threat to internal validity to this study entails the amount of time each officer spent in rotating shifts versus steady shifts. An example of this could be an officer who has spent 10 years working a rotating shift but is now working a steady shift. This threat was minimized by having control over the subject and experimenter effects to reduce participants' outcome that would otherwise influence the study subconsciously.

Moreover, the structure of the shifts could lead to validity issues. An officer can be assigned to a steady 8-hour per day rotating shift in which the hours worked do not change, or a 10-hour per day rotating shift in which the hours worked in a given day

could change regularly, such as working 15 hours instead of 10. Both officers would be viewed in the study as working a rotating shift, but their experiences would be different.

In order to minimize this threat, general control procedures were embraced to ensure that relevant participants were recruited for the two groups based on their working schedule in the sampling phase.

Another potential threat would be instances of the police officers, particularly in the rotational shift, not giving accurate feedback even after understanding the purpose of the study. This threat was minimized through specific experimental design that reducing bias elicited from the pre-informed answers recorded from the research subjects. The experimental mortality or attrition is a threat to internal validity if some of the police officers drop out of the survey from either of the shift groups. Furthermore, instrumentation was also cited as a threat to internal validity. The implication of this threat could be manifested in a process in which the researcher poses different instructions to the respondents within the survey tools. Accordingly, this was avoided by maintaining the instructions of administering the questionnaires.

Ethical Procedures

Human participants were involved in the study. Therefore, it was necessary to ensure that ethical standards were strictly followed. According to Rajib and Mou (2014), it is important to adhere to research ethics before and during the process of carrying out a primary research study. In addition to protecting respondents' identities, a researcher also needs to uphold the confidentiality of their information collected during the interviews. In

this regard, it is substantial for the prospective participants to be offered anonymity when the questionnaires and interviews are being conducted. Furthermore, research needs to meet the legal requirements of the Data Protection Act of 1998. An informed consent form was used to provide information to the participants on what they should expect from their participation in the study.

The informed consent form included the conditions of the study. Prospective participants were asked to agree to an informed consent form prior to their participation in the study to ensure that they agreed to the terms and conditions of the study. The informed consent form included a description of the rationale for the study, the premise of the study, and the purpose of the study. The informed consent form also informed the participants that they may withdraw from the study at any time without reprisal or loss of benefit or penalty. The informed consent form also mentions that the results of the study may be published in academic journals; however, there will be no identifiable information from the participants and all data will be kept confidential and anonymous. Only aggregate data will be presented in these published papers. This study did not have any foreseeable risks. Prior to being directed to the study, participants were asked to agree to the electronic informed consent form uploaded in Survey Monkey.

To strengthen ethical standards, permission from the Institutional Review Board (IRB) was sought before starting data collection in the study. This ensured that all risks and benefits for the participants were considered. The instruments used in this study as well as recruitment procedures were reviewed to ensure that there were no violations of the rights of participants. All surveys and documentation used for the current study will

be stored for only five-years after the completion of this study. All information, documents, and files will be deleted and discarded after the five-years retention period. Paper documents will be shredded. Only aggregate and statistical data from the study will be made available upon request.

Summary

A non-experimental quantitative cross-sectional comparative research design was used to examine the effect of rotating shift work on the family lives of police officers. The target participants of this study were police officers within the geographic area of Douglas County, Oregon. A survey method was used to measure variables of work-family conflict, demographic characteristics, and extent of rotating shift work. The responses in the survey were used to analyze whether a relationship exists between the identified variables. Descriptive statistics and independent samples *t*-test were employed to test the hypotheses posed in this study. A significance level of .05 was utilized for all statistical tests.

Chapter 4: Results

Introduction

The purpose of this quantitative cross-sectional study was to examine whether officers working a rotating shift schedule experience more conflict in their family lives than those on a non-rotating shift schedule. The comparison was made between police officers who were currently working a rotating shift schedule and those assigned to a fixed work schedule. The cross-sectional comparison provides empirical evidence in examining whether shiftwork is a significant stressor on the family lives of police officers. The independent variable for this study was type of current work schedule (rotating shift vs. non-rotating shift) and the dependent variable for this study included the work-family conflict and family-work conflict scores. The following research questions and hypotheses guided this study:

RQ: Does self-reported work-family conflict, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales (Niemeyer, Boles, & McMurrian, 1996), differ significantly between officers on rotating shift and officers on non-rotating shift?

H_0 : Officers on rotating shift do not report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales (Niemeyer, Boles, & McMurrian, 1996).

H_a : Officers on rotating shift report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale

from the Work-Family and Family-Work Conflict Scales (Netemeyer, Boles, & McMurrian, 1996).

The focus of this chapter is to present the results of the quantitative analyses that tested the research question and hypothesis of the study. SPSS was used for the data analysis. The first information presented includes summaries of the demographic information of the sample, followed by the descriptive statistics of the study variables. Results of assumption testing including normality and homogeneity of variances are also discussed in this chapter. The last information presented in this section is the result of the independent sample *t*-test which addressed the research question of this study. This chapter ends with a summary of the results.

Data Collection

I used data collected from a single survey collected during a four-week period in the spring of 2019. The instrument was internet based and used the Work-Family and Family-Work conflict scale. A survey was conducted using the website SurveyMonkey. Group emails were sent out to the participating departments, giving the employees access to the survey. The survey was written as such that I could not see who responded, therefore all data collected remained confidential. The survey then compared answers from those police officers working day shift, night shift and rotating shift work.

Five police departments agreed to participate in the research, for a total of 100% of the local police departments in Douglas County, Oregon. The police departments who participated in the study were the Roseburg Police Department, the Douglas County

Sheriff's Office, the Winston Police Department, Sutherlin Police Department, and Myrtle Creek Police Department.

According to the US Census, Oregon has an estimated population of 4,256,350, which is distributed across 36 counties. This brings the median county population to 116,416. However, most of the population is concentrated into the top 13 counties. Douglas County Oregon is the 9th largest county in Oregon with an estimated population of 110,283, which makes Douglas County, Oregon, a good median representation of Oregon. See Figure 2 for a map of Oregon Counties.

The survey was sent to all police officers who were working for the participating police departments. From the five police departments, 87 police officers participated in the survey. However, only 76 of the respondents answered yes to screening question #1 (Are you a full-time law enforcement officer?) and screening question #3 (Are you married or cohabitating with a partner?) Therefore, the study used only the 76 responses that qualified, for an average response rate of 87.4%.



Figure 2. Map of Oregon Counties

The following discussion summarizes the demographic information of the 76 participants in the study. The demographic information is summarized in Table 2. All 76 participants were local police officers in the state of Oregon who were full-time law enforcement officers married or cohabiting with a partner. Thus, all 76 samples fit in the inclusion criteria of the study. In terms of type of current work schedule, the independent variable of the study, more than half, or 43 (56.6%) of the 76 samples were working a rotating shift schedule at the time of the survey. Less than half, or 33 (43.4%) of the 76 samples were working a non-rotating shift schedule at the time of the survey. Of the 33 samples of local police officers who were working a non-rotating shift schedule, the majority, or 24 (31.6%) of the 33 worked day shift, while only nine (11.8%) worked night shift.

Table 2

Frequency and Percentage Summaries of Demographic Information

	<i>n</i>	<i>%</i>
Are you a full-time law enforcement officer?		
Yes	76	100.0
What best describes your work schedule?		
Day shift	24	31.6
Night shift	9	11.8
Rotating shift	43	56.6
Type of Current Work Schedule (IV)		
Non-rotating shift (Day shift or Night shift)	33	43.4
Rotating shift	43	56.6
Are you married or cohabiting with a partner?		
Yes	76	100.0

The following section discusses the responses of the 76 local police officers in the state of Oregon regarding work-family conflict. The complete table summaries of the survey responses regarding work-family conflict are shown in Appendix D. Table 3 summarizes the highest percentage response categories for each of the questions regarding work-family conflict. A greater percentage of the 76 police officers either strongly agree (27; 35.5%) or moderately agree (25; 32.9%) with the statement that the demands of their work interfere with their home family life. A greater percentage of the 76 police officers either strongly agree (14; 18.4%), moderately agree (20; 26.3%) or slightly agree (20; 26.3%) with the statement that the amount of time their job takes up makes it difficult to fulfil their family responsibilities. A greater percentage of the 76 police officers either strongly agree (11; 14.5%), moderately agree (19; 25%), or slightly agree (18; 23.7%) to the statement that things they want to do at home do not get done

because of the demands of their job. A greater percentage of the 76 police officers either strongly agree (18; 23.7%) or moderately agree (26; 34.2%) with the statement that their job produces strain that makes it difficult to make changes to their plans for family activities. A greater percentage of the 76 police officers either strongly agree (21; 27.6%) or moderately agree (31; 31.6%) with the statement that due to work-related duties, they have to make changes to their plans for family activities.

Table 3

Frequency and Percentage Summaries of Highest Percentage of Response Categories for Questions Items Regarding Work-Family Conflict

	<i>n</i>	<i>%</i>
The demands of my work interfere with my home family life.		
Moderately agree	25	32.9
Strongly agree	27	35.5
The amount of time my job takes up makes it difficult to fulfil family responsibilities.		
Slightly agree	20	26.3
Moderately agree	20	26.3
Strongly agree	14	18.4
Things I want to do at home do not get done because of the demands my job puts on me.		
Slightly agree	18	23.7
Moderately agree	19	25.0
Strongly agree	11	14.5
My job produces strain that makes it difficult to make changes to my plans for family activities.		
Moderately agree	26	34.2
Strongly agree	18	23.7
Due to work-related duties, I have to make changes to my plans for family activities		
Moderately agree	24	31.6
Strongly agree	21	27.6

The following section discusses the responses of the 76 local police officers in the state of Oregon regarding family-work conflict. The complete table summaries of the survey responses regarding family-work conflict are shown in Appendix E. Table 4 showed the summaries of the highest percentage response categories for each of the questions regarding family-work conflict. A greater percentage (44.7%) of the 76 police officers either strongly agree (7; 9.2%), moderately agree (14; 18.4%), or slightly agree (13; 17.1%) with the statement that the demands of their family or spouse/partner interfere with work-related activities. A greater percentage of the 76 police officers either strongly disagree (24; 31.6%), moderately disagree (15; 19.7%) or slightly disagree (8; 10.5%) with the statement that they have to put off doing things at work because of demands on their time at home. A greater percentage of the 76 police officers either strongly disagree (29; 38.2%) or moderately disagree (17; 22.4%) or slightly disagree (11; 14.5%) to the statement that things they want to do at work don't get done because of the demands of their family or spouse/partner. A greater percentage of the 76 police officers either strongly disagree (29; 38.2%) or moderately disagree (19; 25%) with the statement that their home life interferes with their work responsibilities such as getting to work on time, accomplishing daily tasks, and working overtime. A greater percentage of the 76 police officers either strongly disagree (28; 36.8%) or moderately disagree (15; 19.7%) with the statement that family-related strain interferes with their ability to perform job-related duties.

Table 4

Frequency and Percentage Summaries of Responses on Family-Work Conflict

	<i>n</i>	<i>%</i>
The demands of my family or spouse/partner interfere with work-related activities		
Slightly agree	13	17.1
Moderately agree	14	18.4
Strongly agree	7	9.2
I have to put off doing things at work because of demands on my time at home		
Strongly disagree	24	31.6
Moderately disagree	15	19.7
Slightly disagree	8	10.5
Things I want to do at work don't get done because of the demands of my family or spouse/partner		
Strongly disagree	29	38.2
Moderately disagree	17	22.4
Slightly disagree	11	14.5
My home life interferes with my responsibilities such as getting to work on time, accomplishing daily tasks, and working overtime.		
Strongly disagree	29	38.2
Moderately disagree	19	25.0
Family-related strain interferes with my ability to perform job-related duties		
Strongly disagree	28	36.8
Moderately disagree	15	19.7

Results

Independent sample *t*-test was conducted to address the research question to determine whether self-reported work-family conflict differed significantly between officers on rotating shift work schedules and officers on non-rotating work schedule. A level of significance of 0.05 was used in the independent sample *t*-test. There are significant differences in the measures of the different dependent variables between the

two independent groups if the p -value of the F statistic is less than the level of significance value. If significant differences are observed, mean comparison is conducted to determine the degree of differences in the measures between the two independent groups.

The independent sample t -test is a parametric statistical analysis that requires certain assumptions before conducting the test. The required assumptions of the independent sample t -test include normality of the data of the dependent variables and homogeneity of variance. Each of these assumptions was tested first and the results are presented below.

Normality. The first assumption tested was that the data of the dependent variables is normally distributed. A Kolmogorov-Smirnov test was conducted to determine whether the data of the dependent variables, composite scores of work-family conflict and family-work conflict, were normally distributed. Table 5 presents the results of the Kolmogorov-Smirnov test.

Based on the test conducted, it was determined that the composite score of family-work conflict was normally distributed for both groups of the independent variable of police officers with non-rotating shift ($D(33) = 0.12, p = 0.20$) and rotating shift ($D(43) = 0.11, p = 0.19$). On the other hand, the composite score of work-family conflict was approximately normally distributed only in one group, the independent variable of police officers with non-rotating shift ($D(33) = 0.11, p = 0.20$) and was not approximately normally distributed in the other group, the independent variable of police officers with rotating shift ($D(43) = 0.43, p = 0.002$). Normal distribution was based on having p -value

greater than the level of significance set at 0.05. Investigation of the histograms in Figures 2 and 3 showed that distributions of the data for the two dependent variables of the composite scores of work-family conflict and family-work conflict still followed the bell-shaped curved of the normal distribution pattern. With this, normality assumption was not violated by the two dependent variables.

Table 5

Kolmogorov-Smirnov Test of Normality

Dependent Variable (DV)	Type of Current Work Schedule (IV)	Kolmogorov-Smirnov ^a		
		Statistic	df	Sig.
Work-Family Conflict (composite score)	Non-rotating shift (Day shift or Night shift)	0.11	33	0.20*
	Rotating shift	0.18	43	0.002
Family-Work Conflict (composite score)	Non-rotating shift (Day shift or Night shift)	0.12	33	0.20*
	Rotating shift	0.11	43	0.19*

*. Normality

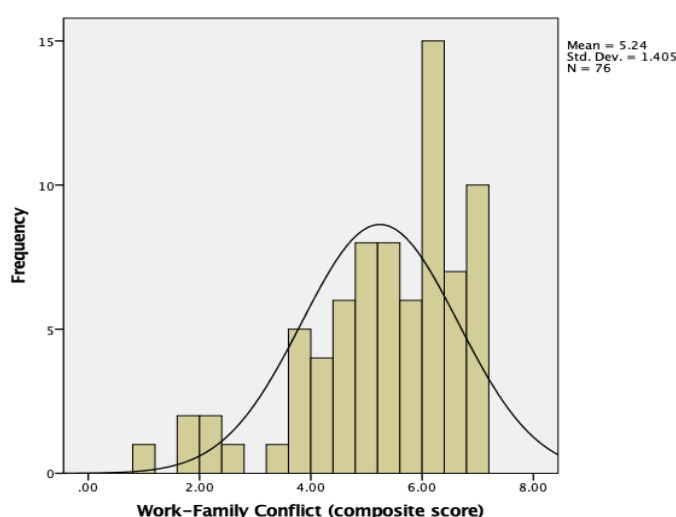


Figure 3. Histogram of Data of Work-Family Conflict (Composite Score)

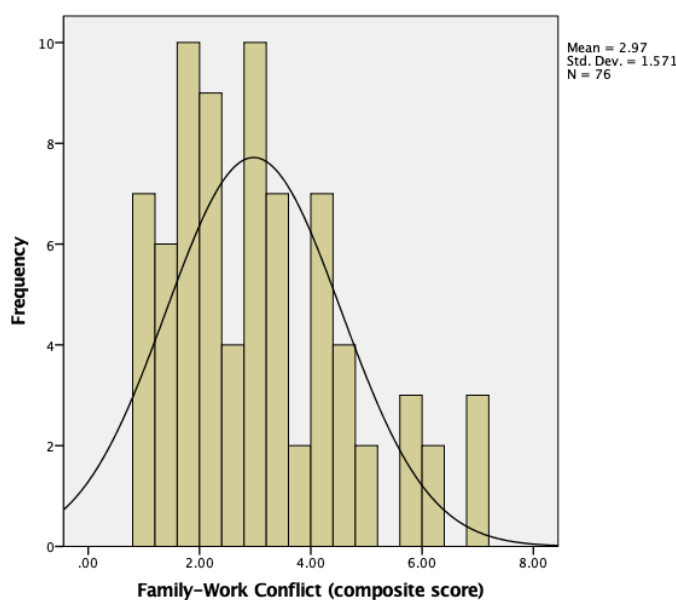


Figure 4. Histogram of Data of Family-Work Conflict (Composite Score)

Homogeneity of Variance. The next assumption tested was homogeneity of variance or equality of variances. The results of the Levene's test in Table 6 showed that the variances of the dependent variables of composite scores of work-family conflict ($F = 0.23, p = 0.64$) and family-work conflict ($F = 1.33, p = 0.25$) were homogenous or equal across the two categories of the independent variable of type of current work schedule. Thus, the homogeneity of variances assumption were satisfied by the two dependent variables. Thus, the independent sample t -test results of the "Equal variances assumed" were used for these dependent variables. With these results, the assumptions of homogeneity of variance were met; the parametric test of independent sample t -test can be conducted.

Table 6

Results of Levene's Test of Equality of Variances

Dependent Variable (DV)	F	Sig.	Remarks
Work-Family Conflict (composite score)	0.23	0.64	Equal variances assumed

Results of Independent Sample *t*-test of Difference. Results of the independent sample *t*-test to address the research question are summarized in Table 7. Results showed that there was only significant difference in the composite scores of work-family conflict, $t(74) = -1.99, p = 0.05$, between the two groups of police officers divided by working on rotating shift and non-rotating shift. Specifically, mean comparison showed that those police officers working rotating shifts ($M = 5.52, SD = 1.33$) have significantly higher levels of work-family conflict than those police officers who work non-rotating shifts ($M = 4.88, SD = 1.44$) by a mean difference of 0.63. Type of work schedule had a moderate effect on the level of work-family conflict of police officers (Cohen's $d = .46$). With this result, the null hypothesis for the research question was rejected. More specifically, the rejected null hypothesis states that “Officers on rotating shifts do not report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales.” The result of the independent sample *t*-test supported the alternative hypothesis which states that “Officers on rotating shift report significantly greater work-family conflict than officers on non-rotating shift, as measured using Work-Family Conflict Scale from the

Work-Family and Family-Work Conflict Scales.” On the other hand, results of the independent sample *t*-test showed that there was no significant difference in the composite scores of family-work conflict, $t(74) = -1.05$, $p = 0.30$, between the two groups of police officers on rotating and non-rotating shifts, respectively. The differences in type of work schedule showed a low effect on family-work conflict of police officers (Cohen's $d = .25$).

In terms of evaluation of the results, it was expected to have a difference in work-family conflict as work schedules are directly related to work-family conflict according to the theory of work-life balance by Clark (2000). However, work schedule does not necessarily have a significant impact on family-work conflict, as can be seen in the results of the independent sample *t*-test which showed insignificant difference. Work schedules have direct impact on work-family conflict. Work-Family conflict relates to employment, family, and personal life outcomes. This study showed that police officers who have work schedules of rotating shifts have more problems with work-family conflict than those police officers who have work schedules of non-rotating shifts.

Table 7

Independent Sample t-test Results of Significance of Differences of Composite Scores of Work-Family Conflict and Family-Work Conflict by Type of Current Work Schedule

Type of Conflict (DV)	Type of Current Work Schedule (IV)	N	M	SD	T	Cohen's d
Work-Family Conflict (composite score)	Non-rotating shift (Day shift or Night shift)	33	4.88	1.44	-1.98*	0.46
	Rotating shift	43	5.52	1.33		
Family-Work Conflict (composite score)	Non-rotating shift (Day shift or Night shift)	33	2.76	1.36	-1.05	0.25
	Rotating shift	43	3.14	1.72		

* $P < 0.05$

Summary

The purpose of this quantitative cross-sectional study was to examine whether officers on a rotating shift schedule experience more conflict in their family lives than those on a non-rotating shift schedule. Results of the independent sample *t*-test showed that there was significant difference in the composite score of work-family conflict between police officers working rotating and non-rotating shifts. Specifically, results showed that officers on rotating shifts report substantially greater work-family conflict than officers on non-rotating shifts, as measured using Work-Family Conflict Scale from the Work-Family and Family-Work Conflict Scales. Implications of the data analysis based on the information gleaned from the results will be discussed in Chapter 5. Suggestions on how the findings may be applied in an organizational setting and a summary of recommendations for future research are also discussed in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Rotating shift work is a fact of life for many police officers. Such schedules can create stress for officers and affect their family lives (Khan, 2013). Similarly, conflicts in family life may affect how they perform their jobs as police officers. Policing is critical as police officers protect people and property. There has been extensive research exploring how rotating shiftwork affects the health and performance of police officers; however, it is not well understood how rotating shift work affects police officers' family lives. Police officers are engaged in shift work to provide services for their citizens, which are needed continuously. However, instead of fixed shifts, police officers are often asked to perform rotating shift work wherein their work schedules vary from week to week or, in some cases, day to day (Khan, 2013).

The rotating shift work of police officers entails the need to report to work at different times. Police officers have adopted rotating shift work schedules and are expected to prioritize the need to report for duty (Khan, 2013). Rotating shift work was also reportedly associated with off-shift consequences such as work-family conflict, physical well-being, and psychological distress (Galatzer-Levy et al., 2013)

Therefore, the purpose of this quantitative comparative study was to examine whether police officers on a rotating shift schedule experience more conflict in their family lives than those on a non-rotating shift schedule. The cross-sectional comparison provided empirical evidence in examining whether rotating shiftwork is a significant

stressor on the family life of police officers. The study used as data the participants' reports of pressures they experienced in relation to dealing with family life. The study tested the research hypotheses by a cross-sectional design. The setting was the state of Oregon. Five urban and suburban police departments, located in Douglas County, Oregon, were contacted and permission was obtained to administer surveys to the officers employed there.

This design was considered appropriate because data were collected at one point in time and then analyzed comparatively between two groups of officers working on two kinds of schedules. The independent variable in this study was kind of work schedule and the dependent variable was the extent of self-reported work-family conflict. The dependent variable was measured by participants' responses on the Work-Family Conflict Scale, from the Work-Family and Family-Work Conflict Scales developed by Netemeyer, Boles, and McMurrian (1996).

For convenience purposes, the research question is restated below, along with the associated hypotheses:

RQ: Does self-reported work-family conflict differ significantly between police officers on rotating shifts and officers on non-rotating shifts?

H_0 : Officers on rotating shifts do not report significantly greater work-family conflict than officers on non-rotating shifts.

H_a : Officers on rotating shifts report significantly greater work-family conflict than officers on non-rotating shifts.

This chapter presents a discussion of the findings that were described in Chapter 4. The following section is an interpretation of those findings. The limitations of the study are discussed, expanding on the material on the topic in Chapter 1. Implications for theory and for practice are discussed. Recommendations for future research and future practice are provided. The chapter closes with a final summary.

Interpretation of the Findings

The survey administered to participants contained 10 questions that were answered on a 1 to 5 Likert scale. Of these questions, five asked whether rotating shift work affected the participants' work-family life balance, while five asked the same about their family life-work balance. However, for the purposes of this research, all questions were treated as asking about work-family balance. The remainder of the questions collected basic demographic information and/or served as a screening tool. 76 participants qualified based on that screening and within that group there was a 100% response rate.

The independent variable in this study was the kind of work schedule (fixed or rotating), and the dependent variable was work-family conflict as measured by participants' responses on the Work-Family/Family-Work Conflict Scale (again, treating the two concepts as equivalent). Regarding work-family conflict, the Cohen's effect size (d) was 0.46, which indicated that differences in type of work schedule had a moderate effect on the level of work-family conflict of police officers. Those on rotating shifts reported a higher level of work-family conflict than those not on such shifts. Regarding family-work conflict, the Cohen's effect size (d) was 0.25, which indicated that differences in type of work schedule had a small effect on the level of family-work

conflict of police officers. Those on rotating shifts reported a higher level of family-work conflict than those not on such shifts. Given that all participants answered all questions, the aggregate Cohen's effect size for all the data was 0.35, indicating a moderate effect.

Therefore, the data shows that the null hypothesis should be rejected, and the alternative hypothesis accepted. From these data, it does appear that rotating shift work has an effect on the work-family balance of police officers, and the effect is negative. The magnitude of that effect was significant. The aggregated data support the alternative hypothesis and underscore the existence of a significant problem in that for these officers, family and work interfere with one another.

The concepts of "life" and "family" are essentially used interchangeably in this inquiry, given that an inclusion criterion was that the participants did indeed have a family with whom they lived and interacted daily. The Netemeyer et al. Scale can also be used to evaluate work-life conflict for persons who do not live with or do not have families. The focus of this study on police officers with families therefore mandated selecting only portions of the Scale survey to be administered to participants.

The nature of the questions asked means that only this one finding can be extrapolated from the data. For example, it was not possible to evaluate whether the participants experienced satisfaction at work or whether they were satisfied with the present state of their family-work balance. It is certainly possible, for example, that they considered the stress on their family life to be an acceptable cost to further their careers.

The finding that the alternative hypothesis was accepted can, therefore, be stated as: the work-family balance of police officers is significantly affected by the nature of the

officers' shift schedule. One could conclude that police work is already stressful, both for officers and their families, and changing or rotating shifts is a significant addition to that stress. It is possible, for example, that rotating shifts add unneeded scheduling problems to a police officer's work environment; it might also be that families of police officers have trouble with changes in the officer's schedule. In other words, rotating shifts are in many cases stressful and difficult to adjust to.

It is not possible to do more than hypothesize possible reasons for the finding that variations in shifts significantly affects police officers' work-family balance. The finding was in line with my expectations, and the alternative hypothesis was the one I expected to be accepted. It might seem intuitively obvious that changing/rotating shifts would be inherently stressful, in police employment as in any other, and that there would be a significant resultant negative impact on work-life balance. That was the case here: for this sample, population, and setting as described below.

Limitations of the Study

That single setting, and the single population and sample, were limitations on the study. The inquiry was necessarily narrow, given the study's purpose and methods. Also, the study was limited by being administered only to officers with an active family life. Thus, only portions of the Scale as originally developed were administered, as some questions would not have been relevant.

The study did not differentiate among the participants in terms of factors that might have affected their family-work balance (other than nature of shifts) such as time at their present job, overall work experience, size of family, age of children, socioeconomic

status, job satisfaction, etc. It is certainly possible that their work-life balance was profoundly affected by these factors, not just by the one independent variable, rotating or non-rotating shifts. Without measuring those other factors, it was impossible to determine to a certainty. Any of those factors could have functioned as a confounding variable.

It is also a limitation that the Scale used was not designed specifically to be administered to police officers. Thus, its questions were possibly more generic in scope than they should have been. It remains an open question whether shift rotation does not affect work-life balance for police officers in particular (the present study's finding) or whether it does not affect family-work balance for workers in general. There should be a measure developed to measure psychological family-work effects specifically on police officers.

Recommendations

For Future Research

The findings of this study were in line with my expectations. It might seem intuitive that a fragmented and/or variable work schedule might have a negative impact on a person's (police or other professions) life and family-work balance. That assumption might be incorrect in some contexts. These findings cannot be generalized to other populations and settings; however, there is at least the suggestion that in high-stress occupations, rotating schedules impose even more burden than they might on persons in low-stress, more routine occupations.

Therefore, one recommendation is that a similar study be conducted with a population of high-stress occupations, such as firefighters, emergency medical

technicians, and other first responders; emergency room workers and doctors; members of the military, particularly actively deployed; and others whose schedules vary and whose jobs are inherently hard to manage while maintaining family-work balance.

Another recommendation is that the inquiry conducted in the present study should be broadened in scope. In analyzing the data, a question naturally arose: why did rotating shifts have the effect that was hypothesized? This could only be determined through qualitative inquiry. For example, a sample could be drawn from persons who answered the original survey and those persons could be interviewed to find out more about how scheduling affected their work-life balance.

Also, as with all studies that employ a single setting and/or a single population, the results are of limited generalizability and thus, should serve primarily as a foundation to conduct further inquiry. Would these findings be replicated if the study were repeated in other locations? If so, that would produce a valuable general concept; if not, the anomalous result produced in the subsequent study could be examined. For instance, are police officers particularly susceptible to the life stressors imposed by scheduling changes?

Finally, variables that were not considered in this study could be evaluated in future studies. For example, the age of the police officers' children might make a difference in the data, as might time on the job or overall experience. Socioeconomic status might matter, as might relationship status and personal history. All of these concepts are worthy of exploration as factors that might influence how rotating schedules

affect work-life and work-family balance, for police officers as well as for other professions.

For Practice

There are limited implications for practice from the findings of this study. However, one implication is that police supervisors perhaps should consider the impact of rotating schedules on police officers' home lives. Police work is one profession that operates continuously and thus, police officers might expect to be working irregular and inconsistent hours; other professions are more predictable in that regard. Therefore, police officers might expect that schedule irregularity "comes with the territory" and feel less stressed by it. This would not mean, however, that they are in fact less stressed.

That is why the findings of this study should be expanded into qualitative inquiry. The finding of a weak correlation was based on a statistical average. That average was of 76 participants. Therefore, most did in fact report a significant impact on their work-life balance. In practice, it would be best to identify those officers who might be most affected by irregular schedules and assign them to more regular duty. This is no doubt done informally to some extent, but it would be best to quantify the effect of rotating schedules. Supervisors who know, based on the results of an employee survey such as the Scale used in the present study, which officers would be worst affected by irregular schedules could avoid assigning those officers such duty whenever possible.

Implications

For Theory

The work-life balance theories of Clark (2000) and Greenhaus and Allen (2011) provided the theoretical framework for this study. One of the major impacts that police shift work has is on the work-life balance of police officers and their families. Clark developed a theory of work-life balance, which she calls work-life border theory (Clarke, Koch, & Hill, 2004). According to Clark (p.121), “Work-family border theory explains how individuals manage and negotiate the work and family spheres and the borders between them in order to attain balance.” Clark was somewhat critical of the concept of work-life “balance,” saying that there is a border between work and family life that the individual frequently crosses. Clark said that therefore, work-life balance is actually a rare event. The individual is, at any given moment, focused on either family or work, to the exclusion of the other.

Clark (2004) developed a set of variables that can influence an employee’s work-life balance as a way to estimate the level of work-life/family balance: role conflict, job satisfaction, family functioning, and organizational commitment. These variables were not considered in the present study but as noted above, evaluating other variable besides shift scheduling that may affect work-life balance would be valuable. Therefore, Clark’s theory supports the idea that future iterations of this study should be expanded to include other variables.

Greenhaus and Allen (2011) extended Clark’s work-life/family balance theory to include the important concept of role conflict in work-life/family balance theory. An

individual will primarily describe himself/herself in terms of a role: “I am a father” or “I am a police officer.” Different roles can be assumed by the same individual, but those roles may conflict (Greenhaus & Allen, 2011). Per Greenhaus and Allen, the three different kinds of conflict are time-based conflict, strain-based conflict and behavior-based conflict. The present study did not differentiate between these types of conflict, nor did it attempt to identify any causal linkages between these concepts and work-life balance.

However, the effect of scheduling can be identified as potential time-based conflict. It is unlikely that a rotating shift schedule will mesh with the needs and schedules of a police officer’s spouse and family. Therefore, rotating shifts are likely to produce time-based conflict per Greenhouse and Allen (2011). Furthermore, Greenhaus, Collins, and Shaw’s (2003) role conflict expansion of work-life/family balance theory argued that strain-based work-family conflict could very well be the most challenging for an employee whose work environment posed extensive physical, emotional, or mental work demands. Also, Karaffa et al. (2014) identified that police work has significant negative impact on spouses.

The findings of the present study reinforce this point of view, as the alternative hypothesis was accepted. However, that does not validate or invalidate the theoretical framework. There could be any one of a number of reasons why the participants reported a significant relationship between scheduling and work-life balance. The important role of work-family balance issues should not be underestimated (Karaffa et al., 2014).

Other researchers have suggested that work-life balance can be created, even in the presence of stressors (McDowall & Lindsay, 2014; Nasurdin & O'Driscoll, 2012). This can be accomplished by acknowledging the presence of such stressors (such as scheduling that conflicts with family life) and accepting changes that must be tolerated (Kalliath, Kalliath, & Chan, 2015; Kumarasamy, Pangil, & Isa, 2015; Karunanidhi & Chitra, 2013; Vijayalakshmi, 2012). People are generally well prepared to assume multiple roles, even simultaneously (Kinman, McDowall, & Cropley, 2012). Therefore, from a theoretical perspective, the participants in the present study tended to report only moderate impacts on their work-life balance from scheduling issues because they had developed coping strategies and mechanisms. It cannot be said that scheduling problems had no effect or that they were not stressful, only that the participants may have devised ways to cope with them and deal with any family issues that arose.

For Practice

One implication that arises from the review of the literature as well as the results of this study per se is in regard to circadian rhythms. The body establishes such rhythms and dictates when the individual is at higher or lower levels of functioning; this is often colloquially described as being a “night person” or a “day person.” The stronger this effect for a given individual, the more attention should be paid to scheduling. It would make little sense for a “day person” to work a graveyard shift, for example, and most good managers know this.

Researchers have found that shiftwork may lead to the misalignment of the body's natural circadian rhythms, causing shift-work sleep disorder (SWSD), and other problems

(Smith & Eastman, 2012). There are ways to combat SWSD, but the sufferer must first be aware of it (Postnova, Robinson & Postnov, 2013; Zhou et al., 2012). Boivin, Boudreau, and Tremblay (2012) studied police officers in this regard and found various countermeasures effective. Therefore, a recommendation for practice is that a rigorous method to evaluate police officers' circadian rhythms be developed and implemented and that scheduling be performed with this in mind.

A police officer must be at his/her best at all times. Forcing a police officer to work outside of the hours in which he/she is at peak performance will not have good results. Circadian rhythms are internal and inherent and cannot be altered, at will or otherwise. Given that the participants in the present study reported ill effects from rotating schedules suggests that they experience circadian rhythms or suffer from SWSD. Ma et al. (2014), Zimmerman (2012), and Pearsall (2012) all found that circadian rhythms dictate how well police officers adapt to shift work and that it is effectively impossible to alter those rhythms.

A further implication for practice is derived from the fact that the survey responses, while collectively showing a moderate effect of rotating shifts on work-life balance for the participants, were on a continuum. Many respondents did, in fact, report significant effects. In actual practice, supervisors cannot ignore the particular needs and idiosyncrasies of individual employees on the premise that "everyone learns to deal with it." There are, intuitively as well as confirmed by the study data, some police officers whose lives would be severely disrupted by shift work and some who would be indifferent to it or even welcome it. Therefore, a recommendation for practice is that the

individuals' tolerance for such work should be identified and that personnel and scheduling decisions be made with that in mind.

Methodological Implications

Though the findings of this study are significant, they identify interesting questions that cannot be answered by quantitative measuring and comparison. That is because while survey instruments exist to measure seemingly every human psychological effect and manifestation, the fact remains that numbers do not well describe human emotions and perceptions. For example, the survey instrument used in this study asked the respondents to evaluate their own work-life balance. The same set of work-life circumstances, however, might be reported radically differently by two separate individuals. For example, they both were frequently separated from their families as the result of extended and irregular shifts. One person, closely attached emotionally to his/her family, might report poor work-life balance as a result of scheduling, while another, fairly distant with his/her family and much more interested in the career, might report excellent work-life balance.

In other words, work-life balance, and in fact the degree and extent of scheduling irregularities, are subjective concepts. Therefore, they are best examined via qualitative inquiry, since qualitative research asks "why" or "how" rather than "how much." This suggests directions for future research. The present study was in fact quantitative. Its value lies in identifying an effect. The actual results suggest the need for a qualitative inquiry: so, why was that effect found? That question must be asked in order to make the results more meaningful for future research.

Implications for Social Change

Many professions have inherent features that many would find off-putting, stressful, or difficult, to the extent that only those who feel they can cope with those negatives enter those professions. For example, long-haul truck drivers work long hours, usually alone, and are away from home for weeks at a time. Construction workers constantly deal with noise, physical danger, and strenuous work. Police officers deal with daily work environments that are often unsettling, stressful, and dangerous.

Yet, many people work in these and other professions. The greater the number of people in a difficult profession, however, the greater the number of people who are unsuited for it. From a social perspective, it is a certainty that there are thousands of police officers who work in their profession despite being unsuited for the job; not in terms of talent or dedication, but in terms of being emotionally or circumstantially unequipped to cope with certain aspects of the job.

Also, within a given profession, especially one like police work in which multiple roles are filled within an organization, roles should be matched to temperaments and abilities. From the perspective of this study, that means that shift work should only be assigned to those equipped to deal with it. A police officer whose work-life balance would be severely disrupted by shift work is a poor choice for that work.

The present study's implications for positive social change, therefore, are that it is important to identify, in the policing profession, those who are most and least affected by shift work. Such work can and should be first given to those who are best able to cope

with it, either from a practical or emotional standpoint. If that is done, the police profession as an organization will function better and more efficiently. Society would obviously benefit from that, and the resources allocated to establishing and maintaining a dedicated and efficient police force would be optimally used.

It is worth mentioning here that mistakes made by police officers have tremendous social impacts. The well-publicized police shootings of unarmed, black suspects are a case in point. Such incidents have generated widespread outrage and have resulted in a poor perception of the police, especially in urban poor neighborhoods. The lapses in judgment on the part of police officers that led to these shootings may have been caused in part by stress and fatigue. Aligning police officers' scheduling with such considerations as individual officers' circadian rhythms and scheduling effects on work-life balance could help to put less-stressed, better rested officers on the streets, which could in turn reduce the prevalence of these tragic incidents.

Another consideration is the well-being of individual police officers. There is no doubt that many who work rotating shifts do so because they consider themselves obligated to do so, not because they like or prefer it. They accept the negative impacts of such work because they love their professions and the societal roles they play. Thus, they might tend to downplay the effects that shift work is having on their lives and their relationships with their families.

This suggests to me one possible reason for the results of this study: police officers, being dedicated individuals, may not have wanted to self-identify as having their work-life relationships being significantly impacted. They might expect themselves to

cope with the unique stressors of police work and consider that they are expected to do so by supervisors as well. Therefore, the respondents may have reported fewer negative effects than was actually the case. It is acceptable for there to be a culture of self-sacrifice and dedication in organizations such as police, first responders, and the military, but that does not mean that the stressors of working in such professions should be ignored. The extant literature suggests that shift work is inherently stressful and fatiguing for police officers (e.g. Basińska & Wiciak. 2012).

Fatigued and burned-out police officers are at a higher risk of being seriously injured or killed because of lack of focus and not being fully aware of danger signs, in addition to potentially putting the citizens that they serve at risk (Kapade-Nikam & Shaikh, 2014). Also, according to Jong-Min et al. (2015) and Jyothisree and Jyothi (2012), the health of police officers is negatively impacted by shift work. Waggoner et al. (2012) also found negative impacts on alertness, vigilance, and vehicle operation.

I am in fact skeptical of any conclusion, therefore, that rotating shifts and/or shift work have only a moderate impact on the work-life and work-family balance of police officers. That includes the findings of the present study. The literature overwhelmingly suggests they have a substantial impact, the findings of the present study notwithstanding. Therefore, the responsible direction to take is to find out whether these participants were typical or simply a statistical outlier. That would be a valid direction for future research. If they constituted an outlier (collectively), there might be a reason for that. For instance, personnel practices in the agencies studied might be unusually considerate of the individual officers' needs and preferences. It might be much easier to take those needs

and preferences into consideration when scheduling in, for instance, a well-funded and well-staffed police department in an affluent suburban community, rather than an understaffed, poorly funded police department in a poor, urban neighborhood.

The broader question arises, though, of whether factors such as reported effects of shift work on officers' work-life balance and family lives should be considered in personnel, hiring, and scheduling decisions. Those who schedule police officers' shifts may not have the luxury of taking such factors into consideration, or simply may not consider them important. Perhaps, though, given the social importance of having an optimally functioning police force in our communities, such consideration is warranted. Doing so would enhance the well-being of both individual officers and the communities they serve.

Conclusions

I found that rotating shift work had a significant negative effect on the participants' self-reported work-life/work/family balance. These findings can be interpreted in two opposing ways: one, that the effects of rotating shift work are as strong as the literature would suggest or, two, that the literature is correct and that the results were not atypical. While the sample size was fairly small for quantitative inquiry ($n=76$), the sample had adequate statistical power. The effects of rotating shift work were more moderate than those reported in other studies. Given that Oregon is a progressive state in its politics and has broad employee protections hints at this possible explanation.

In any event, the findings of this study suggest future studies in the same vein. We as a society must learn to craft the most effective, efficient, and responsible police forces

possible. Recent tragic incidents have shown the severe negative consequences of not doing so. We need, to the greatest extent possible, police officers who are not impacted by stress, fatigue, or family worries as a result of their jobs.

References

- Agocs, T., Langan, D., & Sanders, C. B. (2014). Police mothers at home: Police work and danger-protection parenting practices. *Gender & Society*, 29(2), 265-289.
- Amendola, K. L. & Weisburd, D. (2012). *The Impact of Shift Length in Policing on Performance, Health, Quality of Life, Sleep, Fatigue, and Extra-Duty Employment*. U. S. Department of Justice.
- Amendola, K. L., Weisburd, D., Hamilton, E. E., Jones, G., & Slipka, M. (2011). An experimental study of compressed work schedules in policing: Advantages and disadvantages of various shift lengths. *Journal of Experimental Criminology*, 7, 407–442. doi: 10.1007/s11292-011-9135-7.
- Anastas, J. W. (1999). *Research design for social work and the human services*. New York: Columbia University Press.
- Andreassen, C. S., Bakker, A. B., Bjorvatn, B., Moen, B. E., Magerøy, N., Shimazu, A., Pallesen, S. (2017). Working conditions and individual differences are weakly associated with workaholism: A 2-3-year prospective study of shift-working nurses. *Frontiers in Psychology*, 8, 2045. doi.org/10.3389/fpsyg.2017.02045
- Avdija, A., S. (2014). Stress and law enforcers: Testing the relationship between law enforcement work stressors and health-related issues. *Health Psychology and Behavioral Medicine*, 2(1), 100–110. doi:10.1080/21642850.2013.878657
- Barnes-Farrell, J., Davies-Schrils, K., McGonagle, A., Walsh, B., Di Milia, L., Fischer, F.M., Hobbs, B., Kaliterna, L., & Tepas, D. (2009). What aspects of shiftwork

influence off-shift well-being of healthcare workers? *Applied Ergonomics*, 39(5), 589-596.

Bartel, P., Offermeier, W., Smith, F., & Becker, P. (2004). Attention and working memory in resident anaesthetists after night duty: Group and individual effects. *Occupational and Environmental Medicine*, 61(2), 167–170.

Basińska, B. A., & Wiciak, I. (2012). Fatigue and professional burnout in police officers and firefighters. *Internal Security*, 4(2), 265-273.

Bell, L. B., Virden, T. B., Lewis, D. J., & Cassidy, B. A. (2015). Effects of 13-hour 20-minute work shifts on law enforcement officers' sleep, cognitive abilities, health, quality of life, and work performance: The phoenix study. *Police Quarterly*, 18(3), 293-337. doi: 10.1177/1098611115584910.

Bennett, W. W., Hess, K. M., & Orthmann, C. H. (2007). *Criminal investigation*. Belmont, CA: Wadsworth/Thomson Learning.

Boivin, D. B., Boudreau, P., & Tremblay, G. M. (2012). Phototherapy and orange-tinted goggles for night-shift adaptation of police officers on patrol. *Chronobiology International*, 29, 629–640. doi: 10.3109/07420528.2012.675252.

Boudreau, P., Dumont, G. A., Boivin, D. B. (2013). Circadian adaptation to night shift work influences sleep, performance, mood and the autonomic modulation of the heart. *PLoS ONE*, 8(7), 70-81. doi:10.1371/journal.pone.0070813.

Bryman, A. (2012). *Social research methods* (4th Ed.). Oxford: Oxford University Press.

- Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford: Oxford University Press.
- Bullock, K. (2015). Diversity in the special constabulary. *Policing*, 9(1), 46-55.
doi: 10.1093/police/pau047.
- Burke, R. J., & Cooper, C. L. (2008). *The long work hours culture: Causes, consequences and choices*. Bingley, UK: Emerald Group Pub.
- Can, S. H., Hendy, H. M., & Karagoz, T. (2015). LEOSS-R: Four types of police stressors and negative psychosocial outcomes associated with them. *Policing*, 9(4), 340-351. doi: 10.1093/police/pav011.
- Cavallo, A., Jaskiewicz, J., & Ris, M. D. (2002). Impact of night-float rotation on sleep, mood, and alertness: The resident's perceptions. *Chronobiology International*, 19(5), 893-902.
- Chang, J. H., Huang, P. T., Lin, Y. K., Lin, C. E., & Lin, C. M. (2015). Association between sleep duration, sleep quality, and metabolic syndrome in Taiwanese police officers. *International Journal of Occupational Medicine and Environmental Health*, 28(6), 1011-23. doi: 10.13075/ijomeh.1896.00359.
- Charles, L. E., Andrew, M. E., Violanti, J., Fekedulegn, D., & Burchfiel, C. M. (2011). Sleep duration and biomarkers of metabolic function among police officers. *Journal of Occupational and Environmental Medicine*, 53(8), 831-837.
- Christensen, J. O. (2014). *Effects of psychological and social work factors on musculoskeletal pain complaints and headache*. Dissertation for the degree of

philosophiae doctor. Department of Psychology, Faculty of Social Sciences,
University of Oslo.

- Chua, E. C., Tan, W. Q., Yeo, S. C., Lau, P. & Lee I. (2012). Heart rate variability can be used to estimate sleepiness-related decrements in psychomotor vigilance during total sleep deprivation. *Sleep*, 35, 325–334. doi: 10.5665/sleep.1688.
- Chung, M. H., Kuo, T. B., Hsu, N., Chu, H., & Chou, K. R. (2012) Recovery after three-shift work: Relation to sleep-related cardiac neuronal regulation in nurses. *Industrial Health*, 50, 24–30. doi: 10.2486/indhealth.ms1305.
- Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations*, 53(6), 747-770. doi: 10.1177/0018726700536001.
- Clarke, M., Koch, L., & Hill, E. (2004). The work–family interface: Differentiating balance and fit. *Family and Consumer Sciences Research Journal*, 33(2), 121-140.
- Connors, J. (2012). Police department adjusts to new 12-hour shifts. Retrieved from *Middletown Patch*: http://patch.com/rhode-island/middletown/police-department-adjusts-to-new-12-hour-shifts#.U_Q1x2M9dhs.
- Cozby, P. C. (2009). *Methods in behavioral research* (10th Ed.). New York, NY: McGraw Hill.
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, California: SAGE Publications.

Crew, S. (2006). A qualitative study on effects of working unsocial hours. *Nursing Times*, 102(23), 30-33.

De Janasz, S., Behson, S. J., Jonsen, K., & Lankau, M. J. (2013). Dual sources of support for dual roles: How mentoring and work–family culture influence work–family conflict and job attitudes. *The International Journal of Human Resource Management*, 24(7), 1435-1453. doi: 10.1080/09585192.2012.709187

Di Milia, L., Rogers, N. L., & Akerstedt, T. (2012) Sleepiness, long distance commuting and night work as predictors of driving performance. *PLoS ONE*, 7(9), e45856. doi: 10.1371/journal.pone.0045856.

Di Millia, L., Waage, S., Pallesen, S., & Bjorvatn, B. (2013). Shift work disorder in a random population sample: Prevalence and comorbidities. *PLoS ONE*, 8(1), 1-7.

Dreadfulwater, E. (2013). Dealing with police stress on the home front. *Police: The Law Enforcement Magazine*. September 09. Retrieved from:
<http://www.policemag.com/blog/careers/story/2013/09/how-spouses-can-deal-with-police-stress.aspx>.

Dreadfulwater, E. (2013). Managing a shift schedule on the home front. *Police: The Law Enforcement Magazine*. Retrieved from:
<http://www.policemag.com/blog/careers/story/2013/10/managing-shift-schedules-on-the-home-front.aspx>

- Dula, D. J., Dula, N. L., Hamrick, C., & Wood, G. C. (2001). The effect of working serial night shifts on the cognitive functioning of emergency physicians. *Annals of Emergency Medicine*, 38(2), 152–155.
- Duxbury, L., & Higgins, C. (2012). Caring for and about those who serve: Work-life conflict and employee well-being within Canada`s Police Departments. *Comprehensive Report on the Ottawa, Canada Police Department*. Accessed 1/26/2016. http://sprott.carleton.ca/wp-content/files/Duxbury-Higgins-Police2012_fullreport.pdf.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods*, 41(4), 1149-1160.
- FBI (2015). 2015 Crime in the United States. *Police Employee Data*. Retrieved from <<https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/police-employee-data/police-employee-data>>
- Finn, P. (1981). The effects of shift work on the lives of employees. *Monthly Lab. Rev.*, 104, 31.
- Fisher, A., & Ritchie, S. (2015). A functional shift: Building a new model of engagement. *Policing: A Journal of Policy and Practice*, 9(1), 101-114.
doi: 10.1093/police/pav001.
- Fossum, I. N., Bjorvatn, B., Waage, S., & Pallesen, S. (2013). Effects of shift and night work in the offshore petroleum industry: A systematic review. *Industrial Health*,

51, 530–544. Accessed: 1/25/2016.

https://www.jniosh.go.jp/en/indu_hel/doc/IH_51_5_530.pdf.

Furlan, R., Barbic, F., Piazza, S., Tinelli, M., Seghizzi, P., & Malliani, A. (2000).

Modifications of cardiac autonomic profile associated with a shift schedule of work. *Circulation*, *102*(16), 1912–1916.

Galatzer-Levy, I. R., Brown, A. D., Henn-Haase, C., Metzler, T. J., & Neylan, T. C.

(2013). Positive and negative emotions prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion*, *13*(3), 545–553.

Gattrell, C., Burnett, S.B., Cooper, C.L. & Sparrow, P. (2012). Work–life balance and

parenthood: A comparative review of definitions, equity and enrichment.

International Journal of Management Reviews, *15*(3), 300–316.

doi:10.1111/j.1468-2370.2012.00341.x.

Goode, W. (1960). A theory of role strain, *American Sociological Review*, *25*, 483–496.

Greenhaus, J. H. & Allen, T.A. (2011). Work-family balance: A review and extension of

the literature. In Quick, J.C. & Tetrick, L.E., Eds. (2011). *Handbook of*

Occupational Health Psychology (2nd. Ed). Washington, D.C.: American

Psychological Association, 1–17.

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family

roles. *Academy of Management Review*, *10*, 76–88. doi:

10.5465/AMR.1985.4277352

- Greenhaus, J. H., Collins, K. M., & Shaw, J. D. (2003). The relation between work–family balance and quality of life. *Journal of Vocational Behavior*, *63*, 510-531.
- Grosswald. B. (2015). Shift work and negative work-to-family spillover. *The Journal of Sociology & Social Welfare*, *30*(4), 31-56.
- Harrington, J. (2013). Health effects of shift work and extended hours of work. *Occupational Environmental Medicine*, *58*, 68-72. doi: 10.1136/oem.58.1.68.
- Haslam, D., Filus, A., Morawska, A., Sanders, M. R., & Fletcher, R. (2015). The work–family conflict scale (WAFCS): Development and initial validation of a self-report measure of work–family conflict for use with parents. *Child Psychiatry & Human Development*, *46*(3), 346-357.
- Hesketh,I., Cooper, C. L., & Ivy, J. (2014). Leaveism and work–life integration: The thinning blue line? *Policing*, *9*(2), 183-194. doi: 10.1093/police/pau029.
- Hossain, J. L., Reinish, L. W., Kayumov, L., Bhuiya, P., & Shapiro, C. M. (2003). Underlying sleep pathology may cause chronic fatigue in shift-workers. *Journal of Sleep Research*, *12*(3), 223–230.
- Johnson, R. R. (2012a). Police officer job satisfaction: A multidimensional analysis. *Police Quarterly*, *15*(2), 157-176. doi:10.1177/1098611112442809.
- Johnson, R. R. (2012b). Police organizational commitment: the influence of supervisor feedback and support. *Crime and Delinquency*,*6*.
doi:10.1177/0011128712466887.

- Jong-Min S., Jae-Hwan C., Woo-Jin J., & Hae-Ouk, A. (2015). Risk factors for fatigue and stress among Korean police officers. *Journal of Physical Therapy Science*, 27(5), 1401–1405. doi: 10.1589/jpts.27.1401.
- JyothiSree, V., & Jyothi, P. (2012). Assessing work-life balance: From emotional intelligence and role efficacy of career women. *Advances in Management*, 5(6), 35-43.
- Kalliath, P. Kalliath, T. & Chan, C. (2015). Work–family conflict and family–work conflict as predictors of psychological strain: Does social support matter? *British Journal of Social Work*, 45(8), 2387-2405. doi: 10.1093/bjsw/bcu079.
- Kapade-Nikam, P., & Shaikh, M. (2014). Occupational stress, burnout and coping in police personnel: Findings from a systematic review. *American International Journal of Research in Humanities, Arts and Social Sciences*, 6(2), 144-148.
- Karaffa, K., Openshaw, L., Koch, J. Clark, H. & Harr, C. (2014). Perceived impact of police work on marital relationships. *The Family Journal*, 23(2), 120-131. doi:10.1177/1066480714564381.
- Karhula, K., Härmä, M., Sallinen, M., Hublin, C., & Virkkala, J. (2013). Job strain, sleep and alertness in shift working health care professionals —A field study. *Industrial Health*, 51, 406–416.
- Karunanidhi S., & Chitra, T. (2013). Influence of select psychosocial factors on the psychological well-being of policewomen. *International Research Journal of Social Sciences*, 2(8), 5-14.

- Khan, F. (2013). *Law enforcement marriages*. Retrieved from:
<http://www.lawenforcementtoday.com.2013/11/03/law-enforcement-marriages>.
- Kinman, G., McDowall, A., & Cropley, M. (2012). Work-family conflict and job-related wellbeing in UK police officers: The role of recovery strategies. Conference paper presented at: *Work and Family Researchers Network Conference*. Accessed 1/26/2016. <https://workfamily.sas.upenn.edu/wfrn-repo/object/5180n2gx0yc2sg79>.
- Korre, M., Farioli, A., Varvarigou, V., Sato, S., & Kales, S. N. (2014). A survey of stress levels and time spent across law enforcement duties: Police chief and officer agreement. *Policing*, 8(2), 109-122. doi: 10.1093/police/pau001.
- Kumar, K. (2014). *National Requirement of Manpower for 8-Hour Shifts in Police Stations*. Administrative Staff College of India Hyderabad, 1-250.
- Kumarasamy, M. M, Pangil, F., & Isa, M. E. (2015). Individual, organizational and environmental factors affecting work-life balance. *Asian Social Science*, 11(25), 111-123.
- Kuo, S-H. (2014). Occupational stress, job satisfaction, and affective commitment to policing among Taiwanese police officers. *Police Quarterly*, 18(1), 27-54.
- Kurtz, D. L., Zavala, E., & Melander, L. A. (2014). The influence of early strain on later strain, stress responses, and aggression by police officers. *Criminal Justice Review*, 40(2), 190-208. doi:10.1177/0734016814564696.
- Lammers-van der Holst, H. M., & Kerkhof G. A. (2015). Individual differences in the cortisol-awakening response during the first two years of shift work: A

longitudinal study in novice police officers. *Chronobiology International: The Journal of Biological and Medical Rhythm Research*, 32(8), 1162-1167. doi: 10.3109/07420528.2015.1064130.

Lammers-van der Holst, H. M., & Kerkhof, G. A. (2015). Shift work tolerance and the importance of sleep quality: A study of police officers. *Biological Rhythm Research*, 46(2), 257-264. doi: 10.1080/09291016.2014.985002.

Leedy, P. D., & Ormrod, J. E. (2010). *Practical research: Planning and design* (10th ed.). Upper Saddle River, NJ: Prentice Hall.

Lin, P. C., Chen, C. H., Pan, S. M., Pan, C. H., & Chen, C. J. (2012). Atypical work schedules are associated with poor sleep quality and mental health in Taiwan female nurses. *International Archives on Occupational and Environmental Health*, 85, 877-84.

Ma, C. C., Andrew, M. E., Fekedulegn, D., Gu, J. K., & Hartley, T. A. (2014). Shift work and occupational stress in police officers. *Safety and Health at Work*, 6(1), 25-29. doi:10.1016/j.shaw.2014.10.001.

Maguire, E. R. (2003). *Organizational structure in American police agencies: Context, complexity, and control*. Albany: State University of New York Press.

Makabe, S., Takagai, J., Asanuma, J., Ohtomo, K., & Kimura, Y. (2015). Impact of work-life imbalance on job satisfaction and quality of life among hospital nurses in Japan. *Industrial Health*, 53, 152-159.

- Manzoni, P., & Eisner, M. (2006). Violence between the police and the public: Influences of work-related stress, job satisfaction, burnout, and situational factors. *Criminal Justice and Behavior*, 33(5), 613-645.
- Matthews, R. (2011). Law enforcement stress and marriage: The effects of job stress on law enforcement marriages and methods of combating the job stress. *Senior Honors Thesis*. Honors Program of Liberty University.
- McBurney, C., & White, T. L. (2010). *Research Methods, 8 edition*. Belmont, CA: Wadsworth Cengage Learning.
- McBurney, C., & White, T. L. (2010). *Research Methods, 8 edition*. Belmont, CA: Wadsworth Cengage Learning.
- McCarthy, A., Cleveland, J. N., Hunter, S., Darcy, C., & Grady, G. (2013). Employee work-life balance outcomes in Ireland: A multilevel investigation of supervisory support and perceived organizational support. *The International Journal of Human Resource Management*, 24(6), 1257-1276. <http://dx.doi.org/10.1080/09585192.2012.709189>.
- McCarty, W. P., & Skogan, W. G. (2012). Job-related burnout among civilian and sworn police personnel. *Police Quarterly*, 16(1), 66-84.
doi:10.1177/1098611112457357.
- McCoy, S. P., & Aamodt, M. G. (2010). A comparison of law enforcement divorce rates with those of other occupations. *Journal of Police and Criminal Psychology*, 25(1), 1-16.

- Mcdowall, A., & Lindsay, A. (2014). Work-life management in the police: The development of a self-management framework. *Journal of Business and Psychology, 29*(3), 387-411. doi: 10.1007/s10869-013-9321-x.
- National Center for Women & Policing. (n.d.). *Police family violence fact sheet*. Retrieved from <http://womenandpolicing.com/violencefs.aspx>
- Netemeyer, R., Boles, J., & McMurrin, R. (1996). Development and validation of Work-Family and Family-Work Conflict Scales. *Journal of Applied Psychology, 81*(4), 400-410. doi: 10.1037/0021-9010.81.4.400.
- Niu, S. F., Chung, M. H., Chen, C. H., Hegney, D., & O'Brien, A. (2011). The effect of shift rotation on employee cortisol profile, sleep quality, fatigue, and attention level: A systematic review. *Journal of Nursing Research, 19*, 68-81. doi: 10.1097/jnr.0b013e31820c1879.
- On the front lines: Police stress and family well-being*. Hearing before the Select Committee on Children, Youth, and Families, House of Representatives, 102nd Cong, (ISBN-0-16-035316-5). (1991). Retrieved from <http://files.eric.ed.gov/fulltext/ED338997.pdf>
- Patterson, G., T., Chung, I. W., & Swan, P. G. (2013). Effects of stress management training on the physiological, psychological, and behavioral outcomes among police officers and recruits. *Crime Prevention Research Review, 8*. Washington, D.C.: U.S. Department of Justice, Office of Community Oriented Policing Services.

- Patterson, G.T., & Chung, I. W. (2012). The effects of stress management interventions among police officers and recruits. *Campbell Systematic Reviews*, 7
doi:10.4073/csr.2012.7.
- Pearsall, B. (2012). Sleep disorders, work shifts and officer wellness. *National Institute of Justice*, 270. Accessed 1/26/31. <http://www.nij.gov/journals/270/pages/officer-wellness.aspx>.
- Pearson-Goff, M., & Herrington, V. (2014). Police leadership: A systematic review of the literature. *Policing*, 8(1), 14-26. doi: 10.1093/pat027.
- Perez, D. W. (2011). *Paradoxes of Police Work*, 2nd edition. New York: Cengage Learning.
- Postnova, S., Robinson P., A., Postnov, D. D. (2013). Adaptation to shift work: Physiologically based modeling of the effects of lighting and shifts' start time. *PLoS ONE*, 8(1), e53379. doi:10.1371/journal.pone.0053379.
- Poulose, S., & Sudarsan, N (2014). Work life balance: A conceptual review. *International Journal of Advances in Management and Economics*, 3(2), 1-17.
- Queirósa, C., Kaiselerb, M., & Leitão, A. (2013). Burnout as predictor of aggressivity among police officers. *European Journal of Policing Studies*, 1(2), 110-135.
- Qureshi, I., Ahmed, R., Iftikhar, M., Arif, S., & Lodhi, S. (2012). Job stress, workload, environment and employee turnover intentions: Destiny or choice. *Archives of Sciences*, 65(8), 1-12.

- Rabe-Hemp, C. E. & Humiston, G. S. (2015). A survey of maternity policies and pregnancy accommodations in American police departments. *Police Practice and Research: An International Journal*, 16(3), 239-253. doi: 10.1080/15614263.2013.872988.
- Rajaratnam, S. M., Barger, L. K., Lockley, S. W., Shea S. A., & Wang, W. (2011). Sleep disorders, health, and safety in police officers. *Journal of the American Medical Association*, 306, 2567–2578. doi: 10.1001/jama.2011.1851.
- Ramney, S. L., Perkhounkova, Y., Moon, M., Budde, L., & Tseng, H. (2012). The effect of work shift and sleep duration on various aspects of police officers' health. *Workplace Health & Safety*, 60(5), 215-222.
- Reilly, T., Waterhouse, J., & Atkinson, G. (1997). Aging, rhythms of physical performance, and adjustment to changes in the sleep-activity cycle. *Occupational and Environmental Medicine*, 54(11), 812-816.
- Robinson, S., MacCulloch, C., & Arentsen, V. (2014). The effects of gender and country on stress and resilience: A comparative study of police academy recruits from Australia, China and Canada. *The Police Journal*, 87(4), 245-257. doi: 10.1350/pojo.2014.87.4.678.
- Rubin, A., & Babbie, E. R. (2010). *Essential research methods for social work*. Belmont, CA, Brooks/Cole, Cengage Learning.
- Rudell, C. (2012). How to balance work, school, and family. *Police: The Law Enforcement Magazine*. Accessed 1/26/2016.

<http://www.policemag.com/blog/women-in-law-enforcement/story/2012/08/how-to-balance-work-school-and-family.aspx>.

Sakata, K., Suwazono, Y., Harada, H., Okubo, Y., Kobayashi, E., & Nogawa, K. (2003).

The relationship between shift work and the onset of hypertension in male Japanese workers. *Journal of Occupational and Environmental Medicine*, 45(9), 1076–2752.

Saksvik-Lehouillier, I., Pallesen, S., Bjorvatn, B., Magerø, N., & Folkard, S. (2015).

Towards a more comprehensive definition of shift work tolerance. *Industrial Health*, 53, 69–77. Accessed 1/26/2016.

https://www.jniosh.go.jp/en/indu_hel/doc/IH_53_1_69.pdf.

Salkind, N. J. (2010). *Encyclopedia of research design*. Los Angeles: SAGE.

Schwab, T. L. (2014). *Shift Work and Police Officers*. Master's Capstone Theses. Paper 18.

Senjo, S. R. (2011). Dangerous fatigue conditions: A study of police work and law enforcement administration. *Police Practice & Research*, 12(3), 235-252.
doi:10.1080/15614263.2010.497659.

Shobitha, P., & Sudarsan, N. (2014). Work life balance: A conceptual review.

International Journal of Advances in Management and Economics, 3(2), 1-17.

Shu-Yu, T. A., Pei-Chen, L., Chen, Y., Hung, H-C., & Pan, C. H. (2014). Effects of marital status and shift work on family function among registered nurses.

Industrial Health, 52, 296–303. Accessed 1/25/2016.

https://www.jniosh.go.jp/en/indu_hel/doc/IH_52_4_296.pdf.

Smith, M.R., & Eastman, C. (2012) Shift work: Health, performance and safety problems, traditional countermeasures, and innovative management strategies to reduce circadian misalignment. *Nature and Science of Sleep*, 4, 111–132. doi:

10.2147/nss.s10372.

Smizinski, M. (2015). Shift work and law enforcement. *Journal of Law Enforcement*, 5(2), 1-8.

Stinson, P. M., & Watkins, A. M. (2014). The nature of crime by school resource officers. *SAGE Open*, 4(1), 1-10. doi:10.1177/2158244014521821

Subha, S., & Devika, K. (2014). Work-life balance among women police in Coimbatore district: An empirical study. *International Journal of Advance Research in Computer Science and Management Studies*, 2(11), 7-14.

doi:10.1080/09291016.2014.985002.

Tuttle, R., & Garr, M. (2012). Shift work and work to family fit: Does schedule control matter? *Journal of Family and Economic Issues*, 33, 261–271.

van Amelsvoort, L. G., Schouten, E. G., & Kok, F. J. (2004). Impact of one year of shift work on cardiovascular disease risk factors. *Journal of Occupational and Environmental Medicine*, 46(7), 699–706.

- Vijayalakshmi, K. (2012). Satisfaction with work life balance: A study of women police personnel in Hyderabad. *Indian Journal of Management*, 5(8), 1-19, doi:10.17010/pijom/2012/v5i8/60238.
- Vimala, A. & Muthulashmi, K. (2012). Consequences of family interference with work: A study from a police sector. *Journal of Business Management Studies*, 2, 60-65.
- Violanti, J. M., Fekedulegn, D., Andrew, M. E., Charles, L. E., & Hartley, T. A. (2012). *Shift work and the incidence of injury among police officers*. *American Journal of Industrial Medicine*, 55, 217-227. doi: 10.1002/ajim.22007.
- Vogel, M., Braungardt, T., Meyer, W., & Schneider, W. (2012). *The effects of shift work on physical and mental health*. *Journal of Neural Transmission*, 119(10), 1121-1132.
- Waggoner, L. B. (2012). *Police officer fatigue: the effects of consecutive night shift work on police officer performance*. Doctoral Dissertation, Department of Criminal Justice and Criminology, Washington State University. Retrieved from: https://research.wsulibs.wsu.edu:8443/jspui/bitstream/2376/4273/1/waggoner_ws_u_0251e_10492.pdf
- Waggoner, L. B., Grant, D.A., Van Dongen, H. P., Belenky, G., & Vila, B. (2012). A combined field and laboratory design for assessing the impact of night shift work on police officer operational performance. *Sleep*, 35(11), 1575-7. doi: 10.5665/sleep.2214.

- Walsh, M., Taylor, M. & Hastings, V. (2013). Burnout and post traumatic stress disorder in the police: Educating officers with the Stilwell TRiM approach. *Policing*, 7(2), 167-177. doi: 10.1093/police/pas043.
- Wayne, J. H., Casper, W. J., Matthews, R. A., & Allen, T. D. (2013). Family-supportive organization perceptions and organizational commitment: The mediating role of work-family conflict and enrichment and partner attitudes. *Journal of Applied Psychology*, 98(4), 606-?. doi: 10.1037/a0032491
- Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311-325.
- Zhou, X., Ferguson, S. A., Matthews, R. W., Sargent, C., & Darwent, D. (2012). Mismatch between subjective alertness and objective performance under sleep restriction is greatest during the biological night. *Journal of Sleep Research*, 21, 40-49. doi: 10.1111/j.1365-2869.2011.00924.x.
- Zimmerman, F. H. (2012). Cardiovascular disease and risk factors in law enforcement personnel: A comprehensive review. *Cardiology Review*, 20(4), 159-66. doi: 10.1097/CRD.0b013e318248d631.

Appendix A: Work-Life Conflict Questionnaire

Developed by Netemeyer, Boles & McMurrian (1996)

Work-Family Conflict

Developed by Netemeyer, Boles & McMurrian (1996)

Work-Family Conflict

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree Nor Agree	Slightly Agree	Moderately Agree	Strongly Agree	N/A
	1	2	3	4	5	6	7	N/A
The Demands of my work interfere with my home family life.								

The amount of time my job takes up makes it difficult To fulfil family Responsibilities.	1	2	3	4	5	6	7	N/A
Things I want to do at home do not get done because of the demands my job puts on me.	1	2	3	4	5	6	7	N/A
My job produces strain that	1	2	3	4	5	6	7	N/A

makes it difficult to make changes to my plans for family activities.								
Due to work-related duties, I have to make changes to my plans for family Activities	1	2	3	4	5	6	7	N/A

Family-Work Conflict

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Disagree Nor Agree	Slightly Agree	Moderately Agree	Strongly Agree	N/A
	1	2	3	4	5	6	7	N/A
The demands of my family or spouse/partner interfere with work-related activities	1	2	3	4	5	6	7	N/A
I have to put off doing things	1	2	3	4	5	6	7	N/A

at work because of demands on my time at home								
Things I want to do at work don't get done because of the demands of my family or spouse/part ner	1	2	3	4	5	6	7	N/ A
My home life interferes with my	1	2	3	4	5	6	7	N/ A

responsibilities such as getting to work on time, accomplishing daily tasks, and working overtime.								
Family-related strain interferes with my ability to perform job-related duties	1	2	3	4	5	6	7	N/A

Appendix B: Permission to Use the Work-Family Conflict Scale

RE: Permission to use the Work-Family Conflict Scale - Microsoft Edge

mail.cityofroseburg.org/owa/?ae=Item&a=Open&t=IPM.Note&id=RgAAAABMEkWshDYvQrgkKOcsaPYYBwCGj

Reply Reply All Forward

RE: Permission to use the Work-Family Conflict Scale

Netemeyer, Richard (rgn3p) [rgn3p@comm.virginia.edu]

To: Ryan C. Dingman; rgn3p@virginia.edu

Thursday, July 14, 2016 3:57 AM

Ryan.....you have my permission.....best of luck w. your research!

RN

From: Ryan C. Dingman [mailto:rdingman@cityofroseburg.org]
Sent: Thursday, July 14, 2016 12:26 AM
To: rgn3p@virginia.edu
Subject: Permission to use the Work-Family Conflict Scale

Hello Richard Netemeyer

My name is Ryan Dingman. I am a PhD candidate from Walden University. I am currently working on my dissertation and was seeking permission to use the Work-Family Conflict Scale and Family-Work Conflict Scale you helped develop. My study is looking at rotating shift work, and police officer family lives. I believe your instrument is a good fit for the study but need permission before I can use it.

Thank You

Ryan Dingman

Cell phone: [1\(541\) 643-7174](tel:1(541)643-7174)

Email: rdingman@cityofroseburg.org

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Appendix C: Invitation Letter

Date

{Name}

{Address}

Dear {Name},

The Rotating Work Schedule Study

I am interested in the relationship of officers at home after the end of every shift, especially for those working on rotating shifts. I am contacting you to invite you to take part in a research study.

The study aims at examining whether officers on a rotating shift schedule experience more conflict in their family lives than those on a traditional daytime schedule. I plan to use the information obtained from this study to find ways to help officers on a rotating shift to have a stable relationship at home. You are a very important person and am inviting you to take part in this study.

I feel this is an essential research study that will help future police officers experience more stable family lives. I have given the research team your contact details so that they can send you the necessary information about the research. If you have any questions about the study, please feel free to contact me. Participation in this survey will be conducted using a surveying website. If you agree to take part in the study you will be

given a link to the survey website. Just be informed that taking part in this study is voluntary and you may opt to leave the study at any time without any consequences.

I consider your potential contribution to be very significant and valuable to this research, please be assured that any information you give during interviews will be conducted in a private setting. The questionnaires will be kept in a locked cabinet for safe keeping and the information provided will be kept private.

Thank you.

Yours sincerely,

Appendix D: Frequency and Percentage Summaries of Responses on Work-Family

Conflict

	<i>n</i>	<i>%</i>
The demands of my work interfere with my home family life.		
Strongly disagree	3	3.9
Moderately disagree	2	2.6
Slightly disagree	1	1.3
Neither disagree nor agree	7	9.2
Slightly agree	11	14.5
Moderately agree	25	32.9
Strongly agree	27	35.5
N/A	3	3.9
The amount of time my job takes up makes it difficult to fulfil family responsibilities.		
Strongly disagree	3	3.9
Moderately disagree	3	3.9
Slightly disagree	3	3.9
Neither disagree nor agree	13	17.1
Slightly agree	20	26.3
Moderately agree	20	26.3
Strongly agree	14	18.4
Things I want to do at home do not get done because of the demands my job puts on me.		
Strongly disagree	2	2.6
Moderately disagree	6	7.9
Slightly disagree	7	9.2
Neither disagree nor agree	12	15.8
Slightly agree	18	23.7
Moderately agree	19	25.0
Strongly agree	11	14.5
Missing	1	1.3
My job produces strain that makes it difficult to make changes to my plans for family activities.		
Strongly disagree	2	2.6
Moderately disagree	7	9.2
Slightly disagree	4	5.3
Neither disagree nor agree	7	9.2

		131
Slightly agree	12	15.8
Moderately agree	26	34.2
Strongly agree	18	23.7
Due to work-related duties, I have to make changes to my plans for family Activities		
Strongly disagree	5	6.6
Moderately disagree	4	5.3
Slightly disagree	2	2.6
Neither disagree nor agree	6	7.9
Slightly agree	14	18.4
Moderately agree	24	31.6
Strongly agree	21	27.6

Appendix E: Frequency and Percentage Summaries of Responses on Family-Work

Conflict

	<i>n</i>	<i>%</i>
The demands of my family or spouse/partner interfere with work-related activities		
Strongly disagree	11	14.5
Moderately disagree	13	17.1
Slightly disagree	6	7.9
Neither disagree nor agree	12	15.8
Slightly agree	13	17.1
Moderately agree	14	18.4
Strongly agree	7	9.2
I have to put off doing things at work because of demands on my time at home		
Strongly disagree	24	31.6
Moderately disagree	15	19.7
Slightly disagree	8	10.5
Neither disagree nor agree	13	17.1
Slightly agree	6	7.9
Moderately agree	6	7.9
Strongly agree	4	5.3
Things I want to do at work don't get done because of the demands of my family or spouse/partner		
Strongly disagree	29	38.2
Moderately disagree	17	22.4
Slightly disagree	11	14.5
Neither disagree nor agree	6	7.9
Slightly agree	5	6.6
Moderately agree	3	3.9
Strongly agree	5	6.6
My home life interferes with my responsibilities such as getting to work on time, accomplishing daily tasks, and working overtime.		
Strongly disagree	29	38.2
Moderately disagree	19	25.0
Slightly disagree	8	10.5
Neither disagree nor agree	7	9.2
Slightly agree	3	3.9

	133	
Moderately agree	7	9.2
Strongly agree	3	3.9
Family-related strain interferes with my ability to perform job-related duties		
Strongly disagree	28	36.8
Moderately disagree	15	19.7
Slightly disagree	7	9.2
Neither disagree nor agree	10	13.2
Slightly agree	8	10.5
Moderately agree	5	6.6
Strongly agree	3	3.9
