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Law Enforcement Fitness Policies in Relation to Job Injuries and Absenteeism

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Abstract

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Marlana L. Hancock

MA, Sam Houston State University, 1997

BA, University of Northern Iowa, 1994

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

After employment, job-related fitness requirements vary for law enforcement agencies within North Carolina. Police academies mandate specific job-related fitness requirements for recruits as a condition of graduation. Once employed, little is known about why some law enforcement agencies in North Carolina have physical fitness policies and others do not, particularly when injury rates and healthcare costs continue to rise. To better understand this inconsistency, the current study used a mixed methods approach to examine 6 midsized law enforcement agencies in North Carolina with varying fitness policies. The policy of each agency, along with OSHA work-related injuries and absenteeism reports, were examined quantitatively to determine if a relationship existed between policy and injuries and absenteeism. Analysis of variance (ANOVA) and post-hoc tests found a greater statistical significance between policy levels and injury rates than between policy level and absenteeism rates. An interview with agency personnel qualitatively identified common themed responses to determine whether the utility function of rational choice theory explained fitness policy implementation. It was difficult to determine whether the utilitarian component was the reason behind policy decisions, but data-driven results seemed to serve as an agent of fitness policy decision making. The results contributed to the limited academic literature on this topic although further research recommendations were made. The findings advocate for better officer health and fitness standards to reduce the risk of on-the-job injuries and absenteeism, and reduce health care costs to all involved.

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Dedication

This study is dedicated to the men and women in blue who put their lives on the line every time they put on the uniform. My prayer is that you stay healthy and steadfast to serve your community with integrity and honor. And to my beloved Ken, I will love you always…

Acknowledgments

Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths (Prov. 3: 5-6, KJV). Much has been done, but there is also much to do. A sincere thank you is not enough for those who have encouraged and helped me along this path, my mom and my dad, sisters Cindy, Debbie, Pam, and Mandy. Manders, you are my inspiration. Dr. Nancy McCurry, you gave me the courage to continue my education and in your retirement, you will be deeply missed. My co-worker and boss, Neil Weatherly, thank you for your understanding and flexibility in allowing me to occasionally use work time for school obligations. And Pastor Shook, thank you for being a blessing in my life.

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Last, but certainly not least, thank you so much to the law enforcement agencies who agreed to participate in my study. The time and resources that were asked of you will be remembered and is much appreciated. I hope your worthy contributions have been demonstrated in this research.

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Chapter 1: Introduction to the Study

A police officer is faced with daily unknowns on the job, which can be both physically and psychologically demanding (Guffey, Larson, & Lasley, 2014). It seems fitting that a law enforcement agency would require officers to maintain a certain standard of fitness or wellness to secure their safety and well-being as well as to benefit the agency, as a healthier lifestyle encourages fewer missed days of work and lower health care costs. However, this does not seem to be common practice among law enforcement agencies in North Carolina. Though fitness requirements for police academy cadets are mandated by state training and standard boards, not all agencies mandate fitness as a condition of continued employment. This creates a misunderstanding as to why consistency does not exist beyond academy training and what factors contribute to specific fitness policy decision-making at the agency level. This research examines (a) why state-mandated physical fitness standards for police academy cadets are used at some law enforcement agencies but not others as a condition of employment and (b) whether more stringent fitness policies contribute to reduced job-related injuries and absenteeism rates. If there is a significant relationship between certain fitness policies and work-related injury rates and absenteeism, then future research might address this issue and support efforts to improve officer health and lower agency costs due to officer injuries and absenteeism.

Background of the Study

There is little debate that the job demands of first responders (including law enforcement) place stress on and affect a body's efficiency. Physical and psychological stress go hand in hand and the effects can include lower back pain and heart disease

(Armstrong, Clare, & Plecas, 2014; Heneweer, Picavet, Staes, Kiers, & Vanhees, 2012). These job demands stress the importance of officers maintaining optimal cardiovascular endurance in order to reduce the risk of injury on the job. Given that officers must physically deal with individuals and equipment while on the job, it is not shocking that they maintain a higher heart rate compared to the general public (Armstrong et al., 2014). Over a career, exposure to these demands along with shiftwork can affect an officer's fitness for duty, especially for officers who have 20 or more years of experience (Wirtz & Nachreiner, 2012). Thus, although physical activity is known to benefit general health and promote prevention of injuries, many law enforcement agencies do not require certain fitness standards as a condition of employment. This is the case even though the North Carolina training and standards board continues to research and update task analysis standards for its police academies.

In 2015, the North Carolina Department of Justice concluded a study to update its Police Officer Physical Abilities Test (POPAT) from years past. The completion of the POPAT within a certain time limit is required of all North Carolina police academy cadets. The test is made up of various physical tasks that are designed to mirror real situations that patrol officers might encounter on the job. Its purpose is to differentiate between those who can and cannot perform the physical functions of a police officer's job at an adequate level of proficiency (North Carolina Justice Academy [NCJA], n.d.). Ensuring that people are physically fit for work by matching capabilities with physical job requirements is an important step toward reducing injury and absence rates (Rayson, 2000). A cadet's successful completion of POPAT means passing the basic law enforcement training academy. Unsuccessful completion means failing the entire

academy. Nevertheless, the question is this: If the state deems certain physical tasks necessary to perform the job in the police academy setting, why are many law enforcement agencies not requiring similar standards for officers working in the field?

Plat, Frings-Dresen, and Sluiter (2011) recommended using early intervention to promote a healthy lifestyle, which can reduce the risk of future injuries. In their study, emergency medical services (EMS), fire, and military personnel were examined; however, similar effects would be expected among police officers. Even though prevention would seem beneficial no matter the occupation, this needs to be explored further.

Guffey et al. (2014) did not find a direct correlation between officer fitness and injuries specifically but did find a correlation between officer weight and injuries after efforts were made by several departments to improve officer wellness. This cannot be discounted because weight can be a contributing factor to overall wellness and fitness. Perhaps weight needs to be considered in hypothesizing that more stringent fitness policies lower work-related injury and absenteeism rates.

One way to promote work injury prevention is to educate personnel and use resources already in place. For example, North Carolina legislation provides for a full public health mandate, which includes injury prevention. This responsibility lies within the North Carolina Health and Human Services Department. To promote health and fitness, funding could be available for injury prevention programs (Stier, Thombley, Kohn, & Jesada, 2012) within a number of occupations. This is an important issue that should be addressed within law enforcement management to determine, first, if agencies are aware of these resources, and second, if there is interest in using these state resources

to assist with fitness policy implementation. If supported by decision makers, available funding might justify routine health screening as a prevention tool. Making agencies aware of these available resources could enhance a positive management system that strengthens an agency's commitment (Dick, 2011) to fitness. In this study, management support of fitness policies (or lack thereof) was examined to determine commitment to officer fitness. Theoretical application determined whether agency incentives for fitness improvement came from leadership, and if so, whether this influence was present in policy. Leadership management is an important component to consider when examining the policies of an agency (Schulhofer, Tyler, & Huq, 2011).

Problem Statement

Law enforcement personnel have an increased risk for cardiovascular disease and other health issues due to the common shiftwork involved and the unknown demands of the job (Armstrong et al., 2014; Wright, Barbosa-Leiker, & Hoekstra, 2011). This type of work environment can lead to an increased risk of injuries if officers are not appropriately prepared to the best of their abilities. Injuries can be reduced through such prevention approaches as improved physical activity (Heneweer et al., 2012). The importance of a healthy lifestyle has been emphasized in a plethora of research (Means, Lowry, & Hoffman, 2011b). It is also known that officers are at a higher risk for injury than the average person simply because of their profession. These factors justify the action of an agency to require officers to maintain an optimal health level, especially given that medical expenses and lost productivity in the workplace total more than $400 billion in the United States each year (Stier et al., 2012). Law enforcement is one of the industries included in those figures.

Law enforcement agencies in North Carolina define and determine their own standard operating procedures (SOPs), including fitness requirements. An agency can elect to set standards as a condition of employment as long as each standard is justified by the job requirements (Department of Labor, n.d.). Unfortunately, little is known about why some law enforcement agencies in North Carolina do and some do not have fitness standards, given the support that fitness has in research. It is not known whether having a physical fitness policy in place directly relates to job injuries and absenteeism rates. Using a sample of law enforcement agencies, the current research examined which factors contributed to implemented agency policy and determined whether the use of a fitness policy directly related to injury and absenteeism rates within an agency. Additionally, I sought to determine the following: If there was a relationship, did lost productivity, in part or whole, contribute to unfit officers getting injured?

Purpose of the Study

This mixed methods study was conducted for the purpose of testing the utility function component of rational choice theory to determine if it explained fitness policy implementation and determined whether policy affected reported work-related injuries and absenteeism among North Carolina law enforcement agencies. The quantitative portion of the study examined the independent variable *policy* (defined as the presence or absence of an agency's fitness policy) over a 5-year period. The dependent variables *injuries* and *absences* consisted of the total number of work-related injuries and absences reported each year at an agency. The control variable, *progressive policy*, was defined according to an agency's increased fitness requirements over a 5-year period.

Research Questions and Hypotheses

Three questions guided this research:

RQ1. What relationship, if any, exists between a North Carolina law enforcement agency's fitness policy and work-related injuries and absenteeism?

H_0: No significant relationship exists between the stringency of fitness policy and job-related injuries and absenteeism.

H_1: The more stringent a fitness policy is, the lower the job-related injuries and absenteeism.

RQ2. When research emphasizes the benefits of maintaining a certain fitness level, particularly for first responders, does the utility function within rational choice theory explain why some North Carolina law enforcement agencies mandate physical fitness requirements for officers and others do not?

H_0: Based on the utility function, rational choice theory does not explain why an agency has the current fitness policy in place.

H_1: Rational choice theory presumes that policy decision-making is representative of a utility function and does explain why agencies have any or more stringent fitness policies in place.

RQ3. Are data-driven results of injury or absenteeism an agent or constraint as they pertain to the present fitness policy?

H_0: Injuries and/or absenteeism rates are neither an agent nor a constraint of the current fitness policy.

H_1: Injuries and/or absenteeism rates are either an agent or a constraint of the current fitness policy.

Theoretical Framework

As applied to public policy, rational choice theory contends that individuals interact through a social process and these interactions ultimately achieve organizational decision-making. Therefore, individual actions can affect the outcomes of policymaking (Green, 2002; Jones, Boushey, & Workman, 2006). As rational choice theory is specifically applied to this study, it would be expected that fitness policy implementation is influenced by the decision-making process. To test this, managers and administrators from the sample of law enforcement agencies were questioned about their fitness policies over the last 5 years and were asked about the rationale for the policy, such as whether any incentives or consequences were tied to policies. The issue of what affects agency fitness policy was explored, including circumstances such as politics, budget, data-driven results, and personal decisions. Rational choice theory is explored further in Chapter 2. The results found will be shared with all involved organizations and may influence or impact agency policy concerning officer fitness standards, either presently or in the future (Lunenburg, 2011; Royle & Hall, 2012).

Definitions of Terms

For this study, the following terms are used or referenced:

Basic Law Enforcement Training (BLET): A North Carolina state-mandated 616-hour (minimum) training course composed of 36 separate blocks of instruction and practical exercises, concluding with a comprehensive written exam and skills testing. It prepares individuals with entry-level skills needed to become certified law enforcement

officers in the state (North Carolina Department of Justice, 2015). It is also referred to as the "police academy."

Law enforcement: Individuals and agencies responsible for enforcing state and local laws in the course of maintaining public order and safety (Bureau of Justice Statistics, 2016).

Physical fitness: "The ability to meet life's daily demands, without undue fatigue, while maintaining sufficient energy or leisure time pursuits and to overcome emergency situations that may arise personally and professionally" (Commission on Accreditation for Law Enforcement Agencies [CALEA], 2010).

Police administration: Police officers whose role is to manage and supervise police agencies.

Police officer: Uniformed, sworn officers assigned to the patrol function of policing.

Police Officer Physical Abilities Test (POPAT): Scientifically-tested series of tasks designed to assess important physical abilities necessary for effective job performance as a police officer, developed to mirror real-life situations that officers might encounter on the job (North Carolina Department of Justice, 2015).

Nature of Study

A purposive sample consisting of six North Carolina midsized law enforcement agencies in the Piedmont Triad region (see Appendices A and B) was chosen to participate in the study. Two agencies from each of the following categories were sought: (a) those with no mandated/voluntary fitness policy over the last 5 years, (b) those with a progressive or changed fitness policy over the last 5 years, and (c) those with

a continued mandated fitness policy over the last 5 years. The search for agencies that fit these criteria began by using U.S. Census Bureau data to identify midsized populations in the North Carolina Piedmont Triad region. Using a quasi-experimental design, the sample of six was placed into nonrandomly assigned groups (independent, nominal variables). The number of work days missed in each of the years 2011-2015 due to work-related injuries served as the dependent, ratio-level variable.

Upon written agency permission and a guarantee of anonymity, agency administrators were asked to participate in a brief interview to answer a short, open-ended questionnaire inquiring about fitness policy implementation as it pertained to decision-making within the agency. The intent was to help determine what influences and affects these policy decisions within the agency. Descriptive statistics were used for each variable, and ANOVA and post-hoc tests were used to identify any significant relationships between the independent and dependent variables. *Progressive policy* was used as a control variable in an attempt to lessen the cause and effect order. An advisory committee was used to both construct questionnaire content and review the research process and purpose.

Permission was also secured to examine each agency's fitness policy and Occupational Safety and Health Administration (OSHA) 300A summary reports of work-related injuries and absences from the years 2011-2015. It was assumed that both fitness policies and injury reports were internally valid and therefore measured what they were supposed to. To ensure external validity prior to analysis, a collaborative effort between the researcher and agency administrator was used to review these documents to verify

that what was reported represented an accurate portrayal of information. This included a review of fitness policies, OSHA documents, and completed questionnaires.

Assumptions, Limitations, Delimitations

It was assumed for this study that the participating agencies would answer interview questions honestly and provide current, accurate policy and OSHA data. In order to support this premise, questionnaires were provided in advance and question responses as well as OSHA forms were reviewed with each agency for accuracy. Any research presents potential validity and reliability issues; this study was not an exception. The stringency level of an agency's fitness policy served as a control variable; the stringency level was used to determine whether the absence or the presence of a mandate was a reliable measure of work absenteeism. It is important in research that any instrument used measures what is intended; therefore, instruments in this study were analyzed for validity to determine if the content being measured was accurate (Frankfort-Nachmias & Nachmias, 2008).

To maintain internal validity, all distributed questionnaires consisted of the same questions pertaining to fitness policy standards and absenteeism rates over the same 5-year period. For consistency purposes, an average standardized absentee rate was calculated per agency to allow cross comparisons. To establish questionnaire tool validity and reliability, a criminal justice advisory board (made up of local agency representatives) was presented with preliminary questions and solicited for feedback prior to questionnaire distribution.

Research integrity was promoted and any misconduct was avoided, as such actions reflect an organization or institution (Creswell, 2013). Data collection and

participant anonymity, privacy, and confidentiality all needed to be protected, as this helped to ensure my trustworthiness as a researcher. Data analyses and discussion were presented in neutral language and at the appropriate level for audience understanding (Creswell, 2013). The Academy of Criminal Justice Sciences (ACJS) code of ethics guided the conduct of this research. Although the steps I took did not eliminate researcher bias, they helped to reduce it. Applying reflexivity within qualitative research implies that a researcher is upfront regarding his or her background, and that any interpretation and gains that might come from the study will be fully acknowledged (Creswell, 2013). To help eliminate additional bias, a written transcription of all responses was provided to each interviewee for review of accuracy. This step was pertinent because researchers have an obligation to monitor and report as fully and truthfully as possible all procedures that were used in a study (Patton, 2002).

Also important to researchers is awareness of potential ecological and individual fallacies in a study (Frankfort-Nachmias & Nachmias, 2008). It should be emphasized that an agency's lack of enforcement of a fitness standard does not imply that officers cannot or do not take individual responsibility for their own duty fitness. It also cannot be inferred that the presence of high absentee or injury rates reflects poor officer or agency performance.

A final limitation of this study was that a sample of six agencies was used. Using such a small sample limited the detection of large differences and did not allow for the generalization of results found, either within or outside the state. However, findings help to address the research questions presented and contribute to what little is known about the relationship between fitness policies and work-related injuries and absenteeism within

law enforcement in North Carolina. The results add to the knowledge of how policies are derived.

Significance of Study

A thorough search of the literature on officer fitness and injuries found very limited studies specifically comparing physical fitness policies to job injuries nationwide or in North Carolina. Every industry is required by OSHA to document and report work-related injuries. Therefore, the results of this study add to the literature by addressing whether mandated fitness requirements are related to agency-documented OSHA injury rates within the law enforcement profession. This study also contributes to the gap in field research because, although fitness is encouraged, little is being done to improve officer health as work-related-injury costs continue to rise. More specifically, research at the state level is lacking on whether fitness policies even influence the number of injuries reported among North Carolina law enforcement agencies, and what the rationale is for current policies. By addressing these issues, the study contributes to law enforcement field knowledge and any significance between fitness policies and work-related injuries and absenteeism. The significance between policy and injury rates found within the study demonstrates the need for widespread participation in wellness initiatives. This could not only improve individual officer health, but also better equip officers to perform their duties with a reduced likelihood of getting hurt. Simply put, being more fit could increase the chance of officers going home injury free at the end of each shift.

Ensuring that officers are safely and physically able to fulfill their required duties should be not only a personal officer responsibility but also a concern for each agency. Current policies may be sufficient, and there may be no relationship between work

injuries or absences, but this is understudied in North Carolina. However, because one may affect the other, and wellness, along with increased job performance and cost savings prevails, everyone involved wins. Rejecting the null hypothesis of the current statistical analyses can provide a base for positive fitness policy changes within law enforcement, thereby sustaining the importance of fitness for officers beyond academy training. Results provide an opportunity for agencies to promote fitness and wellness as a means to improve officer health and reduce injuries and absenteeism. This could benefit officers, lower agency health costs, and lower overall health insurance provider costs.

Social Change

A police officer's job is not routine; it is never the same from day to day. It is difficult to predict what officers will need to do to protect themselves and the public. Therefore, officers should train and be prepared to respond to the unpredictable. This can be done through the use of combined physical and psychological exercises as provided in police academy training. Training includes intense encounters, development of survival instincts, and exercises to build strength and power endurance. These tactics should be included in regularly scheduled in-service events (Zagaria, 2007) because many officers do not continue fitness training beyond the academy, and physical training often trails off if an agency does not either promote or mandate fitness-level standards. Examining agencies that both do and do not institute fitness policies in North Carolina, I sought to bring attention to policy discrepancies at a state level. This study represented an opportunity to raise awareness of possible fitness–injury correlations and informs agencies of available resources they might not be aware of, such as health and injury prevention programs and potential funding for these programs.

Ultimately, a significant relationship between policy and injury and absenteeism rates provides a springboard to advocate for better health and fitness among officers in the state. Sharing results could also increase awareness of officer health and safety benefits as they pertain to the law enforcement job, meaning providing the necessary tools to promote officer wellness (Office of Community Oriented Policing Services, 2015) and decrease injury risks. In turn, better wellness increases both officer health/wellness and public service efficiency.

Summary

This research was conducted to examine fitness policies and OSHA injury reports among six North Carolina law enforcement agencies over a 5-year period. Using a quantitative analysis, I sought to determine whether a significant relationship existed between these variables. Analyses rejected the null hypothesis, and a certain category of policies related to fewer injuries and absences; thus, findings supported the promotion of physical fitness policies for police officers beyond the police academy.

Additional analysis through qualitative examination of questionnaire responses from police administrators determined whether rational choice theory supports policy decision-making, focusing on the utility function. Responses helped in determining which factors contributed to policy decision-making and whether decisions were based on personal preferences, political influence, or other circumstances, or whether decisions were based on a representation of larger objectives. Chapter 2 explores the variety of studies I found that were related to this topic.

Chapter 2: Literature Review

Introduction

A generally sedentary population is at a greater risk of coronary disease than those who are more active. The same stands true for those who have more physically demanding jobs; their risk for heart attack and absenteeism is lower (Donoghue, 1977). Police work can be physically demanding as well as stressful and dangerous (Zimmerman, 2012). As patrol officers answer calls for service, they never know what will happen next, or what abilities or skills might be required of them at any given time. Therefore, suffering injury or worse is always a possibility. Law enforcement has one of the highest rates of injuries and illnesses among occupations (Bureau of Labor Statistics [BLS], 2014) and has greater mortality and morbidity rates than the general public (FitForce, Inc., 2010; Quigley, 2008; Smith & Tooker, 2011; Wright et al., 2011). Research has shown that improved endurance performance makes the body less susceptible to fatigue and a person less likely to commit errors (Donoghue, 1977). Various factors work into this equation, but one specifically, officer fitness, is the focus of this discussion. Though the police academy helps cadets prepare for entry into the law enforcement workplace, the rest of the preparation and experience depends on the officer and the hiring agency. The agency sets the tone for what is deemed acceptable and important. Sometimes certain health and fitness levels are required, or at least encouraged throughout an officer's career, but among North Carolina law enforcement agencies, this general policy seems to be more the exception than the rule, which in part was what this research set out to discover.

Health and fitness among those in law enforcement is declining. *Health* is considered "a state of complete physical, mental, and emotional well-being" (Smith & Tooker, 2011, p. 3). The consequences of not being healthy include vulnerability to on-duty illness and injury, and increased exposure to liability (FitForce, Inc., 2010; Pronk, 2015). However, does being in better health or better shape necessarily contribute to fewer work-related injuries for police officers? Interventions offered to improve physical job performance have shown diverse results (Plat et al., 2011). Therefore, the literature was explored further to address whether better officer fitness is related to fewer job injuries or less absenteeism.

Having physically fit police officers has benefits. Fit officers tend to use less time off because of injury or illness and tend to be less stressed (Bissett, Bissett, & Snell, 2012; Quigley, 2008). *Physical fitness*, as defined by the Commission on Accreditation for Law Enforcement Agencies (CALEA, 2010), is "the ability to meet life's daily demands, without undue fatigue, while maintaining sufficient energy or leisure time pursuits and to overcome emergency situations that may arise personally and professionally" (Smith & Tooker, 2011, p. 2). Yet who decides which fitness standards to implement and why is unclear. Whether the decision is personal, administrative, or political is known only by the agency. Other factors such as personnel, resources, and funding might contribute to policy decision-making. As funding for public safety decreases (Bueermann, 2012), it is important that agencies be able to do more with less. Doing more includes informing decision makers about using the best strategies with the most desirable outcomes.

Police academies instill physical fitness training and testing as a condition of graduation. Adequately preparing cadets at the police academy adds value to their future performance (Caro, 2011), as both strength training and cardiovascular exercise have rewards and can improve individuals' quality of life in many ways (Williams, 2002). However, most departmental policies do not require that officers maintain that fitness and then leaders wonder why officers have high stress levels and suffer from various health conditions at a higher rate than the general public (Williams, 2002). Physical activity is an integral part of healthy living (Pronk, 2009), as it helps to prevent heart disease and assists with weight control, thus protecting the body from injury (Quigley, 2008). Physical tasks required of police officers are similar worldwide. Some studies have found that certain physical agility tests are not strongly related to actual job requirements (Bissett et al., 2012; Bonneau & Brown, 1995). It seems evident that policing requires strength and endurance, in that officers are engaged in physical challenges regularly (Guffey et al., 2014). Because policing is a profession whose members experience a high level of job-related stress (Hartley, Burchfiel, Fekedulegn, Andrew, & Violanti, 2011), it seems that police officers who maintain their fitness are better able to cope with job stress and are better prepared for critical incidents than their peers who do not (Ebling, 2002). Thus, given all the benefits a fit lifestyle can bring, one might wonder why many officers are still unfit for the job (Williams, 2002).

Searching the Literature

A comprehensive review of the literature was conducted using several databases and search engines. Sources were obtained from Walden University's library using ProQuest Criminal Justice, EBSCO, and other databases. Google Scholar was also used

to search and obtain peer-reviewed and topic-pertinent information. Key words were used in three main categorical searches for peer-reviewed articles. First, *police, law enforcement,* and *cops* were used interchangeably as 'OR' Boolean factors. Then *fitness, wellness,* and *health* were used as 'OR' Boolean factors. Finally, *policies, injuries,* and *absenteeism* were included. *Rational choice theory* was also searched in the various databases. These key words resulted in multiple returns, which were then examined for relevancy according to the topic at hand. The main focus was on recent literature within the last 5 years; however, other later sources were also used if it was determined that the content had relevance to this study. Electronic sources such as the BLS, OSHA, U.S. Department of Health and Human Services, and U.S. Equal Employment Opportunity Commission were used to find the most up-to-date information on health and work-related injuries.

From the literature obtained and reviewed, the following themes for discussion emerged: (a) the physical demands of law enforcement, (b) work-related injuries, (c) physical fitness policies in law enforcement, (d) the legalities of fitness standards, (e) physical fitness testing, (f) the POPAT, (g) the impact of *fit*ness for duty, (h) fitness resources for the workplace, (i) leadership in law enforcement, and (j) rational choice theory.

Physical Demands of Law Enforcement

Emergency service professionals are exposed to hazards that are inherent in the job (Plat et al., 2011). The physical demands placed on law enforcement officers specifically have been documented to include such activities as apprehending suspects, foot pursuit, and even firing a weapon (Anderson, Plecas, & Segger, 2001; Brown,

Tandy, Wulf, & Young, 2013; Zimmerman, 2012). These demands include being able to apprehend and restrain individuals. In over 75% of police apprehensions, suspect resistance is moderate to strong, and the average amount of time to subdue a subject varies between 30 seconds and 2 minutes (Quigley, 2008). Such tasks require effort, which can be physically challenging (Anderson et al., 2001).

When police officers encounter high-risk situations, certain physiological patterns can be predicted and measured. Armstrong et al. (2014) documented that an officer's average heart rate throughout a shift was 22 beats a minute above an average resting heart rate. As officers encountered simulated use of force, their heart rates increased an average of 40 beats per minute. This demonstrates extra stress placed on the heart, which affects an officer both psychologically and physically (McCraty & Atkinson, 2012).

Even though police officer work patterns are characterized mainly by relatively long periods of low-level activity, occasionally, short periods of high-intensity activity are needed. To safely and effectively perform police functions, it is necessary to maintain a certain amount of physical fitness throughout one's career. Though much of the job can be executed independent of physical fitness, some tasks will require certain levels of physical fitness. However, how fit officers need to be and what factors can be used to predict successful performance are debatable (Collingwood, Hoffman, & Smith, 2004; Dillern, Jenssen, Lagestad, Nygard, & Ingebrigtsen, 2014). Ensuring that those in public safety are physically ready for their jobs can aid officers in performing their duties more safely. This effort can be enhanced by stressing positive lifestyle habits, as these habits help decrease health risks, improve quality of life, and assist agencies in reducing their liability by controlling risks and associated costs (FitForce, Inc., 2010).

A police department should ensure safe working practices, especially given that their officers face potentially violent situations (Bissett et al., 2012; Bonneau & Brown, 1995; Brown et al., 2013; "Fitness Tests Will Help Police," 2012). For example, arrests are commonplace among police officers, and research suggests that higher fitness levels affect arrest encounters positively. Because the physical task most frequently demanded of officers is arrest, upholding some level of fitness is important (Dillern et al., 2014). Anderson et al. (2001) collected data observations that justify certain occupational requirements for police work. These observations included officers having to physically control suspects. Testing of physical abilities include tasks wherein officers have to get to a problem, control the problem, and remove the problem through appropriate simulated measures. Such observations, along with self-report surveys, can be accurately measured and tested (Anderson et al., 2001).

The last several decades have demonstrated much change in police work, such as the encouragement of alternative methods of dispute resolution and new computer and technology skills. Therefore, some have questioned whether physical abilities are still important for police officers (Bonneau & Brown, 1995). The fact remains, however, that there is nothing routine about police work, and it often requires short, intense encounters. Therefore, officers should train to condition their bodies to adapt and perform under various unpredictable conditions (Zagaria, 2007).

Police are subjected to both physical and psychological stress as they relate to the workplace (Phadke, Khan, Iqbal, & Ramakrishnan, 2014). Thus, another important component of officer fitness is psychological fitness for duty. Fitness-for-duty evaluations (FFDEs) can be and are used when situations exist wherein officers must be

psychologically ready for duty. The key object of this type of evaluation is to reduce an agency's liability (Fischler et al., 2011). Physical skills can be quite crucial when they are needed; they also have an important function from a psychological perspective for officers. Officers report that good physical skills can provide them with confidence as well as security when interacting with the public (Lagestad, 2012), therefore tying physical and psychological well-being to one another. However, it could be argued that the police job itself does not cause poor officer fitness and health; rather, a lack of agency fitness standards and programs is likely to blame (FitForce, Inc., 2010). This idea is explored later.

Work-Related Injuries

The Occupational Safety and Health (OSH) Act of 1970 requires certain employers to maintain work-related injury and illness records (Form 300) and note the extent and severity of each case. An injury or illness is considered work-related if an event or exposure in the work environment caused or contributed to the condition or significantly aggravated a preexisting condition (OSHA, n.d.). Trends show that recently, law enforcement has experienced a reduction in health and fitness in the United States, making officers even more prone to work-related injuries and illness (Quigley, 2008).

In fact, duty leave due to injury appears to be at a high rate among public safety workers, a large portion of whom are police officers (Violanti et al., 2013). Because police work can be physically demanding, stressful, and dangerous, officers have among the highest rates of injury and illness of all occupations (BLS, 2014). National accident, injury, and illness data show that 20% of an average police agency's workforce is

responsible for 80% of accident costs, suggesting that this small percentage of least-fit officers is responsible for a large majority of injuries (Quigley, 2008). The leading causes of work injuries for police officers are falls, trips/slips, and mental stress (Ferguson, Prenzler, Sarre, & de Caires, 2011). Lower fitness levels tend to be associated with an increase in injury risk (Orr, Stierli, Hinton, & Steele, 2013), but the impacts of increased levels of fitness are a little less clear (Pronk, 2015). In a study of Milwaukee police officers across a 13-year span, Brandl and Stroshine (2012) found that accidents accounted for the majority of lost time from work when medical attention was sought.

Physical Fitness Policies in Law Enforcement

There are limited sources that define or identify law enforcement agencies in North Carolina that have a fitness policy, and if so, to what level or extent. One recent study in the state found that among 145 police agencies, a significant association between fitness maintenance policies and officer injury existed (Fortenbery, 2016). However, to further explore specific policy requirements and reasons for implementation, each agency would have to be contacted to learn more about standing policies. Research has been conducted in other states that provide a better picture of fitness policy prevalence. For example, among 37 police departments in Michigan, only three (8%) had a policy regulating fitness standards or programs (Williams, 2002). Policies on fitness standards vary; sometimes they are vague, but other times they are quite specific, with noncompliance potentially leading to termination (Burlington Police Department [BPD], 2010; Farley, 2011). The intent of this study was to explore this issue further within the state of North Carolina.

Fitness is something for employers to contemplate because it is directly related to work performance, productivity, and health care costs, which are all factors to consider in operating an effective agency. It is important to the employee because it affects income, health, and other quality-of-life issues. If employers would indeed benefit from fit officers, they should promote fitness backed by supportive policy, adhering to both state and federal regulations (Pronk, 2015).

The Legalities of Fitness Standards

In a general sense, employers are responsible for protecting their employees against physical harm that may reasonably be expected to arise in employment. If the necessary duty of care is not exercised, employers can be at risk for litigation (Rayson, 2000). Yet if certain measures or tests are to be used, those standards need to be job-related. Fitness tests should define the physical abilities needed in police work both objectively and realistically (Anderson et al., 2001) while complying with laws prohibiting discrimination (U.S. EEOC, n.d.). Data need to back up any standards or tests that are used in order to demonstrate that such standards or tests are correlated to job performance. Such data are available and should be used to document certain components of fitness such as body composition, cardiovascular endurance, anaerobic power, flexibility, strength, and agility in relation to the job (Collingwood et al., 2004; FitForce, Inc., 2010; Smith & Tooker, 2011). Ensuring that tasks are relevant to the industry assists in designing specific occupational standards that help to keep officers prepared to meet their job demands and avoid injury (McGill et al., 2013).

Several factors can hamper an employer's use of physical fitness tests because of disputes over the standards used; however, testing is necessary in this work environment

(Adams et al., 2014). One thing that an employer needs to take into consideration is Title VII of the Civil Rights Acts of 1964 and 1991. Title VII states, "it shall be an unlawful employment practice for an employer … to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, or national origin." This includes discrimination in relation to any aspect of employment, including certain terms and conditions of employment (U.S. EEOC, n.d.). An agency cannot have different fitness standards for men and women if they are doing the same job because this can have a legal effect of invalidating the standards (Means et al., 2011b). If an agency is to terminate police officers based on specific agency fitness standards, the legality of this matter depends on how the court interprets Title VII (Guffey et al., 2014).

Courts are increasingly scrutinizing departmental physical agility requirements, particularly if entry-level officers and incumbent officers are held to different standards; however, health-based standards are more likely to be upheld, as they focus on general fitness assessments (Bissett et al., 2012). The Americans with Disabilities Act (ADA) of 1990 also needs to be considered when making physical or medical inquiries of incumbent employees. If such inquiries are made, they need to be based on objective reasoning (Fischler et al., 2011). In *Tennessee v. Garner* (1985), police use of deadly force to apprehend fleeing felons was restricted. This ruling had an implication that officers should be adequately fit to both pursue and subdue suspects without having to depend on deadly force. A similar ruling in *Parker v. District of Columbia* (1988) found that an unfit officer was unable to affect an arrest and so resorted to the use of deadly

force. Based on these rulings, administrators should consider adequate monitoring of officer fitness levels.

Proper medical and health screenings can help reduce litigation risk (Lee & Mallory, 2004). Employers need to adhere to all regulations that protect the health and safety of its workers (Pronk, 2015). If departments hire officers who possess sub-standard strength and ability skills, they could be held liable as it is the employer's responsibility to demonstrate that the physical standards required are based on essential elements of the job, and that the performance demanded is reasonable (Bissett et al., 2012; Bonneau & Brown, 1995).

Physical Fitness Testing

A consensus says that law enforcement officers should maintain at least some level of physical fitness, but what that level is varies according to who one asks, and how should this be assessed? (Means, Lowry, & Hoffman, 2011a). Recruit training is designed to prepare officers for duty, and so includes tasks that relate to daily police work (Orr et al., 2013). Across the state of North Carolina, law enforcement training academies include a standard fitness component as part of training. Research recommends that academy curricula be based on needs-assessment as well as job-task analysis using the most practical approach to testing content (Bonneau & Brown, 1995; Caro, 2011; Plat et al., 2011). Personal and team accomplishments are usually stressed because it is important for both personal well-being and survival in a profession that comes with high levels of stress and danger (Ebling, 2002). Police officers are taught in ways that correlate to the type of work they do (Zagaria, 2007) but sometimes contrary to what are found once in a place of employment.

Fitness testing in theory is a way to motivate police personnel to maintain a fitness level to promote job readiness (Adams et al., 2014). However, standards first need to be established, and justified as to their significance. Several fitness activities have been identified as commonly being used in police work. These include running, jumping, lifting, carrying, and dragging to name a few. It is critical that testing assesses all physical abilities that are required of the job, or what Bonneau and Brown (1995) refer to as *occupational fitness*. While officers may utilize aerobic endurance on duty, research suggests that physiological demands may also be anaerobic in nature (Orr et al., 2013). Fitness can be measured using various physiological standards, from oxygen consumption to physical strength (Bonneau & Brown, 1995).

It is recommended that fitness assessments are conducted to determine and record officers' fitness levels. Scores can then be compared to norms and standards (Cooper Institute, 2014) and should be evaluated on up-to-date standards (Schulze, 2012). Cooper Institute standards are used by many agencies, as well as academy fitness training. The Cooper Institute is renowned for its history, research, and publication in ability/agility testing. Often a 50^{th} percentile is used as a fitness benchmark (Bissett et al., 2012), as minimum fitness standards are directly related to adequate job performance (Pronk, 2015) because higher injury risk was associated with factors such as older age, slower run times, and lower self-rated physical activity (including aerobic exercise) (Knapik et al., 2011).

There is no 'one size fits all' when it comes to required fitness standards for officers. Individual departments need to consider the job demands and the working environment. There is some debate about whether the programs should be voluntary.

Bissett et al. (2012) do not believe that voluntary programs are going to be enough. Williams (2002) agrees and emphasizes that without a policy, even resources provided often go unused without any kind of incentive behind it. That is why a policy would be most beneficial because it regulates fitness of individual officers. However, FitForce, Inc. (2010) would argue that a voluntary fitness/wellness program would be the most effective and cost effective approach. Another approach might be to use a worker's health surveillance (WHS) to detect health effects resulting from occupational exposure. A WHS can assist employees in safely and healthfully meeting job requirements. The goal is to periodically monitor employees and detect adverse health effects as early as possible so preventative measures can be taken (Plat et al., 2011). For these purposes, *wellness* is defined as "those purposeful actions taken to attain and maintain optimal health and fitness" (Smith & Tooker, 2011, p. 3).

To standardize a job-related test, one's ability to perform the physical demands of core police tasks needs to be examined (Strating, Bakker, Dijkstra, Lemmink, & Groothoff, 2010). Both construct and criterion validations are accepted as job-related standards. Criterion such as job descriptions and injury reports can be examined to identify these standards. And because job tasks are not often performed in isolation, utilizing sequence events makes them more real-world situations (Collingwood et al., 2002). Job simulations are often used in testing to measure multiple physical abilities. These types of tests are beneficial because they possess a higher content validity than simple, single ability tests. But, job simulations can only predict performance within its administered context (Courtright, McCormick, Postlethwaite, Reeves, & Mount, 2013). Collingwood et al. (2004) used multivariate regression to demonstrate validity as it

relates to fitness activities. Regression analysis indicated that a group of specific test items can be good predictors of job tasks, and multiple primary physical factors that they analyzed met these criterions. Data must support and demonstrate a correlation between fitness testing and any job criterion performance, thereby establishing continuity in standards. It is incumbent standards that are key to successful job-related testing (Means et al., 2011a).

One concern about testing is that some criteria used by law enforcement agencies are argued to be discriminatory, particularly against sex. Large male-female differences exist within certain physical abilities. Therefore, test validity needs to demonstrate and defend its use, or different performance measures for women and men need to be developed based on normed scores (Anderson et al., 2001; Bissett et al., 2012; Courtright et al., 2013). Yet caution is needed when using gendered tests because separate standards could reinforce biases when it comes to gender since standards tend to establish biological sex and not biologically determined physical ability (Schulze, 2012). But, Means et al. (2011b) argue that whatever levels of fitness are required to perform the essential minimum physical functions of the job, they are achievable by most, regardless of gender or age, with as little as three hours of training per week. Another concern is tests that are used for employment selection generally focus on entry-level skills and ability. But a disjunction seems to exist if certain physical abilities are deemed essential to the job, and incumbent officers are not expected to also maintain these abilities (Bissett et al., 2012). The challenging part is that no matter what the demographics are of the police officer, the fundamental tasks to be performed on the job are the same (Bonneau &

Brown, 1995), even though women and older persons tend to test lower or slower (Strating et al., 2010).

Fitness standards for law enforcement officers should be tested to ensure that both new and incumbent officers possess the physical abilities to perform necessary tasks of the job. Standards should be developed, and training programs should be provided so that all officers have the access to and knowledge of skills needed to maintain personal fitness throughout their career (Means et al., 2011a). Such tests are important because those who do not meet job-related demands tend to perform lower, have more injuries, and more absenteeism (Collingwood et al., 2004; Courtright et al., 2013), all which can equate to reduced resources available. Lower levels of physical activity have been associated with absenteeism in the workplace, therefore employers should implement programs that will promote healthy activity levels (Pronk, 2009; Steinhardt, Greenhow, & Stewart, 1991).

Even administrators have recognized the need not only for officer fitness, but for lasting fitness maintenance programs (Lee & Mallory, 2004). Perhaps mandatory standards are not necessarily the answer, but the solution could be mandatory *testing* (Panos, 2010).

Police Officer Physical Abilities Test (POPAT)

There are no national guidelines for physical fitness tests of police cadets, though most academies require some type of fitness standard (Schulze, 2012). In North Carolina, that standard is POPAT. The POPAT has been scientifically validated as being job specific, as it measures certain abilities that are required for general police duties (Anderson et al., 2001; North Carolina Department of Justice, 2015). In North Carolina,

for over 20 years, BLET students have been required to demonstrate job-related physical ability competencies as a condition of graduation. This test consists of a series of tasks that are designed to assess the physical abilities necessary to effectively perform the job of a police officer. The tasks were developed to mirror real situations that an officer might encounter on the job (North Carolina Department of Justice, 2015).

In 1998 the North Carolina Justice Academy (NCJA, 2000) POPAT subcommittee was specifically tasked with examining and evaluating various options as they related to the proposed POPAT. They were then to develop as well as deliver recommendations for using POPAT as a physical fitness measure (pass/fail) of the BLET program. In April of 2000, the committee agreed to adopt the POPAT report for several reasons. First, they felt such a test was reasonable, fair, and trainable. It was also deemed to be safe, practical, and consistent. The skills included in the POPAT were related to task analysis conducted in 1998 and the committee justified each of the following according to this task analysis. To be completed in seven minutes and twenty seconds (7:20) or less in duty belt and gear, cadets were to do the following:

1. Verbally recall street location
2. Exit police vehicle from seat belted position and run 200 yards
3. Pull a 150-pound person from vehicle and drag them 50 feet
4. Run up and down a five-step staircase three times
5. Push open and go through a 50-pound weighted door
6. Do 20 push-ups and twenty sit-ups
7. Run up and down a five-step staircase three times
8. Crawl through a 25-foot culvert

9. Do 20 push-ups and twenty sit-ups
10. Run 200 yards and return to vehicle
11. Drag a 150-pound person 50 feet
12. Verbally recall street names (NCJA, 2000).

The committee rationalized that the POPAT was reasonable and consisted of tasks that officers might perform while on duty. Officers need to be able to respond to multiple activities that include speed, agility, balance and stamina, and the POPAT was seen as a representation and combination of a variety of skills that may be required of an officer (NCJA, 2000). For example, the Burlington Police Department (2010) utilizes biannual POPAT testing of newly sworn officers as of January 2014. Collingwood et al. (2004) identified many of the same underlying and predictive fitness activities as they pertain to the POPAT. The primary factors identified include absolute upper-body strength (pushups), agility, anaerobic power (1.5 mile run), and anaerobic power (300-meter run). Their data indicates that certain physical activities can help determine a police officer's capability to perform essential tasks.

In 2008 another job analysis gave credence to altering the former POPAT test, which became effective for all BLET students starting in the fall of 2015. The scientific validation of the "new and improved" POPAT yielded a 95% confidence level. The test was designed to differentiate between individuals who can and cannot perform certain physical functions of a police officer's job at an identified adequate level of proficiency (North Carolina Department of Justice, 2015). The new test consists of two scenarios. Scenario 1 (chase and apprehension, to be completed in six minutes (6:00) or less wearing a ballistic vest), is as follows:

1. From a seated position, run 40 feet and back twice
2. Run 60 feet and return, with a 4-foot broad jump, 4 foot "fence" climb, and 2 feet high crawl obstacle in between
3. Roll a 100-pound dummy three times
4. Do 20 push-ups
5. Conduct another three-repetition dummy roll drill
6. Run 60 feet and return, with a 4-foot broad jump, 4 foot "fence" climb, and 2 feet high crawl obstacle in between
7. On step box, take 30 steps up and down
8. Conduct a three-repetition roll drill
9. Do 20 push-ups
10. Conduct a three-repetition roll drill (North Carolina Department of Justice, 2015).

Scenario 2 (rescue, to be completed in three minutes (3:00) or less wearing a ballistic vest), is as follows:

1. Run 50 feet and back twice
2. On step box, take 30 steps up and down
3. Run 50 feet and back twice
4. Drag a 175-pound dummy 25 feet and back (North Carolina Department of Justice, 2015).

Training programs should constantly be assessed to ensure they are both current and relevant. Violence is prevalent in the current environment and so training should be as realistic as possible. Officers should be provided with solid, research-based scenarios

that prepare them for an evolving and changing climate within which they work (Miller, 2015).

The Impact of *Fit*ness for Duty

Though police work tends to largely be sedentary (Ramey et al., 2014; Steinhardt et al., 1991) and not always physically demanding, when officers need to engage in physical agility, their fitness level may very well be a determining factor of the outcome (Brown et al., 2013). Shiftwork is often an inevitable circumstance of police work that can contribute to this issue. Wirtz and Nachreiner (2012) concluded that the exposure to shiftwork had a significant impact on fitness for duty, particularly after 20-22 years working in this environment. An effective fitness program can help counteract some of the adverse health impacts of sedentary and shift work (Pronk, 2015). The inability to maintain resilience can impair judgment and the ability to make decisions. Results can potentially lead to inappropriate application of force which can carry lasting consequences such as compromising public safety, injuries and even lawsuits (McCraty & Atkinson, 2012; Zimmerman, 2012) as discussed earlier.

An unfit officer increases the probability of injury both to him or herself and to others (Boyce, Hiatt, & Jones, 1992). Unfit officers can be a liability in several ways. First, officers may use excessive force to compensate for an inability to use physical restraints, or second, unfit officers may cause other officers to be injured because they are unable to render adequate assistance. This not only presents potential legal exposure for those officers, but vicarious liability can also be extended to that officer's agency (Guffey et al., 2014).

Improved physical ability profits both the officer and employer. Officers profit from increased job performance, reduced stress and better mental preparation. Agencies benefit in terms of fiscal responsibility and efficiency (Quigley, 2008). Employers are the ones who bear the financial consequences of reduced work productivity and increased medical spending, and therefore are likely to benefit from a healthier workforce. Investing in and providing both means and incentives would seem to gives an employer a return on their investment (van Dongen et al., 2011). Boyce, Jones, and Hiatt (1991) set out to investigate this relationship between physical fitness and work absences in police officers. But they found that the extent to which fitness predicts absenteeism is actually low. This is contrary to other and more up-to-date research, but does provide a valid focus to distinguish between absenteeism versus injuries.

Studies involving law enforcement officers indicate that more fit and active officers report 40-70% less absenteeism. This equates to a cost savings to the agency, therefore demonstrating that agency money spent on workplace fitness and wellness saves dollars as fit officers miss fewer work days (Smith, 2010; Smith & Tooker, 2011). These employees are also more highly productive (FitForce, Inc., 2010). Local and state governments across the United States are spending more money on policing than they did several decades ago. In a time where budget cuts are more likely than budget increases, a way to reduce some policing costs is to maximize productivity (Gascon & Foglesong, 2010). Unfit employees cost agencies lost days from work and increased insurance costs (Panos, 2010). Since a lack of fitness standards can be costly it leaves to wonder why departments do not set standards and provide training (Williams, 2002).

But, physical activity and fitness have a preventive effect on these factors (Sassen, Kok, Schaalma, Kiers, & Vanhees, 2010; Wright et al., 2011) which can have implications for the workplace. Therefore, the need to stay healthy requires both diet and exercise in order to maximize fitness level (Guffey et al., 2014; Hartley et al., 2011; McCraty & Atkinson, 2012). For example, interventions such as increasing physical activity and fitness can help improve cardiovascular risks (Sassen et al., 2010) as higher levels of cardiovascular fitness can be related to reduced absenteeism (Steinhardt et al., 1991).

Even though officer fitness is important, fitness alone is not sufficient. The focus should be on more than one risk factor to reap beneficial outcomes (Gerber et al., 2013). A healthy weight and physically active lifestyle are important for general health. But fitness also matters as it pertains to disease and illness prevention, as well as social and economic concerns in the workplace. However, since the workplace is but one component of life, a broader fitness perspective does need to extend beyond the workplace (Pronk, 2015). In fact, Ramey et al. (2014) and Boyce et al. (1992) found that police were more active off-duty, or unsupervised, than at work, or supervised. Work is connected to the home and the community. Health behaviors extend across all environments and are difficult to separate (Hymel et al., 2011).

Injuries pose a public health problem and effective strategies could help decrease this burden. But, public health practice has been a bit slow to address injury prevention (Stier et al., 2012), perhaps because of reluctance. Law enforcement agencies may be reluctant to partner with public health agencies because they are unclear on mandates.

However, North Carolina has taken initiative by partnering with various agencies to identify resources and responsibilities (Stier et al., 2012).

The advantages of a healthier, fitter, and energetic workforce include lowering absenteeism rates related to sickness. This is worth the necessary measures ("Fitness Tests," 2012). Past studies have demonstrated that a correlation exists between the length of time on the police job and a decline in health and fitness (Panos, 2010) so agencies could benefit from a fit workforce in both performance and health. This leads to greater contributions and enables communities to invest elsewhere (Pronk, 2015). Exercise can help with the stress associated with the law enforcement job and contribute to more positive coping. Agencies recognize that fitness is important for their officers, and encourage maintaining a healthy and adequate fitness level, but many find it difficult to implement some kind of fitness program (Ebling, 2002; Lagestad, 2012). When police officers engage in physical activity on a regular basis, it better prepares them to deal with work-related situations requiring physical force, and helps strengthen their psychological well-being (Lagestad, 2012).

If departments choose to test and evaluate officer fitness, programs need to be put into place that can assist officers to both attain and maintain a necessary fitness level for the job (Bonneau & Brown, 1995). Of several national voluntary fitness and wellness programs, data showed improvements in overall fitness, therefore increasing productivity and reducing both absenteeism and worker's compensation claims (Quigley, 2008). Health, fitness, and wellness should be included in a program as they are related and complement one another (Smith & Tooker, 2011). A supervised and job-specific exercise program for police officers improved fitness after 6 months in men and women.

However, a continued supervised exercise program is likely needed to maintain long-term health benefits (Rossomanno, Herrick, Kirk, & Kirk, 2012). Fitness and wellness programs also show to increase loyalty, generally improve morale, and reduce turnover (Quigley, 2008; Smith & Tooker, 2011).

Ferguson et al. (2011) suggested that prevention should be a focus of future work, given the critical role that police officers play in preventing crime, maintaining order, and providing emergency services. Prevention begins in the police academy. If police candidates are not screened and fail to successfully perform certain duties, this can result in injury/disability, turnover, and poor productivity which can have both a human and economic cost (Anderson et al., 2001). In total, medical expenses and lost productivity from injuries are estimated to exceed $400 billion (Stier et al., 2012). Law enforcement agencies take up a piece of this pie.

The Cooper Institute (2014) believes that fitness in law enforcement is necessary because it relates to (1) the ability of officers to perform essential job functions, (2) minimizing excessive force situations, (3) minimizing health risks associate with the police job, and (4) meeting the legal requirements to avoid litigation. To emphasize these points, an agency that does not address officer fitness requirements is susceptible to litigation for negligent (1) hiring of those not fit to do the job, (2) training to help officers maintain their physical capabilities of job demands, and (3) supervision of such individuals (Williams, 2002). Ensuring fitness for work can lead to increased quality of production, both decreased absenteeism and turnover, and lower medical costs which reduces incidence of injury (Rayson, 2000).

Fitness Resources for the Workplace

Once employed officers continue to train in many areas such as legal updates, driving, firearms, and defensive tactics to name a few. Yet most often fitness is not one of those areas of focus (Williams, 2002) although we know its benefits. Pronk (2009) demonstrated that most fitness interventions resulted in positive effects among employees. Research supports that comprehensive, multicomponent physical interventions lead to significant improvements in health, as well as reduce absenteeism (Steinhardt et al., 1991). This generates positive return for the employer (Pronk, 2009). There are potential resources available to agencies within the state, but little is known as to whether agencies are aware of, or are using such resources.

North Carolina is one of seven states that mandate full-scope injury prevention programs. General Statute 130A-224 provides that "the Department of Health and Human Services establish and administer a statewide injury prevention program and designate the Division of Public Health as the lead agency for injury prevention activities." Injuries are often predictable and preventable, but laws by themselves cannot prevent injuries, action must be taken (Stier et al., 2012). Both health protection and promotional programs need to be intertwined to promote a healthier and safer workforce. A healthier workforce will be safer and a safer workforce will be healthier (Hymel et al., 2011). Program intervention should extend outside the workplace, utilizing community resources as well through incentives (Pronk, 2015).

Under the auspices of the U.S. Department of Health and Human Services (HHS, 2015), the *Prevention and Public Health Fund* provides workforce wellness program opportunities. It emphasizes prevention initiatives and provides grants to small

employers to assist with the implementation of such programs. The pressure is placed on both workers and employers as health costs skyrocket. Health measures aimed at improving the workforce could significantly have a long-term impact and save billions in costs (Hymel et al., 2011). According to Harte, Mahieu, Mallett, Norville, & VanderWerf (2011), health impacts workforce productivity, and if an organization integrates a wellness benefit program, it can achieve a substantial saving between 15-35%.

Leadership in Law Enforcement

Improving the overall health of law enforcement officers can provide economic motivation for an agency. However, an officer who meets physical fitness standards upon initial employment does not necessarily ensure overall health maintenance throughout a career (Bissett et al., 2012). An important part of one's well-being lies within the work environment. Health can be affected by work conditions, and although different types of stress exist, physical stress affects health the most (Phadke et al., 2014). A well-oriented and trained leadership is essential to a successful fitness program (FitForce, Inc., 2010). Workplace health promotion programs should engage employees and show long-term impacts on health and costs, as well as minimize absenteeism. But absenteeism needs to be specifically defined as it is difficult to measure (Steinhardt et al., 1991). Programs should operate in an environment that embodies best practices (Pronk, 2015) but to be successful, physical programs need top management support, exist in a supportive environment, and engage all levels of management (Pronk, 2009).

How officers are managed strongly influence their commitment and employees are more likely to contribute in positive ways, meaning cost benefits through lower

absenteeism and lower turnover rates (Dick, 2011). Police leader management is linked to agency organization and is influenced by norms. These para-military organizations tend to have high levels of organizational commitment because the culture has strong obligational norms. A supervisor that wishes to implement a fitness program has a good chance of earning support from higher up. This type of support may have many benefits, including on-duty benefits (Williams, 2002). Physical fitness is part of a culture and can be supported from the top (i.e.: chief) down (Panos, 2010). Even when it comes to stress, quality work-peer relationships along with organization support are correlated with stress among police officers, and stress can affect the physical health and well-being of officers (Papazoglou & Andersen, 2014). Absence from work can be influenced by work structure. Policy that institutes any kind of health circumstances needs to consider the employer's structural influences and advocate presenteeism and its desirable outcomes. Organizations seeking to minimize absenteeism should perhaps focus on not only is an individual fit for work, but does the work fit the individual (Irvine, 2011).

Because public sector agencies (like law enforcement) have little or no incentive to change, leaders might question the relevance of supporting change. However, hiring processes and training academies change to adapt to the changing needs of the new generation; therefore, administrative practices and leadership also needs to change. Agencies need to balance both constancy and predictability that change must be adapted (Batts, Smoot, & Scrivner, 2012; Dick, 2011).

Within public decision-making, most ethical codes rely on internal, organizational controls (Franklin & Raadschelders, 2004). Franklin and Raadschelders (2004) found that both structural and procedural controls provide guidance to the decision-making

process. The vertical chain-of-command can lend itself to isolated functions and so law enforcement agencies need to be proactive in their leadership to provide continuous and cross-functional development (Putney & Holmes, 2008). Supervisors, particularly executive management needs to both participate and support any fitness program (Quigley, 2008; Smith & Tooker, 2011). They should promote an appropriate culture of wellness that encourages employees to maintain a healthy lifestyle (Zimmerman, 2012). This commences the planning process.

Strategic planning in public sector agencies takes a "big picture" approach. It uses futuristic thinking and analyzes courses of action to ensure that an agency's effectiveness and abilities add to public value (Poister, 2010). Policy initiation is crucial to decision-making where first identifying background and problems are critical because there is always a gap between a problem and acting based on a decision (Political Science Notes, 2013). Commitment from top-level leadership is essential to successful strategic planning and execution as strategic planning needs to be consistent with top executive management style and the reality of an organization's decision-making process (Ugboro, Obeng, & Spann, 2011; Williams, 2002).

As good and practical as a fitness program may seem, the budget process may present dilemmas for its progress. Decisions made might favor some but not other values, but choices must be made (Franklin & Raadschelders, 2004). Civil servants play an important role in choices made during policy-making. Since they do not hold political office, they are not held to as intense political pressure because of reelection interests, so they bring a solid perspective to the playing field (Franklin & Raadschelders, 2004). Public agencies need to make an effort to be inclusive of their external stakeholders and

involve them in the decision-making process, for example using surveys, focus groups or even forums (Poister, 2010). When it comes to fitness, levels in the workplace can directly or indirectly impact the community and society as it enhances local as well as national security and safety (Pronk, 2015).

Effective leadership will be critical in order for a police fitness program to be successful (Lee & Mallory, 2004). Strategy needs to be formulated by both top executives and line managers if planning is to be supported. This can be done by monitoring performance measures, aligning budgets with strategic plans, and communicating strategies to all stakeholders (Poister, 2010). Both internal and external partnerships are essential in collaborative efforts to ensure employee quality (Putney & Holmes, 2015).

Rational Choice Theory

Rational choice theory as initially described by Becker (1976) was applied to law enforcement leadership decision-making, attempting to explain the absence (or presence) of physical fitness standards at law enforcement agencies in North Carolina. Rational choice theory holds that individuals act as utility maximizers that include individual preferences and self-interest. More specifically in the social sciences, both individual behavior and social interaction affect the policymaking processes in government (Jones et al., 2006). It can be applied dynamically in which planning for the future and considering the present are included (Green, 2002). Analysis will usually begin with a question and can be worked through in several steps:

1. identifying relevant agents and constraints,
2. determining and applying consistent rules for each agent,

3. exploring predictions and experience, and
4. drawing conclusions (Green, 2002).

Rational is applied in social sciences as meaning that choices made reflect the most preferable and feasible alternatives that are available. The theory can be applied by focusing on three main components. (1) Maximizing *utility* is the assumption of rational choice theory, or in other words, choosing the preferred alternative that benefits the most. (2) Another element of the theory is *constraints*, or things/circumstances that exist in which making a choice is necessary, therefore also taking into the consideration the (3) *environment* in which choices are made. Theory follows the pursuit of specific objectives at an organization (Green, 2002). Even though policy is made by organizations, it is the interacting of human decision makers and individual choice that put such policy into action (Jones et al., 2006).

Rational choice theory contains several characteristics including that decision makers first, hold both ranked and ordered preferences for outcomes, and second, possess the necessary information to connect choices to outcomes to optimize preferred outcomes (Jones et al., 2006). Decisions are not made in a vacuum but they are made to serve definite purposes. Rationality needs to be important in the decision-making process, or public utility will be adversely affected (Political Science Notes, 2013).

Evidence suggests that a supportive organizational work environment has both a positive and direct influence on organizational commitment. In other words, commitment is influenced by the way employees are managed rather than by job demands (Dick, 2011). Rational choice theory, though most often an approach used to explain economics, can be applied to understand human behavior within the social

sciences. It begins with making choices by one or more individual decision-making units and assumes such choices are made based on larger "typical" or "representative" populations. Analysis then examines how individual choices interact with one another to produce outcomes (Green, 2002).

Summary

A clear majority of police academies in the United States use some physical agility test that tests mostly for strength and endurance. Some agencies use agility tests, either as a pre-employment condition and/or a condition of continued employment. The reason is that these tests are most widely accepted as underlying factors that attribute to physical demands placed on police officers. Even though agility tests are commonly used to screen police applicants, the requirements of officers to maintain a standard of health and fitness are fewer (Bissett et al., 2012; Glassman, 2003), particularly among North Carolina agencies (Fortenbery, 2016). Studies consistently show that physical fitness does have a direct impact on reducing injuries as well as improving personal well-being and work performance (Quigley, 2008). Police agency policies do not reflect the findings for various, unknown reasons. Aside from personal health and agency cost benefits, a certain fitness level also portrays a more professional image, and contribute to reducing excessive use of force incidents (Williams, 2002). Both topics are worth pursuing in future research as it relates to officer fitness. But for now, chapter 3 presents the current research's methodological approach.

Chapter 3: Research Method

Introduction

The North Carolina Criminal Justice Commission mandates employment and training standards for law enforcement officers in the state. The Commission also regulates the required standards for the BLET program, including physical fitness. However, fitness is not one of the employment guidelines. A foundation for fitness is laid, but only across law enforcement training academies in the state; policy does not mandate fitness once officers are employed. Commission responsibilities do not extend into the agencies themselves when it comes to requiring certain fitness standards to remain employed. Therefore, there is a gap in academic research as to why some agencies continue fitness standards and others do not, particularly given knowledge of the benefits of healthy, fit individuals. Further, although the Department of Labor requires all industries to report work-related injuries to OSHA, it is not known whether there is some kind of connection or correlation between injured officers and set agency fitness standards. If there is, this information could both inform agencies across the state and contribute to the literature pertaining to North Carolina law enforcement agencies. The intent of the current mixed-methods study was to fill this gap in the literature, described in more detail as follows.

Research Design

This research study consisted of a mixed-methods approach using both quantitative and qualitative methodologies. A quantitative approach provided the statistics necessary to determine whether a relationship or correlation existed between fitness policies and work-related absenteeism and injuries among a small sample of law

enforcement agencies in North Carolina. It did not provide an explanation as to why some agencies have instituted physical fitness policies and some have not. When research points not only to individual benefits, but agency benefits as well, the question is left unanswered as to why some policies are not in place. Therefore, the second phase of this study used a more detailed case study through a qualitative design to better understand this gap. For example, the use of a questionnaire explores who knows something as well as what is known (Bergman, 2008) within an agency.

Case Study

A multisite case study approach guided this research, as data collection involved multiple sources of information including policy and injury report documents and interview questionnaires (Creswell, 2013). Upon gaining appropriate approval to participate, six law enforcement agencies were examined to try to gain an understanding of why policy differences exist among agencies that have no (or voluntary) fitness policies, agencies that require some participation in fitness activities, and agencies that have very stringent and rigid policy. These agencies were selected purposely according to size and type of policy. In this study, a particular area of interest was determining whether a relationship existed between fitness policy and work injury and absenteeism, so it was necessary to first collect descriptive, quantitative data. The qualitative aspect further entailed examination of policy decision-making and implementation using interviews.

Research questions were considered before determining the order in which elements of the methodology were applied because order can influence results. For the current study, I used a concurrent QUAN -> QUAL design. The quantitative component

was one stage of the concurrent design and was conducted at the same time as the qualitative component, which included the use of interview responses (Nastasi, 2010) to understand administrative roles in policy decision-making. The justification for the quantitative aspect was that I would use a sample to first determine whether a relationship existed between the independent and dependent variables, controlling for level of policy. I then examined how policy decision-making might influence any significant findings (*see Figure 1*).

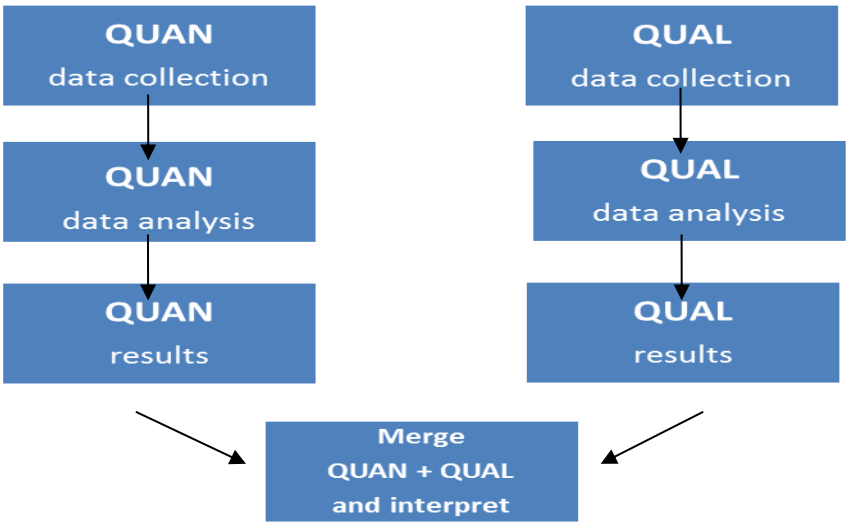

Figure 1. Concurrent/triangulation design. Adopted from *The Mixed Methods Reader* (p. 380), by V. L. Plano Clark & J. W. Creswell, 2008, Thousand Oaks, CA: SAGE. Copyright 2008 by Sage Publications, Inc.

Role of the Researcher

Having been a North Carolina BLET fitness instructor for 14 years, I have become aware that a gap exists between police academy fitness standards and law enforcement agency fitness standards in the state. In an effort to address this lack of understanding, I conducted an extensive search of academic and trade literature, looking at studies both within the United States and worldwide that pertained to police officer

fitness, wellness, and job injuries. As I became familiar with this literature, I found that the same questions remained unanswered, and these questions consequently became the focus of this study. First, I sought to determine whether fitness requirements that carried over to law enforcement employment were related in any way to the prevalence of workplace injuries and/or absenteeism. Second, I sought to identify who made agency fitness policy decisions and what the rationale and influences were behind these policies.

To address whether fitness policy correlated with injuries and absenteeism, it was important to narrow down the field of study while remaining focused on law enforcement agencies in North Carolina. Because of time and cost constraints, it was necessary to identify a manageable sample of agencies within the state. Because past qualitative studies in this area had used a sample of six, it was determined that a sample of six agencies would serve the purpose of this study and answer the research questions being sought. First, agency fitness policies and OSHA 300A summary forms were examined and analyzed for significant variance. Second, an interview was conducted with a training officer at each site to gain a better understanding of the policy-making process. This meant first constructing a questionnaire in which the content addressed these questions. Feedback from a local advisory committee was sought to ensure that questions were on target regarding the information being pursued.

The next step was to identify and contact six law enforcement agencies in the Piedmont Triad area that were willing to participate. I explained the study before I gained the necessary permission to review the requested documents. Phone contacts were made until two agencies from each policy level category (voluntary, changed or

progressive, and mandatory over a 5-year period) were identified. Mid-size agencies (serving a population of 50,000 – 500,000) were used for fair comparison purposes.

Creswell (2013) suggested that qualitative researchers collect their own data. Therefore, after gaining appropriate permission from the participating agencies, I made an appointment with each to both review documents and interview training officers. Anonymity was guaranteed, and results will be shared with the agencies after final analysis. It was my responsibility as the researcher to collect and analyze all data once appropriate Institutional Review Board approval had been secured. No individuals or agencies encountered any expenses related to participating in this study. Any expenses incurred because of this research were my responsibility as the researcher, including any supplies, travel, and documentation needed.

Research Population and Sample

According to the North Carolina Justice Academy (NCJA, n.d.), there are approximately 495 police agencies in the state, including state, municipal, county, hospital/healthcare, college, and airport agencies. The state is made up of 100 counties and is geographically divided into three regions: the Mountains, the Piedmont, and the Coastal Plains (see Appendix A). The Piedmont is the middle region of the state. Within this region, the Piedmont Triad consists of 12 counties (Piedmont Triad Regional Council, 2012). This region was the focus of the current study from which a sample was drawn for location and convenience purposes. In selecting a sample of law enforcement agencies located within the Piedmont Triad region (see Appendix B), the focus was on "midsize" populated areas (50,000–500,000 people) as defined by the International Association of Chiefs of Police (IACP, 2014). The IACP (2014) has cited nearly 700

midsize cities in the United States, hosting a combined population of more than 75 million. This is almost twice the population of major cities (those with populations greater than 500,000) and represents nearly one-quarter of the total U.S. population. These jurisdictions comprise a significant proportion of the American urban and suburban landscape. This is a significant presence in the American municipal landscape, and it has not been until recently that midsize cities and their associated police agencies have been a distinct area of focus for research, funding, or advocacy as recognized by the IACP in 2009. Since then, research priorities have focused on the needs and interests of midsized populations. For these reasons, I chose to draw a sample for the current research from this population base. Appendix C identifies the counties, cities, and state agencies that met the above criteria within the Piedmont Triad population base.

A sample of six midsize municipal North Carolina law enforcement agencies in the Piedmont Triad region was used for convenience. Two agencies from each of the following categories were studied: (1) no mandated/voluntary fitness policy over the last 5 years, (2) a changed or progressive fitness policy over the last 5 years, and (3) a continued mandated fitness policy over the last 5 years (2011-2015). Using these midsized agencies provided adequate data and statistics, from which any significant relationships in variance should be evident between policy level and injury and absenteeism reports. Using three categories allowed for comparison across policy type, and a 5-year period allowed for examination across multiple years to ascertain whether trends remained consistent.

Instrumentation

The documents collected at each agency consisted of instituted fitness standards for the years 2011-2015, as well as OSHA 300A forms documenting missed work days due to injuries or absenteeism for the same 5-year period. Hard copies of all documents have been kept in a locked file drawer within my personal home office, with the key located in a place only known to and accessible by me in order to protect confidentiality. Any electronic documents or correspondence related to this study have been saved on a designated research flash drive and kept in my locked possession. Backup electronic documents have been stored in a password-protected folder on my personal home computer. All records will be kept for a minimum of 5 years.

The second part of the study continued with interviews. Interviews are commonly used in qualitative research (Creswell, 2013). Interview questions addressed the following: (1) the rationale for department officer fitness standards, (2) whether policy was intended to address work-related injuries and illnesses, and (3) how policy decisions were made and influenced. Question wording in an interview is important because how questions are asked can affect the responses they elicit (Patton, 2002). The question categories listed above seemed appropriate to explore differences in policies, whether policy might contribute to work-related injury rates, and what influenced policy. The interview process allowed for the flexibility of emergent design with the questions covered. It allowed for both the interviewer and interviewee to include any additional information that emerged and was pertinent to the study through the use of open-ended questions.

Ethical Procedures and Considerations

The Code of Ethics of the Academy of Criminal Justice Sciences (ACJS, n.d.) was the guiding code for this study. This organization addresses the scientific discipline of those who study, research, teach, or practice in the criminal justice field. Criminal justice professionals are expected to adhere to the Code of Ethics when applying ethical behavior in their everyday professional activities. General principles within the code include recognizing the potential for harm, not knowingly placing the well-being of oneself or others in jeopardy within professional work, and ensuring anonymity in research (ACJS, n.d.). These principles guide law enforcement administrators, organizations, and educators, specifically within their policy and field practices.

Protection of Human Participants

Protecting human participants is important in research. In this study, data collection through interviews required human participation and contact. Because interviews were conducted at law enforcement agencies, physical safety was assumed. Because the content was not of a personal nature, there were no anticipated psychological effects. Participants were briefed on informed consent and privacy and were advised that at any time, they could elect to cease study participation without any repercussions.

Informed Consent

Informed consent is a process that includes telling participants who is conducting a study as well as why they were selected to take part. Rudestam and Newton (2007) provided practical guidelines on how to proceed with informed consent. When asking subjects to participate, it is appropriate to indicate the time commitment and any benefits that can be expected to arise from the study. In this case, the time commitment was

approximately 2 hours per agency, and participants will be provided with both the data analysis and questionnaire results. Potential risks needed to be addressed, which in this study were minimal to none in relation to participants' agreement to provide policy documentation as well as injury statistics reports. All agencies that agreed to participate were asked to sign and return a letter of cooperation.

Right to Privacy

Participants are entitled to confidentiality (ACJS, n.d.), so it was important to protect the identity of all agencies and any names associated with them. Protection of both agency and individual identities was achieved by assigning each agency a number (e.g., Agency 1, Agency 2, or Training Officer from Agency 1, etc.). Allowing participants to ask questions and ensuring that participation was voluntary were also necessary (Rudestam & Newton, 2007) and were emphasized in the research process, both verbally and in writing.

Honesty

Honest communication and reporting of results is essential to ethical research. I engaged in no intentional misrepresentation or misleading action of any kind during the study. High ethical standards were applied, and the results were reported completely and honestly.

Institutional Review Board (IRB)

To ensure that ethical standards were applied, the IRB process served as a critical step in this research. Walden's IRB ensures that any research conducted under the auspices of the university complies with both ethical standards and federal regulations. Students, along with their committee members, must submit and receive IRB approval

before collecting any data (Walden, 2010). To comply with Walden IRB requirements, I submitted a completed application prior to seeking participants for this study. Once approved, agency participants were contacted to voluntarily participate in this study.

Data Analysis

Statistical Package for Social Sciences (SPSS) was used to record and analyze the quantitative data to test the study's hypotheses. Frequencies, variance, standard deviation, and crosstabs were applied to provide a general distribution of descriptive statistics. Analysis of variance (ANOVA) was used in the data analysis to determine the significance of any variance between the study's variables. If the variables were found to be significantly related, the null hypothesis was rejected. I determined and defined the level of measurement for each variable used, which helped to determine the statistical analyses that were used (Thornton, 2011). In a quantitative analysis in which the aim is to generalize to a larger population, sample size is important. Given that a sample of six was used out of a population of 495, generalization was of course not possible.

Dissemination of Study Findings

The research results in total will be shared with participating agencies as well as the North Carolina Justice Academy and other interested law enforcement agencies in the state. Confidentiality and unanimity were and will be maintained. Personal contact will be made with each agency training officer upon completion of data analysis and results. Law enforcement trade magazines will be solicited for potential publication, making study results available to this targeted audience.

Validity and Reliability

To establish transferability in the qualitative aspect of this study, Creswell (2013) suggested that sampling is essential, particularly to establish external validity. In this study, purposeful sampling was utilized to select police agencies that made up varying levels of fitness policies. One of the most credible manners to ensure internal validity is through triangulation, or collecting data from various sources such as interviews, questionnaires, and assessing different documentation of data. Triangulation uses different research designs to examine data from different perspectives, which is why interviews were also conducted and included in the study evaluation. Every effort was made both verbally and in writing to ensure that all participants and agencies were respected and appreciated for their time and interest.

Summary

This study used a sample of six North Carolina law enforcement agencies to determine whether fitness policy influenced work-related injuries and absenteeism and what factors contributed to policy decision-making. By first using a quantitative analysis, results yielded whether a significant relationship between policy and injuries and absences among the sample agencies existed. If the null hypothesis was rejected because certain policies were related to fewer work-related injuries and absences, this study will provide support for advocating continued fitness beyond the police academy.

Additional analysis through examination of questionnaire responses determined whether rational choice theory supported policy decision-making, focusing on the utility function. This helped determine what factors contributed (at least partially) to policy and whether decisions being made were personal in nature, or representative of larger

objectives. Organizations constantly undergo change, which can impact leadership. The one recognized as the leader is the one who has the potential and capacity to influence the group (Karp & Helgo, 2008). According to Bennis (2007), leadership is a matter of values. The next chapter discusses the results and how both quantitative and qualitative analyses have contributed to this field of study.

Chapter 4: Results

Introduction

The purpose of this mixed methods study was to test the utility function component of rational choice theory to determine whether it explains fitness policy implementation and whether such policy affects reported work-related injuries and absenteeism among a sample of midsized law enforcement agencies in the Piedmont Triad region of North Carolina. The quantitative portion of the study examined the stringency of agency fitness policy over a 5-year period (2011-2015; independent variable). Injury and absenteeism rates were calculated from OSHA 300A summary forms for each agency within this time frame (dependent variables). A control variable was also used based on whether an agency's fitness policy changed over this 5-year period, to measure any change in injury and absenteeism rates. The qualitative portion of the study examined the interview responses of training officers at each agency pertaining to fitness policy implementation, decision-making, and rationale. Responses were examined for common themes and whether they represented rational choice theory decision-making.

The research questions that guided this study were the following:

1. What relationship, if any, exists between a North Carolina law enforcement agency's fitness policy and work-related injuries and absenteeism?
2. When research emphasizes the benefits of maintaining a certain fitness level, particularly for first responders, does the utility function within rational choice theory explain why some North Carolina law enforcement agencies mandate physical fitness requirements for officers and others do not?

3. Are data-driven results of injury or absenteeism an agent or constraint as they pertain to the present fitness policy?

An extensive review of the literature was conducted pertaining to the content of interest, focusing on (but not limited to) current research done in this area over the last 5 years. Previous research focused on officer fitness, physical fitness testing, legal standards, policy implications, work injury and absences, and leadership. Very limited studies were found on law enforcement agencies in North Carolina pertaining to fitness policy, and none were found pertaining to OSHA-reported injuries and absences. Thus, this population became the focus for the current study, particularly when it was known that a gap existed involving state police academies requiring a fitness component while many law enforcement agencies had no such requirements as a condition of employment.

In this chapter, I report on my analysis of the findings from a sample of six law enforcement agencies based on fitness policy standards and change over a 5-year period, as well as yearly reported work-related injuries and absences. Additionally, I discuss how rational choice theory may play a role in fitness policy decision-making at an agency level when the utilitarian concept is applied, thereby explaining the data analysis of each research question that guided the study. In the last chapter, I present conclusions and implications of this research.

The Researcher

Creswell (2013) suggested that researchers provide information about themselves, the IRB process, steps to gaining entry to the sample, and ethics. As the researcher in this study, I had 6 years of experience as a sworn law enforcement officer in North Carolina, as well as 17 years as a criminal justice instructor at a community college. In 2001 and

2002, I became a certified general instructor and specialized physical fitness instructor, respectively, for the BLET program in the state. I was taught and administered the state-mandated fitness testing of cadets based on valid and scientifically tested research pertaining to physical activities that police officers are likely to encounter as part of the job. These credentials allowed me to teach any general curriculum block of instruction within BLET as well as oversee and assess physical fitness activities within the police academy. I routinely tested and evaluated police cadets on the required obstacle courses and fitness assessments, all necessary as a condition of graduation. I wondered why cadets were held to such a high standard of fitness in the police academy, whereas, more times than not, these or any physical requirements were not mandatory conditions of employment at a law enforcement agency. Policy was determined at the agency level, yet who was involved in these decisions, and what was the rationale behind them? This interest and concern for the well-being of officers in terms of wellness and safety followed me into my doctoral studies and thus led to the development of the current study. Therefore, it may appear that I had some bias concerning this topic; however, I made every effort in proposing, conducting, and analyzing this research to present the information in an ethical and objective manner.

Before collecting data, the appropriate and necessary steps were taken based on Walden University's IRB requirements. An application was submitted to the IRB outlining each step of the proposed research and my plans to protect both the confidentiality and identity of participants. Conditional approval was granted with the understanding that each participant (agency) would sign a letter of cooperation prior to any data collection. I then began contacting each of the agencies within my proposed

population via telephone, soliciting the agencies' voluntary participation in my study. After an agency agreed to participate, a signed letter of cooperation was obtained and forwarded to the Walden IRB. Once an e-mail confirmation was received from the IRB, data collection at that agency commenced. A consent form as well as a data use agreement form were also collected from each participating agency and filed in that agency's electronic and hard files. After the total sample of six was reached, I had the necessary data to begin analyzing both my quantitative and qualitative data.

Setting and Recruitment Process

The population of midsized law enforcement agencies in the Piedmont Triad region of North Carolina totaled 11. An attempt was made to contact the training officers of all 11 agencies by telephone to ask them to participate in this study after I had briefly explained its intent. Several voicemail messages were left and of those agencies that did not respond, a follow up call was made. After reaching the appropriate contact at an agency and explaining my study, the conversation was followed up with an e-mail detailing the study's purpose, voluntary participation and the necessary information being sought for analysis, along with the need for a signed letter of cooperation if they agreed to participate. If no response was received from an agency within a 2-month period via e-mail, a follow-up e-mail was sent again inviting the agency to participate. After a period of 6 months, six agencies had responded and agreed to participate. For convenience and because of availability, these six law enforcement agencies were used as the nonprobability sample for case study analysis.

Instruments

Several instruments were used to collect data from the sample in the study. For the quantitative aspect of the analysis, a copy of each agency's fitness policy (see the sample agency fitness policy in Appendix D) was obtained (if such a policy existed) for each of the years 2011-2015. Additionally, a copy of each agency's OSHA 300A summary form (see Appendix E) was collected for the same 5-year period. A short questionnaire was used to analyze the responses pertaining to the qualitative aspect of the study, to gain a better understanding of the process and factors involved in policy decision-making at an agency.

Statistical Package for the Social Sciences (SPSS, 2015) was used for quantitative analysis to address Research Question 1. The rationale for the choice of statistical test and assumptions associated with the statistic were based on the research question and therefore are discussed in more detail below. Line-item data mining in Windows Excel was used for qualitative analysis to address Research Questions 2 and 3. Responses and themes were explored to test rational choice theory.

Quantitative

Each agency's physical fitness policy for the years 2011-2015 was coded per policy level and assigned a value; 1 (*no policy/voluntary participation*), 2 (*general policy/voluntary participation*), 3 (*annual in-service/testing*), and 4 (*biannual testing*); (Means, Lowry, & Hoffman, 2011c). For analysis purposes, each agency was then placed in a category per the stringency level of its fitness policy (from least to greatest) and assigned a value number. Whether policy changed over the years between 2011 and

2015 was also indicated; 1 (*no change*) and 2 (*increased standards*) for each agency, each year.

Absence and injury rates were computed for each agency's OSHA 300A form for the years 2011-2015. The absence rate was computed by dividing the total number of days away from work by the total number of employees multiplied by 100 and rounded to the nearest hundredth. Absence rates ranged from 0–156.14. The injury rate was computed by dividing the total number of injuries by the total number of employees multiplied by 100 and rounded to the nearest hundredth. Injury rates ranged from .82–14.56. These rate standardizations allowed for comparison across agencies due to the variance in number of employees. See Appendix F for a summary of the quantitative data.

Qualitative

Each training officer (or designee as determined by the agency head) at the six agencies was provided with a questionnaire inquiring about the number of sworn officers within an agency, and whether the agency was accredited by the Commission on Accreditation for Law Enforcement Agencies (CALEA), with the assumption being that those agencies that were CALEA accredited were likely to have some type of fitness policy in place. The questionnaire also included whether an agency had a fitness policy over the 5-year period of 2011-2015, and if so, whether participation in fitness and wellness activities was voluntary or mandated. The remaining five questions were meant to test rational choice theory and address the policy decision-making process. These questions included the following:

- What is the rationale behind having/not having a fitness policy in place, or for changing policy?
- Who are involved decision makers in fitness policy?
- What factors determine or affect fitness policy?
- Was policy intended to address work-related injuries and illnesses?
- Are you aware that North Carolina provides a full public health mandate that includes injury prevention, and if no, would you want more information, or if yes, was this considered in fitness policy implementation? (See Appendix G.)

Qualitative research can be deemed valid using triangulation and member checking (Creswell, 2013), and so at the same time policy and OSHA data were being collected, these questions were reviewed and verified by speaking with the training officer or designee. For data to be considered qualitatively reliable, consistency is important (Creswell, 2013); therefore, the same questions were asked of each agency.

Demographics

For analysis purposes, participants were actual agencies, for which employee demographics were not known, except by raw numbers. This was done to protect the confidentiality of agency employees. Though the questionnaire was completed by one individual employee at the agency, these individual demographics were not recorded, but the employee's agency responsibilities were noted.

Agency 1

Agency 1 was a county law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 142,799 (U.S. Census Bureau, n.d.). The number of employees at the agency ranged from 228–262 over the

years 2011–2015. This agency did not have a fitness policy for sworn officers (and so it was voluntary on the employee's part to participate in any physical fitness activities) during the 5-year period.

Agency 2

Agency 2 was a county law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 158,276 (U.S. Census Bureau, n.d.). The agency ranged in number of employees from 892–1206 over the years 2011–2015. This agency did not have a fitness policy for sworn officers (and so it was voluntary on the employee's part to participate in any physical fitness activities) during the 5-year period.

Agency 3

Agency 3 was a municipal law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 110,268 (U.S. Census Bureau, n.d.). The agency ranged in number of employees from 248–268 over the years 2011–2015. This agency did not have a fitness policy for sworn officers during the 5-year period; however, incentives at either the city or county level were available to employees, though participation to receive these incentives was voluntary.

Agency 4

Agency 4 was a municipal law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 285,342 (U.S. Census Bureau, n.d.). The agency ranged in number of employees from 881–929 over the years 2011–2015. This agency had a general policy that addressed the necessity of employees maintaining their health to adequately perform job functions. This policy remained the

same over the 5-year period, and several incentives at either the city or county level were available to employees, but participation in these incentive programs was voluntary.

Agency 5

Agency 5 was a county law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 369,019 (U.S. Census Bureau, n.d.). The agency ranged in number of employees from 230–243 over the years 2011–2015. Over the 5-year period, the agency did require sworn officers to participate in 2 hours of health and wellness in-service training each year, and annual POPAT testing was mandated.

Agency 6

Agency 6 was a municipal law enforcement agency located in the Piedmont Triad region of North Carolina serving an estimated population of 52,472 (U.S. Census Bureau, n.d.). The agency ranged in number of employees from 164–182 over the years 2011–2015. Over the 5-year period, the agency gradually incorporated a mandated biannual POPAT testing of all sworn officers.

All sites had onsite fitness facilities that employees could use at no charge. Several agencies also offered either free or discounted memberships at local fitness facilities. The first three agencies with no fitness policy were not CALEA accredited; the last three agencies with written fitness policies were CALEA accredited, as assumed.

Data Collection

The location of the population of interest in this study—the Piedmont Triad region of North Carolina—was purposely selected for convenience purposes as well as the purpose of collecting data from a similar geographical region. Again for consistency

purposes, midsize agencies were also the focus of this study; the total number of agencies fitting these criteria from which to draw a sample was 11. The purpose was initially to capture a total of six agencies for case study analysis, representing three categories of varying fitness policies: two not having any fitness policy in place, or a voluntary policy; two having increased in policy stringency over a 5-year period; and two having strict, mandated fitness standards required for officers. After I had contacted each agency and explained the study, six of the 11 responded with their willingness to participate; however, the categories of policy that they represented were not what I had initially proposed. After mining through the data, I observed that four levels of policy were distinguishable and would make for a more detailed analysis. The quantitative data were made up of policy level, any change of policy within the 5-year period, and OSHA 300A injury and absenteeism summary reports. This information was analyzed to address Research Question 1. The qualitative data were made up of questionnaire responses and were analyzed for common themes to assess, first, whether the utilitarian function within rational choice theory existed (Research Question 2), and second, whether data served as an agent or constraint to current fitness policy (Research Question 3).

Data Analysis

Three research questions guided this study:

RQ 1. What relationship, if any, exists between a North Carolina law enforcement agency's fitness policy and work-related injuries and absenteeism?

RQ 2. When research emphasizes the benefits of maintaining a certain fitness level, particularly for first responders, does the utility function within rational

choice theory explain why some North Carolina law enforcement agencies mandate physical fitness requirements for officers and others do not?

RQ 3. Are data-driven results of injury or absenteeism an agent or constraint as they pertain to the present fitness policy?

Using these questions, the research data were analyzed both quantitatively and qualitatively. Descriptive statistics, crosstabs, one way ANOVA, and an *F*-test were calculated. Then line analysis data mining with Excel was utilized to test rational choice themes. Per agency policy, agencies were listed in order according to policy stringency, with the first agency listed having no policy or incentives at the top, on down to the last agency listed that had a mandated, biannual testing policy. The policy level (independent variable) for each agency (each of the 5-year period) was coded to form an ordinal variable from 1 – 4; *1* being no fitness policy to *4* requiring biannual fitness testing. Policy change was used as a control variable, to determine if a change in policy over these years affected injury or absenteeism rates. This was coded ordinally where *1* meant no change from one year to the next, and *2* meant an increase in fitness standards required from one year to the next. Both absent rate and injury rate (ratio, dependent variables) were calculated into standardized rates for comparison purposes. Descriptive statistics are provided for each variable as they describe what the data shows (Trochim, 2006). Table 1 shows the six-agency sample arranged per strictness of policy level. Policy change indicates from one year to the next whether policy did not change, or increased in required fitness standards.

Table 1

Agency Demographics of Sample

Variable	Labels	Level of measurement	Mean	*SD*	Range
Agency	1 = Agency 1 2 = Agency 2 3 = Agency 3 4 = Agency 4 5 = Agency 5 6 = Agency 6	ordinal			
Policy level (IV)	1 = no policy/ voluntary participation 2 = general policy/ voluntary participation 3 = annual in-service/ testing 4 = biannual testing	ordinal			
Policy change 2011-2015 (CV)	1 = no change 2 = increased standards	ordinal			
Absence rate (DV)		ratio	31.21	32.91	0-156.14
Injury rate (DV)		ratio	6.90	3.17	.82-14.56

Research Question 1

The first research question attempted to determine whether having a strict fitness policy affected work-related injuries or absences. The null hypothesis suggests that no significant relationship exists between the stringency of fitness policy and job-related injuries and absenteeism rates; therefore, the alternative hypothesis suggests that the more stringent a fitness policy is, the lower the job-related injuries and absenteeism rate.

A bivariate correlation could not be conducted because the data violated several assumptions of this analysis. First, variables must be continuous; in the sample both the independent and control variables are ordinal level measurements. A second assumption is that a linear relationship exists between variables, and with this study's data they do not (which also eliminates the use of partial correlation and linear regression). Another assumption of correlational analyses is that no significant outliers exist which was also not true with the data. A fourth assumption assumes homoscedasticity, and upon conducting a scatterplot of the data, heteroscedasticity was detected, so therefore not suggested that correlation be used in analysis (Laerd Statistics, 2013).

When a group comparison of at least one independent variable is being used, analysis of variance (ANOVA) can be used as a statistical test (Creswell, 2013). For this test, the independent variable should be categorical, and the dependent variable should be continuous, which in this study is the case; therefore, ANOVA was selected as the statistical test to answer Research Question 1. Green and Salkind (2011) state that a one-way ANOVA can be used to analyze data from a quasi-experimental study and the *F*-test evaluates whether the group means on the dependent variable differ significantly from each other. Then, an overall analysis of variance test can assess whether dependent variable means are significantly different among groups.

In social research, Trochim (2006) advises a statistical power greater than 0.8 in value as a rule of thumb. This means having at least 80 chances out of 100 of finding a relationship when there is one. Statistical power is the ability to detect effects given the variance and sample size (Vogt & Johnson, 2011). Several factors interact to affect power. One is to use a larger sample size, another is to increase the risk of making a

Type I error, or increasing the chance that a relationship is found when it is not there. This can be done by raising the alpha level (Trochim, 2006). In this study the agency sample size of six is small; however, the total number of employees that the sample represents is over 2700. So, it could be argued that using an alpha level of .05 demonstrates a significant statistical power of .95.

ANOVA

First, a one-way ANOVA was conducted to evaluate the relationship between policy level of an agency and absenteeism rate. The independent variable, the policy level factor, included four levels of fitness policy: no policy/voluntary participation, general policy/voluntary participation, annual in-service/testing, and biannual testing. The dependent variable was the rate of work days missed each year over the 5-year period of 2011-2015. The ANOVA was significant $F(3,27) = 5.02$, $p < .01$. The strength of relationship between policy and absent rate, as assessed by η^2 was strong, with policy level accounting for 36% of the variance of the dependent variable.

Next, a one-way ANOVA was conducted to evaluate the relationship between policy level of an agency and injury rate, which was the rate of injuries each year over the same 5-year period. The ANOVA was significant $F(3,27) = 6.96$, $p < .001$. The strength of relationship between policy and injury rate, as assessed by η^2 was strong, with policy level accounting for 44% of the variance of the dependent variable.

Because the overall ANOVA was significant and there were more than two levels in the independent variable, follow-up tests are usually conducted to evaluate pairwise differences (Green & Salkind, 2011). Therefore, it was decided to conduct follow-up tests of Tukey, REGWQ and Dunnett's *C* as suggested by Green and Salkind (2011) to

evaluate pairwise differences among means. Dunnett's *C* test does not assume equal variances among the four groups and so these results were used to assess both absenteeism rate and injury rate between policy level. There was no significant difference in the means between any policy level and absent rate. However, there was a significant difference in the means between the following:

- Level 1 policy (no policy/voluntary participation) and Level 3 policy (annual in-service/testing)
- Level 1 policy (no policy/voluntary participation) and Level 4 policy (biannual testing)
- Level 2 policy (general policy/voluntary participation) and Level 3 policy (annual in-service/testing)
- Level 3 policy (annual in-service/testing) and Level 4 policy (biannual testing).

The agencies that required annual in-service and testing showed a greater decrease in injury rates compared to agencies with other policy types. The 95% confidence intervals for the pairwise differences, along with the means and standard deviations for the four policy groups, are reported in Table 2.

Table 2

95% Confidence Intervals of Pairwise Differences in Mean Changes of Injury Rates

Policy level	*M*	*SD*	Level 1	Level 2	Level 3
1 – No policy/ voluntary participation	7.25	3.24			
2 – General policy/voluntary participation	7.67	1.97	[-3.84, 3.01]		
3 – Annual in-service/testing	3.13	1.51	[.42, 7.82*]	[.97, 8.11*]	
4 – Biannual testing	10.79	1.05	[-7.02, -.05*]	[-6.49, .25]	[-11.39, -3.93*]

A second set of ANOVA were conducted examining the control variable (change in policy). A one-way ANOVA was conducted to evaluate the relationship between policy change and absent rate. The control variable, whether policy changed from one year to the next, included two levels: no change and increased standards. The dependent variable was the rate of work days missed each year over the 5-year period of 2011-2015. The ANOVA was significant $F(1,29) = 14.92$, $p < .001$. The strength of relationship between policy change and absent rate, as assessed by η^2 was strong, with policy change accounting for 34% of the variance of the dependent variable.

A one-way ANOVA was conducted to evaluate the relationship between policy change and injury rate, which was the rate of injuries each year over the same 5-year period. The ANOVA was significant $F(1,29) = 7.02$, $p < .01$. The strength of relationship between policy change and injury rate, as assessed by η^2 was strong, with policy change accounting for 20% of the variance of the dependent variable.

The interpretation of the current data has been evaluated on ANOVA analyses. In conclusion, to answer whether a relationship exists between a North Carolina law

enforcement agency's fitness policy and work-related injuries and absenteeism, the analyses assumes there is a relationship, therefore rejecting the null hypothesis and accepting the alternative hypothesis.

Research Question 2

Research Question 2 attempted to test whether the utilitarian function of rational choice theory explained why specific fitness policies were in place. In other words, was policy decision the preferred alternative that would benefit agency employees most? Several questions in the agency questionnaire were designed to address this.

The first question inquired about the rationale behind having/not having a fitness policy in place, or the reason for changing policy. Agencies had varying responses. Of those agencies that had a fitness policy, improving employee wellness and productivity, along with increasing officer safety were common responses. Agency 6 identified several motivational factors to include:

- reducing long-term medical costs for employees
- improving employee wellness and productivity
- increasing officer safety
- increasing the life span of employees

Agency 4 identified a standard operating procedure in which their objective was to "develop and maintain a level of fitness in police personnel and to ensure their ability to accomplish assigned duties and provide satisfactory job performance without undue risk of injury or fatigue." The change in policy for Agency 5 was due to a Sheriff initiative to improve the overall health of employees. Of the agencies that did not have a fitness policy, one indicated that it was "due to case law, cost, manpower, buy in from

administration, and law suits." Having no policy may be impacted of Title VII of the Civil Rights Act which requires all employers with more than 15 employees to refrain from policies that discriminate against specified categories of individuals (U.S. EEOC, n.d.). Title VII can be ambiguous and many standards have not been interpreted by the Supreme Court. Even federal circuit courts differ on these decisions. Since the courts cannot clearly define these standards, it can burden administrations with continued monitoring of court decisions and legislation. Under Title VII, physical fitness standards face scrutiny when they might discriminate against a protected group (for example females, individuals over 55 years of age). Employees must demonstrate that the practice is job-related and necessary. Therefore, in justifying physical fitness requirements, can it be justified as a necessity of law enforcement work? To demonstrate this, administrators must show a significant relationship between the physical fitness requirement and job responsibilities (Brooks, 2001). Agency 2 indicated that "the agency was in the process of reviewing and updating several policies and have not addressed this issue yet", and Agency 3 reported that "physical fitness policy had never been addressed."

The next question asked who was involved in the policy decision-making process. Not surprisingly, all responded that the agency head (Chief of Police or Sheriff) were the final decision makers. However, of those involved with the input process, responses ranged from few individuals within the agency to larger committees that included members outside of the agency. Four agencies indicated that decision makers on such policy came from within the agency such as executive staff, administration (directors, commanders) and other employees. Two agencies also included decision makers outside of the agency itself such as occupational health staff, human resources director, city

manager, and city attorney. There was no consistency in agency type as far as who was included in decision-making. Or in other words, municipal agencies were just as likely as county agencies to involve personnel outside of the agency in policy decision-making.

The last question asked to address Research Question 2 sought to determine what factors affected fitness policy decision-making. Common responses included manpower, cost, and resources. Some were also concerned with the legality of such a policy and how standards would be enforced or maintained. But, these common theme responses existed within agencies that both had stricter policies and those that had none. Interestingly, of the two agencies that had the more stringent policies, though cost, training, and manpower were also mentioned, the agencies prioritized these resources to comply with policy. Taking a more holistic approach was also a factor for these agencies. As it pertains to their fitness policy, one stated that they had "to find a balance between stewardship to the taxpayer and providing our employees some opportunities to maintain and improve their health." All agencies had on-site fitness facilities and equipment and/or community resources such as recreation centers, gyms, or fitness centers. See Table 3 for a summary of agency responses to these questions.

Table 3

Agency Responses to Policy Rationale

Question	Agency/Responses
What is the rationale behind having/not having a fitness policy in place, or for changing policy?	1 – the agency is in the process of reviewing and updating policies in order to apply best practices. 2 – case law, cost, manpower, buy in from administration, law suits 3 – physical fitness policy has never really been addressed 4 – the objective of the department is to develop and maintain a level of fitness in police personnel and to ensure their ability to accomplish assigned duties and provide satisfactory job performance without undue risk of injury or fatigue 5 – it was one of the Sheriff's initiations in 2002 6 – to reduce long-term medical costs for employees, to improve employee wellness and productivity, to increase officer safety, and to increase the life span of officers/ employees
Who are involved decision makers in fitness policy?	1 – Sheriff and Administrative Major who verifies policy changes to ensure it complies with law 2 – Sheriff, Chief Deputy, Director Personnel/Training 3 – Chief of Police and Executive Staff 4 – Chief of Police Bureau Commander, Training Division Commander and/or other departmental employees 5 – Sheriff and committee 6 – Chief of Police, Occupational Health staff, HR Director, City Manager, City Attorney
What factors determine or affect fitness policy?	1 – resources, manpower, cost 2 – resources, manpower, cost 3 – time, money, effort, legality, injury, penalty for failure to maintain standards, resources, equipment 4 – finding a balance between stewardship to the taxpayer and providing employees some opportunities to maintain and improve their health 5 – we have the manpower, a more holistic approach was needed 6 – cost, provide training, build a gym/fitness center, staffing was not a major concern

Rational choice theory assumes that individuals interact in a social process as part of decision-making, and in an organization, collective individual actions affect policymaking and input comes from both individual behavior and social interaction (Jones et al., 2006). It examines how individual choices interact with one another to produce outcomes, and how decisions are made by both considering the present and planning for the future (Green, 2002).

The above questions on the agency questionnaire were designed to test this theory to determine why specific policies were in place among a small sample of law enforcement agencies in North Carolina. The meaning of *rational* is applied to mean the most preferable and feasible alternatives available. One component of this theory holds that within a setting, decision makers will choose an alternative that benefits the most. This assumes that first decision makers have ranked preferences for outcomes and possess the necessary information to optimize the preferred outcomes (Jones et al., 2006). A closed-ended question on the questionnaire was asked of the agencies whether they were aware that North Carolina provides a full public health mandate that includes injury prevention. Only one responded yes. This agency had a more general wellness policy, but no specific fitness standards for officers. Two agencies responded no and three agencies did not answer definitively. Perhaps having knowledge or utilizing state resources available could assist agencies in this policy making process, but the question may have been vague or confusing, or maybe more detailed information should have been provided to the agency's before asking this question.

Decisions are made to serve definite purposes and populations. Therefore, rationality is important in the decision-making process otherwise public utility can be

adversely affected (Political Science Notes, 2013). With the responses given, it was not entirely clear on how agencies determined fitness policy. Perhaps questions should have delved into more detail as to *how* each factor was considered, rather than just listing *what* factors were considered in policy. However, in all cases more than one individual was involved in the discussion and input of policy (or policy change), therefore confirming that an interaction process took place with a decision being made as to the best choice for the agency with the resources and information present. It is more difficult to determine whether the utilitarian component outshined other options because of the limited information provided within question responses. So, to apply rational choice theory in general makes sense per the responses from agencies, but not enough is known as to why the utilitarian function of the theory explained fitness policy implementation.

Research Question 3

Research Question 3 attempted to find out whether data-driven results of injury or absenteeism are an agent or constraint as it pertains to fitness policy. One question on the agency questionnaire was asked as to whether policy intended to address work-related injuries and illnesses. Two agencies that had no fitness policy and one agency that did not have a policy but did have employee fitness incentives in place responded negatively to this question. The other three agencies that responded positively had some type of fitness policy in place, with policy ranging from more general to very specific standards.

Applying rational choice theory to these responses make sense as one element of the theory is constraints, or things/circumstances that exist, making a choice necessary. Constraints also take into consideration the environment in which a choice was made (Green, 2002). Within each agency several factors as well as participants are involved in

the decision-making process. Although ultimately it is the agency head who makes the final decision, there is no doubt that influences from others and the environment play a part. It is this interaction among human decision makers and individual choice that put policies into action (Jones et al, 2006).

Serving as constraints to agencies with no fitness policy seemed to be the common factors of cost, legal implications and manpower. These factors seemed to play a part in the policy decision-making process. Something that is not known is how much influence other individual(s) involved in the process had. It was not explored in the initial questioning but could have been valuable in addressing this particular research question.

For those agencies that had some type of fitness policy, common agents seemed to specify the necessity of officer health and safety, ensuring that officers could accomplish their duties. Wellness incentives in written policy emphasized the agency's commitment to the well-being of officers so they could perform essential job tasks. Taking a holistic approach and finding balance between providing public services and providing for employees were common rationale. These agencies sought funds (either through city/county funds or grants) and provided training and facilities to ensure officer needs were met.

With the data that was collected and qualitatively analyzed, it is concluded that the null hypothesis be rejected, assuming that injuries and/or absenteeism rates are an agent of the current fitness policy. This was determined by examining the written policy of the agencies that had a current fitness policy in place. This analysis used several steps

according to rational choice theory; identifying relevant agents and constraints, applying consistency, exploring predictions, and drawing conclusions (Green, 2002).

Threats to Internal Validity—Instrumentation

After conducting the analyses for this research, several observations must be mentioned as it pertains to the validity of the instruments used. The first instrument used, also serving as the independent variable was written agency fitness policy. The information was interpreted at its face value and believed to be represented and interpreted correctly in the study. However, for comparison purposes, I defined four categories in ranked order, from no policy present to the most stringent, mandatory policy. Perhaps another researcher would define or categorize policies differently for analysis purposes.

To control for any differences in policy change over the 5-year period, a binominal variable was created to simply represent that a fitness policy did change from year to year, or did not change from year to year. This again was a discretionary decision, and perhaps others would approach control in a different manner.

The use of OSHA mandated reported injuries and absences on the summary 300A form became questionable as to whether these records could be considered valid. For example, one agency reported employees having 164 days away from work (absenteeism), yet the next year, two days were reported and the year after that zero days were reported. So, whether the OSHA form was the most appropriate measure of injuries and absenteeism is questionable. Perhaps a better, more accurate and valid instrument might better have addressed the research questions, but this information was not initially known and so not observed until after data analyses. In addition, OSHA forms did not

specify or differentiate officer injuries and absences from other agency employees such as nonsworn or civilian. One county agency even included all county employees in the summary form and did not distinguish between officer and other personnel.

The last instrument used was the agency questionnaire designed to test rational choice theory in the policy decision-making process at agencies. I designed the questionnaire, with input from a criminal justice advisory committee, made up of local criminal justice practitioners. Upon qualitative analysis of the data, it became evident that the questionnaires did not delve deep enough into the details of policy input, such as whether agency heads were pressured into having or not having a fitness policy, or if politics in any way played a role in this process. Therefore, one might argue that the questionnaire might pose internal validity threats.

When discussing validity in general, conclusion validity might be worth mentioning. This is essentially whether a relationship between variables is a reasonable one or not, given the data being studied. In this study, it is possible to conclude that, while an overall significant relationship seems to exist between policy and injury and absenteeism rates, the policy itself may not have caused the outcome. Perhaps some other factor(s), and not policy alone was responsible for the results of the study (Trochim, 2006).

Trustworthiness

On 09/01/16 Walden University IRB approved the proposed research study with the condition that each agency provide a signed letter or cooperation prior to data collection (Walden University IRB approval #09-01-16-0316158). Over a period of 5 months (October 2016 – March 2017), the six agencies that agreed to participate were

approved by IRB as data collection sites. I covered all documentation and travel expenses related to the study as not to incur any cost to the agencies. After collecting all documents and speaking to the training officer at each agency, both a verbal and appreciation was voiced and a thank you card was sent to those involved in providing the data from each agency. The information was then reviewed and validated to verify and gain a better understanding of it. This helped to protect the integrity of the research.

A case study was selected for this research to gather some data about fitness policy and injury and absenteeism rates, as well as how policy is decided among a sample of law enforcement agencies in the Piedmont Triad area of North Carolina. Case study is designed to focus on the activities of organizations and to describe rather than generalize. Therefore, transferability of the results outside of the study might be difficult to justify. The collection of data for this study is assumed to be trustworthy as each instrument used (policy, OSHA forms and questionnaires) were reviewed with the training officer of the agency to ensure both the validity of data and to verify any oral and written communication recorded on the questionnaire through confirmability, or a reflective use of participant perspectives. This was used to build justification for themes (Creswell, 2013).

Through the presentation of this study's purpose, data analyses, ethical considerations, and limitations discussion, it is hoped this research is viewed as both dependable and credible. Dependable in that an assessment of the integrated process of data collection, data analysis and theory generation were proposed and conducted; and credible in that every effort and intention was made to accurately interpret the data

collected. All information was carefully documented and reported to provide the necessary details so similar future research might replicate the study if desired.

Summary

This chapter presented information on the recruitment process and instruments used to conduct the study pertaining to law enforcement fitness policies in relation to job injuries and absenteeism. Demographics on the six North Carolina law enforcement agencies in the sample were provided, as were the steps taken in the data collection process. Both qualitative and quantitative analyses were conducted to address the three research questions.

Agency fitness policies and OSHA 300A summary forms of six North Carolina midsized law enforcement agencies over a 5-year period were utilized in this multisite case study to determine whether a relationship existed between policy stringency and injury and absenteeism rates. Based on the quantitative analyses of ANOVA, Research Question 1 was addressed. A greater statistical significance was found between policy levels and injury rates than between policy level and absenteeism rates. When controlling for any change in policy from year to year, the opposite was found to be true.

Research Question 2 was analyzed qualitatively through responses on a questionnaire addressing policy decision-making factors and personnel. An agency's training officer or designee provided the responses. Overall data from participant responses resulted in the emergence of common themes that were then applied to the utilitarian function within rational choice theory. Research Question 3 also utilized specific questionnaire responses and determined that injuries and/or absenteeism rates were an agent of current fitness policy.

Chapter 5 interprets the findings and discusses the implications for social change. It also makes recommendations for further research and provides a conclusion to this study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this mixed methods multisite case study was to determine whether fitness policy affected reported work-related injuries and absenteeism among a sample of six law enforcement agencies in the Piedmont Triad region of North Carolina, and to test the utility function component of rational choice theory to ascertain whether it explains fitness policy implementation. OSHA-reported injury and absenteeism data were used from years 2011-2015 to examine any effects that may have resulted in policy change. Training officers were then asked about the policy decision-making process at each agency.

Interpretation of the Findings

A large amount of research has been conducted on the topics of law enforcement fitness for duty, as well as work-related injuries and absenteeism, both internationally and in the United States. However, a very limited amount of research has been conducted on agencies in North Carolina, and more particularly on midsize agencies across the state. No similar academic research was found that had been conducted to examine OSHA-reported injuries and absenteeism in relation to fitness policy levels. The findings correlated with much of the existing literature addressing the role that fitness plays in injury prevention.

Three research questions guided this study and were designed to measure the effects of both fitness policy decision-making and work-related injury and absenteeism rates:

1. What relationship, if any, exists between a North Carolina law enforcement agency's fitness policy and work-related injuries and absenteeism?
2. When research emphasizes the benefits of maintaining a certain fitness level, particularly for first responders, does the utility function within rational choice theory explain why some North Carolina law enforcement agencies mandate physical fitness requirements for officers and others do not?
3. Are data-driven results on injury or absenteeism an agent or constraint as they pertain to the present fitness policy?

Research Question 1

To determine whether a relationship existed between a certain fitness policy level and injury and absenteeism rates, participating agencies were asked to provide a copy of their fitness policy for years 2011-2015 as well as a copy of their OSHA 300A summary form for the same 5-year period. For each of the 5 years, a fitness policy was placed in to one of four categories, creating the independent variable *policy level.* The levels included (in increasing order) those agencies with (1) no fitness policy, (2) a general/voluntary fitness policy, (3) annual in-service and mandatory fitness testing, and (4) biannual mandatory testing. If fitness policy changed from one year to the next, it was noted and used as a dummy control variable (*policy change*) to determine whether change in policy made a significant difference in injury or absenteeism rates. It was only noted whether there was no change in policy, or whether an increase in policy level took place. For injury and days missed from work, a standardized rate (per 100 employees) was calculated to allow for comparisons across different agency sizes.

With SPSS, ANOVA was then applied using the *F*-test to evaluate whether group means within the dependent variable differed from each other among injury rates and absenteeism rates. It was found that ANOVA was significant between both policy level and injury rates, as well as policy level and absenteeism rates. The overall ANOVA was significant, and so follow-up tests were also conducted to evaluate pairwise differences among means. No significant difference was found between policy level and absenteeism rate, but a significant difference was found between policy level and injuries, with the agencies that required annual in-service and testing showing a greater decrease in injury rates when compared to agencies with other policies.

Theoretical Concepts

Rational choice theory (RCT) indicates that individual behavior and social interaction affect the policymaking process. This process begins with making choices; under rational choice theory, it is assumed that choices are made based on larger representative populations (Green, 2002). In RCT, rational is meant to reflect the most feasible and preferable alternative through utility maximization or the alternative that has the greatest benefit. The environment in which the choice is made contributes to the constraints or circumstances that exist, as decisions are not made in a vacuum. Then analysis examines how choices interact to produce outcomes (Green, 2002). Jones et al. (2006) contended that even though organizations make policy, the interaction of human decision makers along with individual choice is what puts policy into action because individuals want to maximize their preferences and self-interest. Decision makers hold ordered and ranked preferences for outcomes and possess the necessary information to connect choices to preferred outcomes. Therefore, the rationality component is important

in decision-making; otherwise overall utility will be affected (Political Science Notes, 2013).

The next two research questions were designed to test RCT through qualitative analysis. A multisite case study was used because input from multiple agencies would provide more abundant insight about the decision-making process than input from one or few agencies. It also provided an opportunity to mine for common themes among responses. A questionnaire was designed to ask agency training officers about policy decision-making to determine if policy choice was indeed guided by RCT concepts. The questionnaire consisted of six main questions and four sub questions inquiring further into certain responses. Three of the questions were designed to address Research Question 2.

Research Question 2

To test whether the utility function within RCT explains policy decision-making, three questions were asked of agency training officers. The questions included inquiry about the rationale behind current policy, involved decision makers, and factors affecting policy. After a written record of the responses was received from each agency, member checking was conducted to verify response content. The narrative data were then analyzed, coded, and interpreted. Improving employee productivity and wellness, and increasing officer safety were common themes among agencies that had a fitness policy in place. Case law implications, cost, and lack of manpower and administrative support were common responses among those agencies without a fitness policy in place. Responses to the question inquiring as to who was involved in the decision-making process included both internal as well as external agency employees, with all agreeing

that the agency head had the final say. Common factors affecting fitness policy were cost and resources, similar factors found in the rationale behind current policy.

It could be argued that the responses represent RCT, in that both individual behavior and social interaction played a role in the policymaking process. Of those agencies including input from multiple individuals (both inside and outside the agency), choices were made based on the most feasible option that would have the most benefit (Green, 2002). Those providing input might include agency employees, the public, or both.

Research Question 3

To determine whether results of injury and absenteeism reports served as an agent or constraint to fitness policy, a closed-ended question was asked concerning whether the agency's fitness policy was intended to address this issue. Then responses were compared to the factors given that contributed to current policy. At the agencies with fitness policies in place, policy was intended to address, at least partially, work-related injuries and absences. The agencies without fitness policies saw mainly the cost and resources to oversee such a policy as a constraint. Therefore, from the consistent information presented by agencies either having or not having policies, it was determined that an agent/constraint component of the RCT contributed to the overall decision-making process.

Existing Policies and Potential Approaches

North Carolina law enforcement agencies vary in fitness standards and policies. Policies range from voluntary self-initiation to required fitness participation and testing. Voluntary policies make it optional for officers to participate in fitness activities, either

on their own time or through various agency-sponsored incentives. One example is an agency that provides officers an extended break time to exercise while on duty. Rather than a 30-minute lunch break, officers are allowed 60 minutes, if manpower and call volume allows. The department provides a fully equipped exercise room that is available 24 hours a day. This is a convenient incentive not only for police officers, but also for all agency employees.

Other agencies in the state require fitness training days, which might occur once, twice, or four times a year (for example) as part of an officer's in-service training. Requirements vary but may only necessitate that officers are present and participate in some way. Agencies that include mandated fitness policy ensure that facilities, consultation services, and appropriate resources are available to officers by offering various fitness and educational activities, or individual consultations if desired.

Limitations

Upon completion of this study, I found several limitations that must be disclosed. These limitations included the instruments used, the geographical location selected, ecological fallacies, and sample size. Each is discussed in more detail below.

The instruments used consisted of both primary and secondary resources. The primary resource consisted of the questionnaire that was developed to specifically address policy decision-making at agencies. I validated the questionnaire by using feedback from a local advisory committee made up of local police practitioners, and reliability was assumed, as the same questionnaire was used for each agency. Yet upon qualitative analysis, it was discovered that more in-depth inquiries could have been used to delve deeper into how individual decisions were made or perhaps persuaded.

Secondary data included written policy (if any) for an agency and OSHA 300A summary reports. It was learned that OSHA reporting varied. Not all agency forms distinguished injuries and absences by officers from those by nonsworn employees in the agency. Accountability and methods of data collection were also questioned due to large variance in some of the data recorded from one year to the next.

Because data were collected from midsized law enforcement agencies in the Piedmont Trial Region of North Carolina, the results were limited. Only six of 11 agencies fitting the population criteria were selected for a more in-depth case study analysis. Therefore, statistical results cannot be generalized because of the small sample size. More specifically, the results are unique to this region and might differ from those of smaller, larger, rural, or more urban areas within the state or elsewhere.

Important to researchers is also being aware of potential ecological and individual fallacies (Frankfort-Nachmias & Nachmias, 2008). It should be noted that an agency not having or enforcing a fitness policy or standard does not imply that officers cannot or do not take individual responsibility for their own fitness. It also cannot be inferred that high absentee or injury rates reflect poor officer or agency performance, as absence or injury may not be caused by poor fitness levels. Absence is not just about a day away from work; it is tied to circumstances of an employee's medical and personal life (Harte et al., 2011). Therefore, many factors must be considered when implementing a wellness or fitness program, given that multiple facets of life circumstances contribute to missing work for various reasons.

Findings in this study address the research questions in an effort to contribute to what little is known about the relationship between fitness policies and work-related

injuries and absenteeism, specifically within law enforcement agencies in North Carolina. Information was gained on how and why fitness policies are derived in some agencies, and suggestions derived from the study's findings are made to promote positive social change.

Implications for Positive Social Change

This study has potential to contribute to positive social change at individual, community, and societal levels. The study's most important implications relate to police officers' role as public service responders. Though officers infrequently encounter situations that require them to meet physical demands, the inability to perform can have consequences for the individual officer, the agency, and the community (Means et al., 2011a). Study results suggest that some fitness standard is significantly related to lower injuries and fewer absences. The data should be encouraging to individuals and agencies alike that are seeking to promote the overall wellness and health of employees. More today than ever, organizations have to *do more with less* to maximize work output and increase productivity. This suggests that increasing productivity reduces organizational expense (Harte et al., 2011). According to the U.S. Department of Labor (n.d.), health improvement programs cost 0.5% of payroll, compared to 6.5% in combined costs related to replacement of workers, sick leave, short and long-term disability, and workers' compensation. Employers are challenged by supporting employees' needs (e.g., time off and health insurance) with cost-effective benefits that create a productive workforce. Particularly when an administration aligns organizational goals and employee needs, employees' productivity can be greatly influenced by their general health and well-being

(Harte et al., 2011). In this sense, the individual, agency, and taxpayers/recipients of public services all benefit.

Recommendations for Action

Investing in wellness programs that focus on preventing illness and maintaining health influences medical costs and absenteeism. Such programs can go a long way in helping to creative a high-performance environment, lower health care costs, and reduce absences (Harte et al., 2011). Funding for fitness programs could be included within agency budgets or agencies could seek state funding per North Carolina General Statute 130A-224 as it pertains to public health. This statute provides a full mandate for public health issues, including injury prevention (Stier et al., 2012). It is a collaboration worth exploring further. A partnership with the North Carolina Public Health Department would be advantageous to incorporating injury prevention programs. To justify continued funding, it would be necessary to routinely evaluate training methods (Ferguson et al., 2011). Evaluation results can be useful by also pointing out deficiencies or areas where improvements can be made. It is the obligation of criminal justice practitioners and researchers alike to render professional judgment to improve the well-being of those in the field (ACJS, n.d.). Poor health and fitness carry higher risks of injuries and absences, which in turn cost agencies and taxpayers more money. Therefore, to justify standards and funding, evaluation is a necessary component. Data collection that provides evidence-based results would help to justify the continuance (or elimination of) such programs in the future.

The main objectives of fitness policy include reducing the risks of both work-related injury and absenteeism (and therefore increasing the health benefits of officers)

and reducing agency and officer costs by way of fewer medical expenses and less absenteeism. The stipulation is that data should be collected and funding should be contingent upon evidence-based results. This could also be a beneficial form of accountability.

The purpose of providing alternatives is to offer optional approaches in case the initial, intended proposal does not completely work (Bardach, 2012) or needs to be adjusted in some way. The current interest lies in reducing workplace injuries and absences. Employers are aware that health and work are interrelated and that employers have a role in facilitating job retention and wellness (Irvine, 2011). Therefore, they are key players in policy change.

Recommendations for Further Study

The results of this study are limited to what was found among six law enforcement agencies within one region of North Carolina. The intent was to concentrate mainly on the patrol function within policing; however, with OSHA 300A summary statistics, it is difficult to do that. Therefore, it is suggested that actual OSHA 300 forms be analyzed to select out how injuries and absenteeism among patrol officers might differ compared to other sworn or nonsworn positions within an agency. This analysis would require more time and resources because those reported on the OSHA 300 form as injured or absent are listed by name; therefore, confidentiality would first have to be considered, and with the assistance of human resources a role distinction would have to be made among names as to pull out patrol officers. Alternatively, perhaps those patrol officers could be contacted and interviewed to determine whether the injury or absenteeism was indeed work-related.

It might also be interesting to compare differences in fitness levels and requirements for specialty teams (for example, SWAT, K-9) versus patrol as specialty teams generally require more strict fitness levels. Though the responsibilities differ, there may be a significant difference in injury and absenteeism rate when compared to patrol officers. Also, because more stringent requirements are often a condition of belonging to such specialty teams, how or why this policy was rationalized and decided might be explored to further test RCT or to test additional decision-making theories.

Conclusion

This study was conducted to address the gap in the literature regarding why police academy cadets have required fitness standards but not all law enforcement agencies require a maintained fitness level as a condition of employment in North Carolina. In the hiring process, a critical qualifying factor is the use of fitness testing; however, if testing is used agencies need to understand fitness assessments if they are to implement required standards (Cooper Institute, 2014). During this research, very limited studies were found specific to North Carolina agencies and fitness policy, and none were found that specifically examined OSHA-reported injuries and absenteeism compared to various agency fitness policies.

Providing quality public services to the community is demanding and often agency resources are stretched thin. Agencies are trying to find that delicate balance with limited resources, whether dollars, manpower, or time. Agencies discussed varying reasons for having or not having physical fitness policies in place, but regardless; all stressed the importance of officer safety which can be increased by paying attention to officer wellness (Office of Community Oriented Policing Services, 2015).

Research continues to support the importance of a police officer's physical and psychological health, but fitness is only one piece of a larger puzzle. Improving workplace productivity calls for a comprehensive strategy that includes integrating evidence-based measurement because it is important to show that the health and productivity of the workforce directly relates to the health and well-being of the organization (Harte et al., 2011; Office of Community Oriented Policing Services, 2015).

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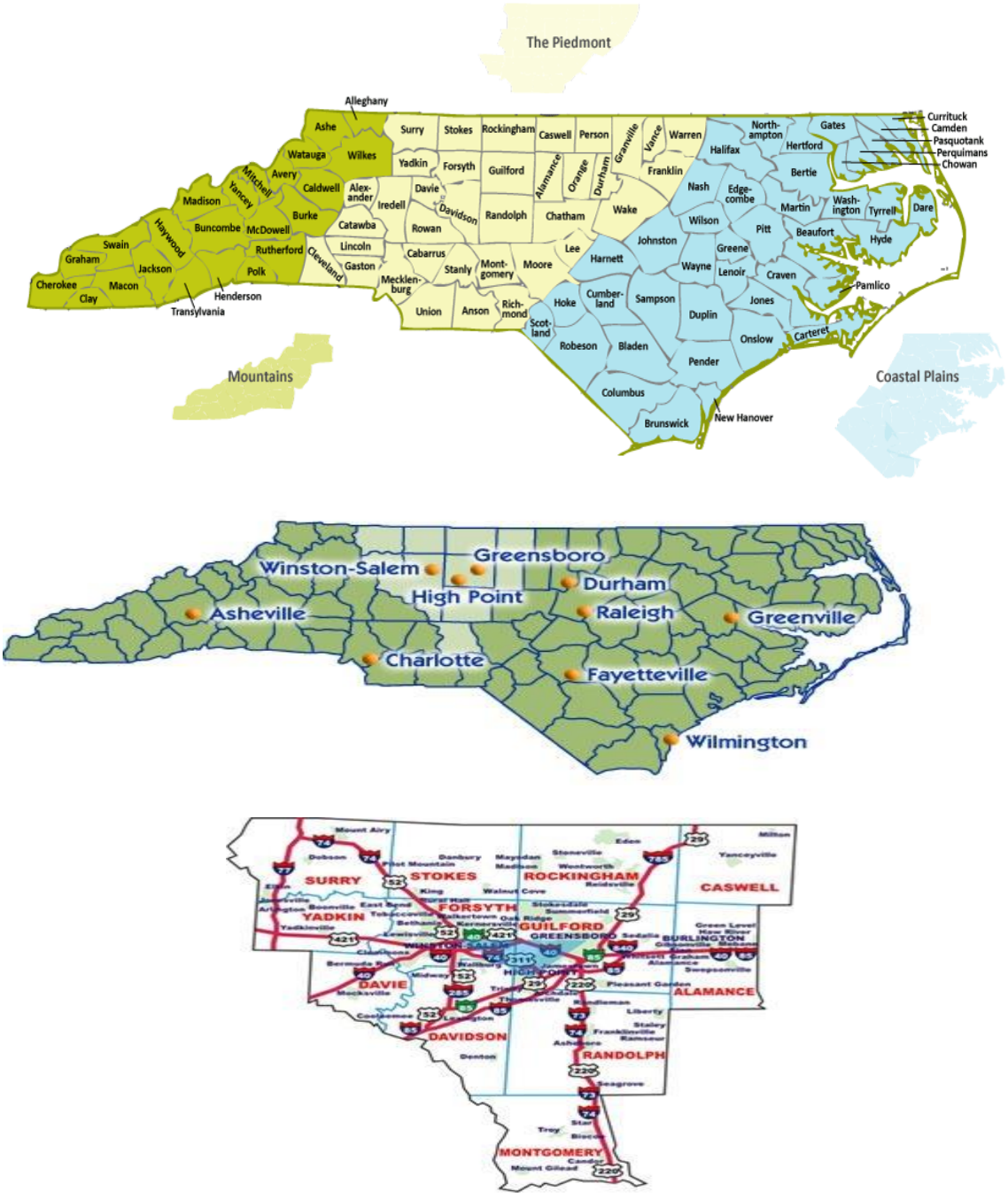
Appendix A: North Carolina Regions



Reference: Piedmont Triad Council. (2012). Retrieved from http://www.ptrc.org/

Appendix B: Piedmont Triad Region Law Enforcement Agencies

Agency	Population 50,0000 – 500,000
Alamance County	yes
-City of Burlington	yes
Caswell County	no
Davidson County	yes
Davie County	no
Forsyth County	yes
-City of Winston-Salem	yes
Guilford County	yes
-City of Greensboro	yes
-City of High Point	yes
Montgomery County	no
Randolph County	yes
Rockingham County	yes
Stokes County	no
Surry County	yes
Yadkin County	no

Appendix C: Population of Midsize Law Enforcement Agencies in the Piedmont Triad Region of North Carolina

Agency	2010 census population
[redacted] County Sheriff's Office	151,131
[redacted] Police Department	49,963
[redacted] County Sheriff's Office	162,878
[redacted] County Sheriff's Office	350,670
[redacted] Police Department	229,617
[redacted]County Sheriff's Office	488,406
[redacted] Police Department	269,666
[redacted] Police Department	104,371
[redacted] County Sheriff's Office	141,752
[redacted] County Sheriff's Office	93,643
[redacted] County Sheriff's Office	73,673

Note. From "2010 Census Interactive Population Search," by U.S. Census Bureau, n.d. (https://census.gov/). *N* = 11. Midsize = areas with 50,000-500,000 population.

Appendix D: Sample Agency Fitness Policy

STANDARD OPERATING PROCEDURE	UNIT: Training Division
SUBJECT: HEALTH AND FITNESS OF SWORN OFFICERS	NUMBER 7.4
EFFECTIVE DATE: 8/1/04	PAGE 1 OF 1
REVISION HISTORY: (Adopted 1/1/96) R1-7/1/99 R2 8/1/04 R3 8/10/07 R4 3.6.09 R5 10.14.13	

7.4.1 OBJECTIVE
The objective of the xxxxxxx Police Department is to develop and maintain a level of fitness in police personnel and to ensure their ability to accomplish assigned duties and provide satisfactory job performance without undue risk of injury or fatigue.

7.4.2 RESPONSIBILITIES
The Training Division is primarily responsible for the coordination and execution of all tasks pertaining to departmental directive 8.1.3.

7.4.3 COMPONENTS
The fitness services, provided at no charge by the department, includes:
1. An optional nutritional assessment. Officers complete a journal about their present health/eating habits.
2. A physical fitness assessment. The assessment consists of the following:
- Age, Height measurement, Weight measurement
- Body composition (Body Fat Percentage) – is measured by using skin fold calipers.
- Blood pressure and heart rate - are measured by a sphygmomanometer.
- Aerobic fitness - is measured by both a 1.5 mile walk/run and a 300-meter walk/run.
- Strength fitness - is measured by:
  - Maximum one-time bench press
  - Maximum number of push-ups within one-minute
  - Maximum number of sit-ups within one-minute

Once all tests are computed, each participant is categorized into one of five levels of fitness (age adjusted):
1) Very Poor 2) Poor 3) Fair 4) Good 5) Excellent 6) Superior
Each participant receives a synopsis of his/her results.

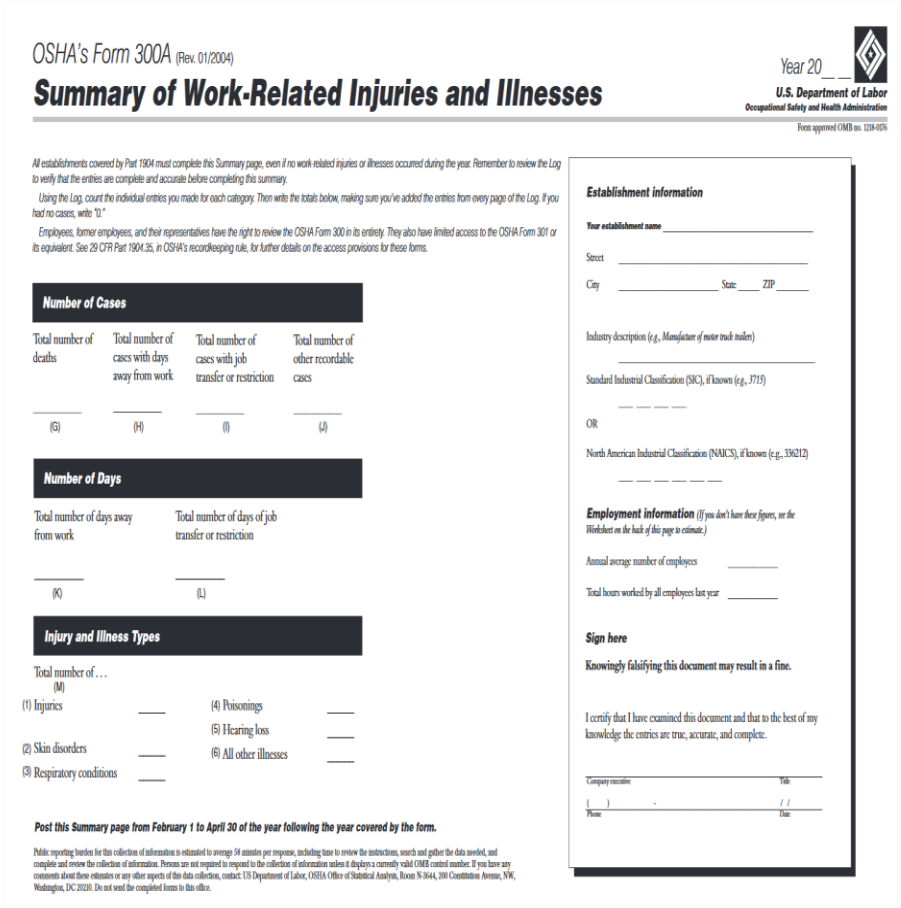
7.4.4 ANALYSIS OF RESULTS
Each officer will be given a copy of their physical assessment synopsis if requested. They may at any time schedule an appointment with the appropriate training coordinator for a free consultation concerning their results.

7.4.5 DUTIES
The Training Division will ensure that staff members performing tasks assessments are capable of properly conducting physical fitness assessments, providing fitness counseling and providing a written printout of results on each participant. Testing will be conducted at the Public Safety Training Facility utilizing Departmental equipment.

Retesting – Any participant can be retested upon request of the participant. Portions of any segment or the entire program can be retested.

7.4.6 FILE MAINTAINANCE
Any information obtained which pertains to the health and wellness program will be maintained in the Training Division and monitored by the appropriate training coordinator.

Appendix E: OSHA 300A Form



OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

Year 20__ __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no work-related injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, write "0."

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR Part 1904.35, in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
_____	_____	_____	_____
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
_____	_____
(K)	(L)

Injury and Illness Types

Total number of … (M)

(1) Injuries ____
(2) Skin disorders ____
(3) Respiratory conditions ____
(4) Poisonings ____
(5) Hearing loss ____
(6) All other illnesses ____

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____

Street _____

City _____ State ____ ZIP _____

Industry description (*e.g., Manufacture of motor truck trailers*)

_____

Standard Industrial Classification (SIC), if known (*e.g., 3715*)

__ __ __ __

OR

North American Industrial Classification (NAICS), if known (e.g., 336212)

__ __ __ __ __ __

Employment information *(If you don't have these figures, see the Worksheet on the back of this page to estimate.)*

Annual average number of employees _____

Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

_____ _____
Company executive Title

( ) - / /
Phone Date

Appendix F: Participating Agency OSHA-Reported Injuries in Order of Fitness Policy Stringency

Agency	Year	# of employees	Days away from work	*Absent rate (per 100)	Total injuries	*Injury rate (per 100)
(1)	2011	228	2	.88	12	5.26
	2012	248	117	47.18	15	6.05
	2013	254	154	60.63	10	3.94
	2014	254	0	0.00	14	5.51
	2015	262	12	4.58	12	4.58
(2)	2011	missing	55	missing	23	missing
	2012	1206	248	20.56	61	5.16
	2013	892	411	46.08	65	7.29
	2014	1023	305	29.81	79	7.72
	2015	954	389	40.78	66	6.92
(3)	2011	248	138	55.65	31	12.50
	2012	261	191	73.18	38	14.56
	2013	268	19	7.09	30	11.19
	2014	266	75	28.20	12	4.51
	2015	279	43	15.41	18	6.45
(4)	2011	901	426	47.28	66	7.33
	2012	900	128	14.22	66	7.33
	2013	929	471	50.70	65	7.00
	2014	881	363	41.20	56	6.36
	2015	881	266	30.19	38	4.31
(5)	2011	230	3	1.30	8	3.48
	2012	238	164	68.71	12	5.04
	2013	240	2	.83	8	3.33
	2014	243	0	0.00	2	.82
	2015	235	18	7.66	7	2.98
(6)	2011	164	15	9.15	17	10.37
	2012	182	5	2.75	18	9.89
	2013	171	25	14.62	15	8.77
	2014	172	52	30.23	17	9.88
	2015	171	267	156.14	20	11.70

* Absenteeism/injury rate is total number of days away from work (or total number of injuries) divided by total number of employees times 100 (rounded to nearest hundredth)

Appendix G: Agency Questionnaire

Agency:

# of sworn officers:

Title:

Does your agency have a physical fitness policy? *(please include copies of years 2011-2015)*

If YES

is it mandatory or voluntary?

how long has the policy been in place?

What is the rationale behind having/not having a fitness policy in place, or for changing policy?

Who are involved decision makers in fitness policy? Who ultimately decides?

What factors determine or affect fitness policy? (ie: resources, manpower, cost, etc.)

Was policy intended to address work-related injuries and illnesses?

Are you aware that North Carolina provides a full public health mandate that includes injury prevention?

If no, would you want more information?

If yes, is that part of the rationale for having/not having a fitness policy?