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Law Enforcement Seat Belt Use: Impact of Policy and Phenomena on Use

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Abstract

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Zachary Loken

MA, St. Cloud State University, 2013

BS, Winona State University, 2011

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Studies show that seat belt use by law enforcement officers is estimated to be at 50%, well below the national average. The purpose of this study was to explore what may be leading to reduced seat belt use by law enforcement patrol officers while also determining if different types of policies effect the level of seat belt usage by this population. The theoretical framework used in this study was Shafritz, Ott and Jang's theory of organizational culture and change. This quantitative study was conducted using a casual, quasi-experimental design; the research questions focused on understanding what phenomena may be occurring resulting in the lower seat belts by U.S. police patrol officers and what types of policies are resulting in increased seat belt usage by this population. Participants in this research consisted of 38 officers from police departments with patrol divisions. These departments were selected from the Phoenix Metropolitan Area. The research indicated that officers may have false perceptions in regard to seat belt use. Trainings should be delivered to debunk some of these myths while also providing practical seat belt use training. The results of this study can be used to develop better policies to increase seat belt usage by law enforcement officers, which would likely reduce the injuries and death as a result of auto accidents. Decreased injuries and deaths of law enforcement officers would lead to decreased insurance and workers' compensation claims that would reduce the tax and financial burden faced by citizens and jurisdictions.

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Chapter 1: Introduction to the Study

Introduction

Seat belt use has been a thoroughly researched topic for many years, and numerous studies have been conducted on exploring the topic further. Some examples of studies conducted have been: high school students and their use of seat belts, international use of seat belts, young adults and their use of seat belts, the effect of marketing on seat belt use and many more (CITE). A simple search of seat belt use on any search engine will yield many studies on the use and a multitude of factors for why individuals are wearing seat belts or are not wearing seat belts. However, there is one significant area where studies have been minimal and almost nonexistent: the study of seat belt use in law enforcement. By further studying seat belt use in law enforcement, data can be generated that can be used to make policy and organizational changes that will lead to increased seat belt use by law enforcement officers. This has the likelihood of having a significant social impact on two different fronts: (a) injuries and deaths to law enforcement officers will decrease and (b) the public burden experienced due to the costs and trauma that occur because of these injuries and/or deaths will also be decreased.

In this chapter, I introduce the reader to the background of this issue, why it is a problem, what I sought to find with this study, the framework of the study, how the research was conducted, and how the data were analyzed. In turn, the reader will better be able to understand the topic as they continue into further chapters, where will discuss the topic in more depth.

Background

Research in the realm of law enforcement officers and their seat belt use is minimal. The most recent research on this subject matter was last completed in 2005. Two prominent examples of studies into this topic were by Oron-Gilad, Szalma, Stafford and Hancock (2005) and by von Kuenssberg Jehle, Wagner, Mayrose, and Hashmi (2005).

Oron-Gilad et al. (2005) focused on the characteristics of officers and why they were not wearing their seat belts. They separated their results into in five main categories:

- Travel context - Seat belt use and its association with distance being travelled.
- Crime context - Seat belt use and its association when officers are travelling in high crime areas as opposed to low crime areas.
- Confidence in seat belt design - Dealing with whether officers felt confident in how their seat belts were designed (i.e., easy to get on and off, prone to snagging on equipment, etc.).
- Speed and distance of travel - Seat belt use and its association of use at varying speeds both en route to emergencies and nonemergent responses.
- Seat belt ergonomics - Discussing seat belts and whether officers chose to wear them or not wear them based on if they were comfortable, ergonomic, and the like. (Oron-Gilad et al., 2005)

Further breakdown in these categories was done by demographic analysis containing the following variables: gender, age, rank years of service, body mass index, handedness (i.e., left or right; (Oron-Gilad et al., 2005).

Within the context of Oron-Gilad et al.'s (2005) study, phenomenological research was my primary focus because it was the research design I used in the current study the explore the perceptions of officers and their seatbelt use to understand what, if any, phenomena are occurring that may be leading to decreased use. Furthermore, I directed the study at exploring seat belt use against numerous variables which, when researched and better understood, could be directly applied in policies to affect positive change within the public sphere of law enforcement. What I did not explore in depth was the impact of policy and training considerations and organizational standards on seat belt use, although Oron-Gilad et al. found evidence of its importance by stating:

> Questions 43–45 addressed the influence of Police Academy training (Q43), field training officers (Q44), and agency policy (Q45) on seat belt use. A repeated measures ANOVA was significant ($F(2, 334) = 125.9$, $p < .001$, $f = .27$). Indicating that the most influential of the three was the agency policy (mean = 3.47, $SD = 1.35$), followed by the field training (mean = 2.92, $SD = 1.28$), and the police academy had the least influence (mean = 2.56, $SD = 1.27$). These data show that the agency policy regarding seat belt use is influential on officers' behavior regarding to seat belt usage. (p. 14)

I explore Oron Gilad et al.'s work in more detail in the literature review portion of this dissertation. In this study, organizational standards were looked at in depth. Organizational standards in law enforcement exist in a multifaceted way. First, they exist to make sure the agency is in accordance with the law (i.e., state law requiring the use of seat belts; CITE). Secondly, they are used to make sure the agency is protected

financially (i.e., having a seat belt policy in place to reduce insurance rates, payouts to injured parties which burdens tax payers, etc.) Lastly, they promote efficiency and safety within the agency (Oron-Gilad et al. 2015) By increasing seat belt use through policy, officers are less likely to be injured, keeping them on the streets and not straining other officers or the agency's budget.

Von Kuenssberg Jehle et al. (2005) also conducted research into this topic, but rather than explore the phenomenological ideologies associated with nonuse, they determined why officers should wear their seat belts. The main categories they studied were focused around seat belt laws; traffic crash data (i.e., frequency rates for law enforcement, number of officers injured, etc.); and policy considerations. They conducted a meta-analysis of records of law enforcement crashes from the years 1997 to 2001. In their study (and others including this dissertation), the term *law enforcement* was used to describe an individual or individuals who were sworn officers tasked with the prevention of crime and enforcement of laws. When the authors described crashes amongst law enforcement, they meant to describe traffic accidents that involved law enforcement officers who crashed their agency-issued vehicles while on duty. Their analysis found that officers were 2.6 times more likely to be killed in a motor vehicle accident encountered during the course of employment than what was expected by officers wearing their seat belts. Furthermore, they found that of 79.8% of the occupants that were wearing their seat belts during a crash, 79.5% survived. Those findings support the idea that officers would benefit greatly from seat belt use (Von Kuenssberg et al., 2005).

The combination of the outdatedness of the extant studies and the prevalence of the subject matter necessitated that quality, contemporary research should be conducted further on this topic. Although studies about seat belt use exist have been conducted since this time period, studies on law enforcement do not, and this has produced a large gap in research. The extant studies have shown that seat belt use saves lives in the law enforcement arena and exploration should be done to further study this topic while also exploring ways to raise the low rate of seat belt use that data are currently showing.

Although research specifically on seat belt use by law enforcement officers is minimal, research about the general public and seat belt use is vast and detailed. Researchers have shown that enacting seat belt use policies/laws increases use percentages and decreases injuries and deaths (Chen & Ye, 2009; Cohen & Einav, 2011; Farmer & Williams, 2005; Nichols & Ledingham, 2008; Shults et al., 2012; UNC Highway Safety Research Center, 2011). Further research needs to be done to bridge the gap in this research while also further exploring why law enforcement officers are not using their seat belts at the same rate as regular citizens.

Problem Statement

The Number 1 killer of law enforcement officers is traffic accidents (FBI, 2015). During 2014, 10 of 28 officers killed in vehicle accidents were not wearing seat belts, and 6 of the 10 auto accident victims were ejected from their vehicles during the crashes (FBI, 2015). Further, according to the U.S. National Highway Traffic Safety Administration (NHTSA; 2014),

> The seat belt use among law enforcement officers is well below that of the general public. Studies indicate that seat belt wear among the general public is at 86%, whereas it is estimated that roughly half of all officers do not wear seat belts while on duty. (p. 1)

Exploration into why the seat belt usage rate is so low amongst law enforcement is minimal. The extant studies mentioned previously were the most in-depth exploration that I could locate. As Oron-Gilad et al. (2005) described, a problem exists within policies and the organizational standards that allow this problem to thrive. Oron-Gilad et al. found that there was no general consistency in which the policies were applied, even when there are explicit instructions on how to utilize the policy. Furthermore, policies as an entirety have not been studied, which leaves the question of which policies are the most effective in increasing seat belt usage unanswered.

With traffic accidents being the primary killer of law enforcement each year and seat belts being a tool to combat death and injury to occupants of vehicles, there is a need to study this problem more thoroughly to produce data that can be applied to public policy changes to increase seat belt usage amongst officers and likely decrease the amount of death and injuries they suffer on the job. Unfortunately, research on the effects of policies on seat belt usage amongst this population is nonexistent. Research on the phenomenological impact of usage is minimal as well, with the latest study conducted in 2005. In order to reduce injuries and deaths amongst law enforcement officers driving patrol vehicles, research needs to be done to figure out what policies are working and

those that are not, so ultimately, public administrators can use that data to institute proper policies and organizational changes to foster increased usage of seat belts.

With this study, I aimed to address phenomena associated with the lack of seat belt use amongst law enforcement patrol officers. These phenomena has been discussed before in research (Oron-Gilad et al., 2005; von Kuenssberg Jehle et al., 2005); however, these studies were limited in scope and are outdated. The impact of these phenomena need to be better understood in order to consider their implications on policy development.

Purpose

The purpose of this quantitative study was to understand why law enforcement patrol officers in a designated area (in this, case the Phoenix Metropolitan Area [PMA]) are not wearing their seat belts as well as determine if certain policies are resulting in increased wear and awareness of seat belt use. Prior researchers have explored the phenomena, but no research has been conducted to understand what polices have the greatest impact on officer seat belt use while also attempting to better understand what phenomena may or may not be having an effect on seat belt use. By understanding phenomena as well, policy implementation and design could be developed and better streamlined to understand where focus may need to be placed in regard to creating the best policy possible. Designing policies tailored to data generated by this study could lead to decreased injuries and deaths because law enforcement officers would wear seat belts more.

Research Questions

Research Question 1: Does a policy that dictates a mandatory wear policy for law enforcement officers coincide with use rates increasing like that of research about general public seat belt usage?

$H_0$1: Yes, the research will show the same correlation.

$H_1$1: Policy in the law enforcement field will not result in the same correlation.

Research Question 2: What phenomenological effects exist that are resulting in lower seat belt usage by law enforcement, if any?

$H_0$2: Effects stemming from the comfort of seat belts and anxiety or concern about accessing equipment on their duty belt is leading to decreased seat belt usage.

$H_1$2: Comfort and anxiety have no effect on seat belt usage and/or other factors contribute more so than comfort and anxiety.

Nature of Study

The results of this quantitative study fill in the gap of research that currently exists in the area of policy impact on seat belt use in law enforcement. Current scholarship does not exist in this specific discipline, and furthermore, there is a lack of research in the area of phenomenological effects on seat belt use, which was also addressed in this study. Oron-Gilad et al. (2005) was the most recent study to discuss the effect of policies on seat belt use in-depth. Being that their study is now outdated by over 10 years and other

research on this topic is minimal, the results of this current study contribute to this research area and provide contemporary data.

The findings of this study are able to be readily applied by law enforcement departments and their administration to increase seat belt usage by patrol officers. By also looking at the phenomenological portion of this research, administrators could fine tune suggested policies to best fit their department.

Law enforcement departments and social institutions would stand to benefit from the results of this study by decreased officer deaths and injuries. Further change could come by way of monetary savings for both departments and the general public that would occur due to reduced deaths and injuries. These monetary savings would stem from reduced workman compensation payments and save taxpayer money that would not have to be allocated for injured or killed officers.

Framework

Within the topic of law enforcement officer seat belt use, theories on the lack of use by officers are minimal or even nonexistent. However, when analyzing this issue, specifically in the law enforcement arena, past studies have shown a trend of two specific variables that appear to be the main officer considerations about wearing seat belts: policy considerations and phenomenological considerations. Concerning policy, officers take into consideration what ramifications will come from not wearing their seat belts based on a policy or policies that dictate when they need to wear their seat belts. Concerning phenomenology, officers take into consideration the risk of wearing their seat belts depending on specific situations (i.e., in high crime areas, when travelling fast, etc.).

To understand these variables, I rooted the framework of this study in an interpretive approach to analyzing the behavioral data gathered and suggest applying the gathered data to make changes in the culture of an organization and/or the culture of all law enforcement organizations.

As developed by Shafritz, Ott, and Jang (2011), the theory of organizational culture and change presents a framework that can be readily applied to this type of quantitative research. They define the theory as "organizational culture, like social culture, is compromised of many intangible phenomena such as values, beliefs, assumptions, perceptions, behavioral norms, artifacts and patters of behavior" (Shafritz et al., 2011, p. 338).

The issues of beliefs, assumptions, and behavioral norms that have plagued this topic area the worst, and organizations that are responsible for culture and change are not presented with enough data to effectively make changes. This theory related to this study by allowing for the generation of quantitative data that could challenge these beliefs, assumptions, and behavioral norms. In the first research question, concerning the policy impact on seat belt use, I sought to challenge the assumption that certain seat belt policies do or do not work through the quasi-experimental analysis of varying policies. With the second research question, concerning the phenomena impact on seat belt use, I sought to further study what phenomena are resulting in the decreased use of seat belts by law enforcement officers. This data could be used to challenge beliefs and behavioral norms that have been developed by officers and ideally, lead to changed perceptions and

increased seat belt use. In Chapter 2, I further discuss this theory and its impact on seat belt use amongst law enforcement officers.

Definitions

Law enforcement officer(s): Those who

> Maintain order and protect life and property by enforcing local, tribal, State, or Federal laws and ordinances. Perform a combination of the following duties: patrol a specific area; direct traffic; issue traffic summonses; investigate accidents; apprehend and arrest suspects or serve legal processes of courts. (Bureau of Labor Statistics, 2015, p. 1)

Policy or policies: "A course or principle of action adopted or proposed by a government, party, business, or individual." (Policy, 2016, p. 1)

Seat belt: A safety restraint device used in a motor vehicle. It commonly goes over one shoulder to a connection point along an individual's hip. The primary use of this device is to limit death or injury in the event of a motor vehicle accident (NHTSA, 1984)

Squad car or patrol vehicle: A vehicle that is used to patrol an officer's jurisdiction in which an officer operates said vehicle (Bureau of Labor Statistics, 2015).

Administration/administrators: A term used to describe officers or professionals that are responsible for the implementation and design of rules or regulations and the discipline for noncompliance of those rules and regulations for a department (Administration, 2016 p.1).

Assumptions

Based on prior research into this matter, assumptions can be drawn in the areas of policy and phenomenological impact on law enforcement officers and their frequency of seat belt use. As stated earlier in this chapter, citing Oron-Gilad et al. (2005), it was assumed that officers will follow whatever policies are put in place. I also assumed (based on prior research) that the best policy to be put into place is one that requires officers to wear their seat belts at all times (unless otherwise noted by policy). The assumption was that the implementation of such a policy will lead to higher seat belt use by officers and a decrease of officer injuries and/or deaths due to the increase in seat belt use that would be experienced.

The second assumption was that in cases where officers are choosing not to wear their seat belts, this choice is being made because the phenomena in place leading to a decision not to use their seat belts. Research by Oron-Gilad et al. (2005) supports that the reasoning for this has to do with comfort, vigilance, and design issues. Another assumption was that exploring this topic further and providing educational information on the topic would lead to increased seat belt use.

Scope and Delimitations

The scope of this research was to analyze two facets of law enforcement officer seat belt usage: the impact of policy on seat belt use and the impact of phenomena on seat belt use. My reasoning for this was to create contemporary data that supports why seat belts are needed by law enforcement officers, ways to increase the rate of usage, and a

better understanding of the phenomena so that data can be incorporated into training material and design considerations for departments, agencies, businesses, etc.

I conducted this study in the PMA in Arizona. This area was selected because it was most likely to provide a *worst case scenario* in regard to the data being obtained during research. This worst case scenario of data collection was hypothesized due to the weather experienced in this area. Because there are seldom weather issues that would increase the likelihood of accidents, I believed that officers may be complacent in their seat belt usage as opposed to their bad weather area counterparts (e.g., Minnesota where snow increases accidents). The results presented in this study provide data that would likely support seat belt use being worse than what is being experienced elsewhere and could be extrapolated by the reader to reflect other regions.

Although this worst case scenario does provide unique data, it is also a double-edged sword within this research because it is also a limitation. According to Bureau of Labor Statistics (BLS; 2015), approximately 7,530 patrol officers work in the PMA. When this is applied to the BLS's estimation that there are 638,810 of total law enforcement officers in the United States, it would mean that if I had been able to contact every officer in the PMA for this study, the results would be representative of less than 1% of the total law enforcement population. Although this number is small based on the entire total of law enforcement officers in the United States, the data could be applied universally to other departments, and as previously mentioned, is likely a better case scenario than actual numbers across the nation. The data were also able to be meta-

analyzed against the research done by Oron-Gilad et al. (2005) for a separate area reference.

Limitations

Limitations in this study were minimal. For external validity, I placed consideration specifically on the situational aspect of this research. The situation in which the experiment was conducted could be described as less than ideal. The sample size was less than 1% of the total population size being studied, even though a power analysis revealed it to be an ok sample. The location where the research was performed was also not conducive to the nationwide locations the results of this study could also be applied to. Attention was given to the fact that this was a first-time research study for me by allowing experienced researchers and academics to review data and the final study.

External and Internal Validity

The main issue for internal validity was the instrumentation used. I created an instrument for this project to measure multiple different variables in the realms of demographic considerations, policy impacts, and phenomenological impacts. Being a novice researcher did pose some potential threats to the proper design of the instrument as well as its proper administration. To reduce these risks, I designed the instrument based on a similar instrument by Oron-Gilad et al. (2005) who found success in its use.

In order to strengthen the instrument, I also planned to conduct a pilot study to receive feedback from experienced professionals in law enforcement. Their feedback was then going to be applied to the final instrument that was sent to the entire sample population. Unfortunately, a pilot study was unable to be conducted.

Bias Considerations

Due to the simplicity of the design and the quantitative reporting of the data, I believed that biases were minimal in this study. One bias that I watched for was the in-group bias. Due to the fact that I am also a police officer, it was possible for me to give preferential treatment to the participants due to a perceived connection based on mutual employment in the law enforcement industry. Although I was cognizant of this possible bias, there was not really an area where preferential treatment had an opportunity to be applied because the participants were all police officers given the exact same survey. The only two perceived areas of preferential treatment that could have occurred was during the selection phase of the reward for participation, and to avoid that, a third party conducted a randomized drawing. No reward ended up being used for the responses to the surveys.

It was also possible that I reported the data incorrectly due to wanting to cast a positive light on others in the same profession; however, once again, an outside party reviewed all data and the conclusions drawn from said data. The way the initial data were collected made it unalterable by me. The data were saved in a cloud space to be reviewed if questions arose over whether they were reported correctly.

Significance

I believed that this study would advance current research in the area of seat belt use and law enforcement officers through better understanding of the effects of policies and phenomena on said use. It built upon the current research while also venturing into new and applicable areas of research within this topic. Mainly, with this study, I

addressed what part policy plays in the use of seat belts by law enforcement officers. Secondly, extant research was expanded by the results of this study through the provision of a better understanding of what role phenomena play in the use of seat belts and whether it is possible to alter some of the perceived environments of culture and myths that may exist around them.

By researching both of these topics, I believe that administrators or policy makers who view this study can adapt policies and procedures from the data that will result in increased seat belt use by their subordinate officers. By applying this research to a perspective department and increasing seat belt use, positive social change could occur for the department and the public as a whole. For the department, positive social change would occurs because officers would be less likely to injure or kill themselves if involved in a motor vehicle accident because they were wearing their seat belt more often. This would make it so morale would less likely be affected in the case of an officer being involved in an accident because they would be less likely to be hurt severely. Secondly, the burden that is placed on a department financially would also be decreased because officers would be less likely to be hurt, so they would be less likely to need insurance payouts, have other officers work overtime to cover for their absence, or incur other costs associated with the injury or death of an officer.

The results of this study could also translate to similar positive impacts for the rest of society as well, primarily financially. Increased use of seat belts by law enforcement officers leads to communities not being as financially affected by the repercussions of an officer being injured or killed. The financial burden incurred by a department is often

handled by the taxpayers. In these situations, taxpayers would not be affected as much because officers would not be injured as much. Furthermore, the emotional grieving process that many jurisdictions go through when an officer is injured or killed would also be decreased due to officers wearing their seat belts more and being less likely to be injured or killed.

Social Change

The concept of social change in this area of research is two-fold. The first component of the social change concerning this research is the social change within the organizations and culture of law enforcement and the second is the social change for the general public. Within the law enforcement community, what little research that has been conducted has shown there to be an ingrained pattern of thought when it comes to seat belt usage, mainly the resistance to training law enforcement officers to consider wearing the devices (Oron-Gilad et al., 2005) It is believed that due to a lack of applicable literature supporting the need for the devices as well as debunking myths for why officers do not wear their seat belts, the current behavior has become rampant (2005). As theorized previously in studies like that of Oron-Gilad et al. (2005), resistance to change is to be expected. By functionally studying policies and phenomenon in seat belt use, the data could lead to positive social change within law enforcement by saving officer lives and reducing costs to the department.

For the general public, at a glance, it may appear as if social change is nonexistent in this area of research, however, that would be inaccurate. A study done by the television station, WJLA (2014), stated that taxpayers (i.e., the general public) paid $1,000,000 for

incidents related to patrol car crashes and injuries suffered from them (to include seat beltless occupants). If that number is applied nationwide , it could be viewed as a small amount; however, this number represents only the amount paid by the Fairfax County Police Department in Virginia: One department = $1,000,000 (2014). To extrapolate, with approximately 100 departments this size or greater in the U.S. (BLS, 2015), the ramifications to taxpayers become more apparent.

Furthermore, the cost both financially and emotionally to the general public when an officer is seriously injured or killed in the line of duty can be astounding. Although emotions are hard to quantify, the cost to the public of an injured or killed officer is able to be quantified. According to a study done by the International Association of Police Chiefs (IACP; 2009), based on the average national salary of a U.S. law enforcement officer to include benefits, the cost of replacing an injured or deceased law enforcement officer (either temporarily or permanently) was in excess of $3,000,000, of which, the taxpayer assumes the burden for. The findings of this study can be used to address these issues and promote social change by educating departments and officers about the usefulness of seat belts and how they save lives and reduce injuries that not only allow for improved morale and efficiency in departments but also benefit the general public financially and emotionally by allowing them to not have to experience the burden of an injured or deceased officer due to neglect from not wearing a seat belt. Furthermore, the money saved by both the department and general public from not having to pay for these injured or deceased officers can be applied to other public ventures that can increase the quality of life for all.

Summary

In this chapter, I briefly discussed the topic of seat belts, law enforcement officers, and the justification for seat belt use. I also presented what little research exists specifically on this topic. Being that there has been little research conducted on this topic and that the data (for the most part) did not really explore the phenomena or effect of certain policies on seat belt use, further research, using the discussed framework, would be effective in altering culture and change within law enforcement organizations. In these cases, I hypothesized that proven, tested policies being implemented and a better understanding of phenomena that exist in this area of study would assist in debunking those beliefs, assumptions, perceptions, behavioral norms, and patterns of behavior that would lead to an increase in officer seat belt use and awareness. This increase would save lives, injuries, and taxpayer money that is paid out to officers injured or killed while not wearing their seat belts. In the next chapter, I will review previous studies and literature that exist within this area of study and the impact (or lack thereof) they have had on this topic.

Chapter 2: Literature Review

Introduction

Seat belt use has been studied heavily and continues to be researched to the inherent ramifications from nonuse. According to the Center for Disease Control (CDC; 2015), motor vehicle crashes are a leading cause of death among those aged 1 to 54 in the United States. More than 2.2 million adult drivers and passengers were treated in emergency departments as the result of being injured in motor vehicle crashes in 2012 (CDC, 2015). As discussed briefly in the introduction section in Chapter 1, law enforcement officers are experiencing similar issues with their seat belt use; yet, there is a lack of pertinent research on this topic area.

In this chapter, I address seat belt use in three different discussions. First, the historical perspective of seat belt use and studies surrounding it are addressed. In that section, I present initial studies on the topic and what their focus was. Next, modern examples of seat belt research are analyzed to draw similarities and differences from the current study. Lastly, I provide research pertinent to this topic and evidence of an apparent gap in the research of said topic.

Locating Literature

I located literature for this review using the following search keywords: *seatbelt(s), seat belt(s), law enforcement seat belt use, police seat belt use, sheriff seat belt use, patrol officer seat belt use, primary seat belt enforcement, secondary seat belt enforcement, safety restraint(s), seat belt laws,* and *seat belt policies*. These keywords were input into multiple databases, including ProQuest Criminal Justice, Oxford's

Criminology Bibliographies, SAGE Premier, Political Science Complete, Google Scholar, Academic Search Complete, and Thoreau Multi-Database Search. I also performed Internet searches through Google and Bing to locate scholarly articles not retrievable through academic databases. The literature found was deemed scholarly based on whether it was a published article, journal, book, or similar.

Historical Perspective

Seat belts first came about near the middle of the 19th century and were the invention of an English engineer, George Cayley (Manby, 2009). Although Cayley is credited with being the first individual to come up with the idea, strides towards what is now known as the modern seat belt came from a man named, Edward J. Claghorn, who was the first to secure a U.S. patent in 1885 for the device (Manby, 2009). In 1885, Claghorn pushed forward for the development of the device in an effort to better affix individuals to items in which movement was expected (2009) Claghorn saw the public safety impact of the device even back in 1885 when writing in the patent application that the device would be used to secure firemen (amongst others) to objects in an effort to promote safety (Backstrom & Andreason, 2009, p. 12).

It would be nearly a century and a half later before major changes and discussion would happen with seat belts. In 1935, the first widely published discussion on seat belt use occurred (Kelly, 2013). Dewitt Wallace, a publisher for the magazine, *Reader's Digest* penned an article, with the assistance of Joseph Furnas, to open a dialogue and discussion about seat belt use (2013). The article, *And Sudden Death!*, would become the first prevalent piece of literature in the modern seat belt era. Although the article opened

a dialogue about seat belt use and provided some pertinent information on the subject, it did contain flaws. One major example of the flaws in this article was the discussion of people being ejected from a motor vehicle (Kelly, 2013). The experts interviewed for this article believed that it was actually safer to be ejected from a motor vehicle rather than be trapped in the interior of the vehicle due to the belief that interiors of the car were inherently dangerous (Kelly, 2013).

Dr. Claire Straith became the first medical doctor to take notice of the issues with seat belts in car designs. Straith, who was a plastic surgeon, had become so infuriated with the number of patients needing medical assistance and the injuries that were occurring that the doctor decided to do something about the safety of motor vehicles and seat belts (Kelly, 2013). Dr. Straith took issues with the design of dashboards and the control levers (including the steering wheel) , which were metal and sharp (2013). Straith further addressed the issue that the lack of seat belt use or the poor design of seat belts in use were amplifying the injuries that people were suffering during an accident and those not belted or secured by faulty devices were being thrown into these dangerous dashboards and controls, increasing the severity of injuries (2013). To assist in combating this issue, Straith experimented with modern facets of seat belts and came up with the idea of a lap restraint (2013). Straith would also go on to create the Automobile Safety League of America, which advocated for the redesign of motor vehicles(2013). The auto mobile company, Chrysler, took notice of Straith's research and implemented their own changes to reflect the research in 1937 (Kelly, 2013).

In 1946, another respected neurological doctor, Dr. Hunter Sheldon, did two things that would change how seat belts and their use in motor vehicles were looked at. First, Sheldon sparked a discussion on the design of seat belts, mainly discussing the development of seat belts that would retract (Sheldon, 1955). Secondly, Sheldon conducted the first prevalent research by a medical doctor on the impacts of the use (and nonuse) of seat belts by those in motor vehicles (1955). These discussions and research came about after Sheldon opened a neurological office at the Huntington Memorial Hospital in Pasadena, California (CITE). While Sheldon practiced at this office, the doctor noticed a high number of head injuries appearing at the hospital due to motor vehicle accidents (Sheldon, 1955). After seeing this alarming increase in injuries, Sheldon conducted research to better understand if the design of vehicles were increasing the amount and severity of injuries of those seeking medical assistance. Sheldon's research was published in the *Journal of American Medical Association* in which the redesign of old features of automobile safety were discussed and new ideas, such as the air bag, were proposed (1955). Seat belt design, mainly the idea of a retractable belt design, was detailed heavily in the article (1955). Sheldon's article led to the subsequent passing of legislation by Congress for automobiles to comply with certain safety rules and regulations (Sheldon, 1955). Unfortunately for both Straith and Sheldon, their quality research would go mostly unrecognized because companies were still focused on styling, aesthetics, and profitability over safety (Kelly 2013).

The next purveyor of seat belt use and their research would change this ideology. That research came about in 1965 and was authored by the well-known attorney and

politician, Ralph Nadar. In the book, *Unsafe at Any Speed: The Designed-In Dangers of the American Automobile*, Nadar (1965) took an approach to addressing the issues surrounding the safety of automobiles by criticizing the design of the safety equipment of vehicles. Most safety features of vehicles were discussed, including seat belts of which Nadar criticized the manufacturers of vehicles of knowing how much damage can be done to a person in motor vehicle, yet failing to properly design seat belts and other components. Nadar's arguments in this book would become the inspiration for passage of the National Traffic and Motor Vehicle Safety Act of 1966, which created the Highway Safety Bureau (now the NHTSA) that provides yearly statistics on seat belt use and injuries and death resulting from nonuse (NHTSA). Nadar's research also brought up the idea of two research hypothesis that are applicable in this study: The concepts that both financial penalty and risk consideration should be used in conjunction to increase seat belt use.

Although Nadar had an impact on the development and implementation of legislation in vehicle safety, the first legislation on actual seat belt use would not occur until 1984. In 1984, New York became the first state to enact a law that targeted seat belt use (Nichols & Ledingham, 2008). Currently, all but one state, New Hampshire, have laws that require seat belt use (2008).

Throughout the decades, researchers began to study seat belt use and technology. Research would also begin to expand into studies that compared seat belt use against a wide number of variables, studies including seat belt use and age, gender, and other

varying demographics (2008). In the following section, I discuss modern research that has explored some of those demographics.

Seat Belts and the Concept of Mandatory Use by Law and Policy

Up until 1968, there were no regulations in place dictating seat belt use or even whether they needed to be equipped in motor vehicles (2008). That changed with the passing of a federal law, Title 49 of the U.S. Code, Chapter 301, which made it a requirement to equip vehicles with safety belts (U.S. Department of Transportation, NHTSA, 1968). It would take until 1984 for states to begin to make it mandatory that individuals wear seat belts when operating a motor vehicle when New York passed state law dictating the use of seat belts by occupants of a motor vehicle (UNC Highway Safety Research Center, 2011, pp. 2-4). Currently, all states other than New Hampshire have some sort of mandatory wear policy/law in place for usage (NHTSA, 2017).

Types of Policies/Laws on Mandatory Seat Belt Use

The enforcement of seat belt law is divided into two types: primary and secondary enforcement. Primary enforcement is where the officer observes an occupant of a motor vehicle without a seat belt and can make a traffic stop on that vehicle based solely on that infraction. Secondary enforcement occurs when an officer stops a motorist for another violation (e.g., speeding) and observes a seat belt infraction in conjunction with the reason for the stop. In states where secondary enforcement is law, the law enforcement officer cannot stop a vehicle for only a seat belt offense.

Law enforcement officers and the requirements of their use of seat belts are generally different than that of the general public (Oron-Gilad et al., 2005). In most

states, laws include exemptions that state that law enforcement officers, first responders, fire fighters, medical responders, and the like do not have to be buckled (2005).

Furthermore, the actual enforcement of seat belt use is dictated by policy of an agency the officer is employed by, if a policy exists (2005). Primary enforcement would likely be the most similar in scope for how policy would be enforced in regard to seat belt use by law enforcement officers. Primary and secondary enforcement is important because it has led to the decrease in fatalities and injuries of motorists as well as the increased usage of seat belt use which is further discussed further in the next subsection.

Effects of the Implemented Policies/Laws on Mandatory Seat Belt Use

According to a poll taken in 19 cities in 1983 and detailed in a UNC Highway Safety Research (2011) report, seat belt use was observed at 11%. Once New York implemented a mandatory wear policy for seat belts, a poll in 1984 suggested that the usage was slightly over 50% (2011).

According to Chen and Ye (2009), in their research article for the U.S. Department of Transportation, NHTSA, National Center for Statistics and Analysis, in states where primary enforcement was being used, seat belt use was reported as being 88%, while secondary enforcement was at 77%. Based on other studies, the change from secondary to primary enforcement led to the increase of seat belt usage by roughly 8% (slightly lower than what Chen and Ye reported; Farmer & Williams, 2005, Nichols & Ledingham, 2008; Shults et al., 2012; UNC Highway Safety Research Center, 2011). The significance of this data is relevant to the law enforcement seat belt realm because primary type enforcement would be the most similar to how policy enforcement would

take place in a law enforcement environment. Primary enforcement in a law enforcement setting would likely be sanctions, punishments, training, or the like for officers that violate the policy in place. The effectiveness of seat belt use in modern research is discussed further in the next section.

Modern Examples of Prevalent Seat Belt Research

Once the debate on seat belt use had subsided and the value of their use was recognized by the vast majority, studies began to explore seat belt use in depth. No longer were studies focused on why someone should use a seat belt as opposed to not wear a seat belt but rather studies began to focus on better understanding demographics and other influential variables and seat belt use (i.e., African Americans, high school students, the elderly, mandatory wear laws and their use of seat belts etc.). Furthermore, with the increase in studies on seat belt use, meta-analysis and standardized research also began to become an option. This section will give examples of modern research that are pertinent to the research being completed in this dissertation. The examples presented in this section contain theories, hypothesizes, research questions and data that support the research being undertaken in this dissertation.

Mandatory Laws and Injuries

Authors Alma Cohen and Liran Einav in their article, "The effects of mandatory seat belt laws on driving behavior and traffic fatalities", sought to explore whether or not mandatory seat belt laws were resulting in lower traffic fatalities within all jurisdictions in the United States. They also sought to test the compensating behavior theory that was also being discussed within the realm of seat belt use. Their study was a quantitative

empirical research investigation yielded substantial implications for policy making in this area (Cohen & Einav, 2011, p. 1).

Cohen and Einav's (2011) article focused around two research questions, one of which is directly applicable to the research being undertaken in this dissertation. The first questions looked to answer whether increasing seat belt usage rates is overall beneficial in reducing fatalities (and if so by how much). Secondly, what aspects of seat belt legislation and its enforcement are particularly effective in increasing seat belt usage. That second question, which discussed what aspects of seat belt legislation (i.e. mandatory wear laws), was relevant to the study being conducted by this researcher whom is posing a research question that deals with whether or not mandatory wear policies increase use amongst law enforcement officers.

For the first question, the researchers found that seat belt legislation reduced traffic fatalities. (2001, p. 1) Besides discovering that fact, they estimated that increasing use by 10 percent would reduce fatalities by 1.35 percent (about 500 lives saved a year). (2001, p. 2) What was particularly interesting about this statement was that their estimate was considerably lower than what was presented by the federal government through the NHTSA (although the exact figure was not presented).

Their second question, exploring the effectiveness of certain types of seat belt legislation, revealed that mandatory wear legislation led to the *increase of use* of seat belts by occupants. This research supports the hypothesis in this dissertation that the establishment of mandatory wear policies would result in the increase of seat belt wear by law enforcement officers. The researchers found that mandatory laws that used secondary

enforcement (i.e. officers only used enforcement after realizing the occupants were unbuckled), increased usage by 11 percentage points. (2001, p. 3) Although this type of enforcement yielded significant results, their data on primary enforcement (i.e., law enforcement proactively looked for violators of seat belt laws), resulted in an increase of 22 percentage points. (2001, p. 3) Applying these models to current law enforcement officer usage rates, it would be possible to see officer seat belt use increase to either roughly 60% or 70% usage as opposed to the current estimate, 50%. (NHTSA, 2015)

Lastly, an interesting theory was discussed by the researchers. The researchers explored the compensating behavior theory. This theory suggested the idea that drivers, who wear their seat belts, actually would become worse drivers as they would have a sense of protection from the device resulting in increased careless driving. The research conducted by the authors did not support this theory and rather said the usage of seat belts resulted in increased mindfulness of safe driving. (Cohen & Einav, 2011, p. 24) This is pertinent information for this researcher's study as this theory would have to be addressed as officers often are already in dangerous driving situations while operating their squad cars (increased speed, not heeding traffic signals, etc.). If that theory was supported, the effect of increasing seat belt use by law enforcement officers would need to be explored further as its use could have be detrimental to public safety.

The research done by Shults and Beck (2012) was another example of quantitative research supporting the concept of mandatory wear laws and enforcement being effective in increasing the rates of seat belt use by the general populous. Hosted through the CDC, data was collected from the Behavioral Risk Factor Surveillance System during the years

2002, 2006, 2008 and 2010 in an attempt to calculated seat belt use in the United States by analyzing it against primary or secondary enforcement (primary being proactive enforcement, secondary being reactionary enforcement). Similar to Cohen and Einav, they also drew from a research question focused around the effect of mandatory wear laws.

In analyzing the self-reported seat belt use in the United States, they found that states where primary enforcement was in place, seat belt use was occurring at a rate 9% higher than those were secondary enforcement were taking place (89% v. 80%). (Shults & Beck, 2012) This data supported the same conclusions drawn from the Cohen and Einav article where it was shown that seat belt use was higher in places were an active deterrence was in place. As Shults and Beck blatantly state: "Primary enforcement seat belt laws and enhanced enforcement of seat belt laws are proven strategies for increasing seat belt use and reducing traffic fatalities." Further they state facts about secondary enforcement that has been supported time and time again: "Seat belt use in states with secondary laws continues to lag behind that of states with primary laws." (Shults & Beck, 2012)

Seat Belt Effectiveness

One such example of prevalent research into seat belt effectiveness came by way of researchers Han, Newmyer and Qu. (2015) They looked to explore the effectiveness of seat belt use and how much of an impact it would have on injuries sustained during a motor vehicle accident. Although there has been a plethora of studies in this field, Han et

al provides one of the more contemporary examples having been published in 2015. The study supported the effectiveness of seat belts.

Han et al (2015) explored the effect of seat belt use across a sample size of 10,479 drivers. The drivers were selected from accident reports which were cross referenced with hospital discharge data in the state of Nebraska. The sample was taken from drivers involved in accidents between 2006 and 2011. Further, the researchers also explored variable impacts on seat belt users as such would be done in this study. For example, the researchers found that Asian drivers had the highest level of seat belt use when involved in a motor vehicle accident (94.3%) whereas Native Americans had the lowest (75.6%). (Han, Newmyer & Qu, 2015) The research being undertaken in this dissertation will also explore variable impacts such as age, gender, etc. that are described in depth in chapter 3.

Of the most important parts of their research were the discussions of seat belt use and its effectiveness when a motor vehicle crash occurs. Their data explored different types of serious injuries (brain, head, face, neck, spine, torso, upper extremity, lower extremity.) and whether or not the occupants were more likely to be hurt more with or without a seat belt on. All values were done with a p value of <.0001. For the brain, the researchers found that of the cases studied, 10.4% of unseat belted occupants sustained a brain injury as opposed to 4.1% of belted occupants. Within the realm of head, face and neck injuries, 29.3% of unseat belted occupants encountered injuries as opposed to 16.6% of belted occupants. In what is apparently the only anomaly of the data set in regard to safety of seat belts, spine injuries were actually more likely to occur with seat belts on as opposed to them not being on at 35.5% when belted against 17.9% unbelted. This data

was supported by other research into the study of seat belt and spinal injury both contemporary and classical. (Müller, C. W., Otte, D., Decker, S., Stübig, T., Panzica, M., Krettek, C., & Brand, S., 2014; Lin, M. S., Lin, H. Y., Hung, K. S., Lin, T. J., Wang, Y. C., Chiu, W. T., & Kung, W. M., 2013; Garrett, J. W., & Braunstein, P. W., 1962). Due to the positioning of the seat belt, the torso and upper extremity also experienced higher rates of injury when seat belts were affixed with 12.5% to 11.8% buckled v. unbuckled for torso and 15.7% and 13.9% for upper extremity respectively. (Han et al, 2015)

Although the data supported that the concept of seat belt use appeared to be a "double edged sword", the injuries that were sustained during seat belt use were considered to be rare and/or minor. (Han et al, 2015) In regard to serious injury occurring, the researchers found that in cases where serious injury occurred, such as fracturing, seat belts actually helped in reducing injuries with 4.2% of belted users experiencing a serious injury against 22.0% of unbelted experiencing serious injury. (2015) Although this does not negate the findings supporting that seat belts to increase the possibility for some types of injuries, it did support that the use of seat belts does reduce serious injury which naturally take precedent when considering the benefits of seat belt use.

Psychology of Seat belt Use

Exploring the psychology of seat belt use was a concept studied by Gonzalez, Seifert and Yoon during the summer and fall of 2009. These researchers looked to study two themes in seat belt compliance. They were, "social norms and culture as it influences seat belt use" and "habit formation and work on interventions that promote safety belt

use" (Gonzalez, Seifert & Yoon, 2010). As opposed to most other seat belt research which draws upon existing data sets to make conclusions, the researchers in this study, proactively explored the two themes by creating their own experiments. They are summarized as follows:

Study 1. The researchers used a pool hall to study subjects coming and going from the pool hall. First researchers took a baseline for the percentage of seat belt use occurring. Secondly, the researchers made contact with the participants and explained the experiment and asked if they would be willing to participate in their experiment. All but three agreed. (Gonzalez et al, 2010, p. 6) Once the subjects agreed to partake they were explained what methods would be used to study them. The methods for their intervention were done in two different ways via a "reminder" and a "social influence". In the first case, the reminder was a belt wrap containing the "American Pool Association" logo that served as a simple reminder for them to buckle up. The social influence method was explaining to the participants that whichever pool hall had the highest increase in the percentage of use would be entitled to a free night of pool. All the pool halls reported statistically significant increases in the percentage of wear. The highest of which was a nearly 29% increase on average. (2010, p. 8)

study 2. For the second study, researchers analyzed the coming and goings of fans entering parking lots at their school's football stadium. In this case the reminder was a window decal with a logo of the school that said, "buckle up!" and the social influence was a card given out that read "97% who park in this lot wear their belts" (2010, p. 9). As done in the first study, their calculations were done by direct observation. The

researchers state that the results may be skewed as it appeared as if many of the initial participants did not return due to the selling of their tickets which was an unusual event. Their results did not produce as much of a difference as in the case of the pool hall study but did show in increase in wear for all groups except for one. In one of those groups, (white male passengers) the group started at 85% wearing their belts and during the preceding weeks of study went from the first week with an increase (88%) back to a lower amount than when initially studied (84%). (2010, p. 11) The researchers further state that the introduction of the window decal failed as only less than 1% appeared to affix the decal to their vehicles.

This study was one of few that looked at the psychological aspects of seat belt use. The study reflected the risk/reward theory that often influences what we as humans do. In this study, the reward of winning a competition increased the resulting wear of seat belts exponentially. On the contrary, other research has shown that the "risk" side of this theory also is contemplated by seat belt users in places where seat belt misuse is punished. These studies appear to show that we will appeal to basic human instincts.

Summary Of Modern Literature

Modern research into seat belt use focuses around addressing what is believed to be all the possible interventions for promoting and increasing seat belt use. Listed interventions are best summarized by Uthman, Sinclair, Willems and Young (2014) as: "Educational, enforcement based, incentive-based, engineering-based or a combination thereof."

Within education incentives, we see research being focused on understanding if the introduction of educational incentives (i.e., presentations, literature, classes etc.) leads to increased wear. Minimal research has been done in this field area, so little is known about whether or not it is effective.

Enforcement based incentives have been studied in-depth. The research in this arena focuses around primary, secondary and no enforcement incentives that have supported that enforcement related incentives, mainly primary enforcement, has had the highest level of use reported after being introduced. (Cohen & Einav, 2011; Shults, & Beck, 2012; Han, Newmyer, & Qu, 2015; Manby, 2009) Primary enforcement is the ability for a law enforcement officer to proactively, as opposed to reactively, stop vehicles where seat belt use is not occurring and further being able to discipline the occupants for non use. Another way to look at this research is from the standpoint of mandatory wear laws or policies, that when in place, appear to be working in increasing the number of individuals who are buckled up.

Incentive-based interventions have also not been studied in depth but what studies exist appear to support their effectiveness. Incentives for seat belt use could be rewards of some type (as seen with the Gonzalez, Seifert, & Yoon study), insurance rewards or discounts for use or other gifts/positive acknowledgements for use. In the Gonzalez et al study, we saw significant increases in seat belt use after the introduction of an incentive-based intervention and even post intervention, it appeared as if the level of seat belt use still remained quite high. (Gonzalez et al, 2010, p. 8)

Research on engineering-based interventions also appears to be minimal. What engineering based incentives set out to do is have mechanical, electrical, audible or other engineering devices either remind the user to use their seat belt or place the device on them. Examples of this would be an audible alarm that alerts the driver to put on their seat belts, a mechanical device that refuses to start the car until the user is belted, a device that automatically puts on the seat belt for the user or even a device that limits how far you can travel or what speed you can travel at without being buckled.

Modern research also supports that seat belts are reducing injuries and death. (Müller, Otte,, Decker, Stübig, Panzica, Krettek, & Brand, 2014; Lin, Lin, Hung, Lin, Wang, Chiu, & Kung, 2013; Han, Newmyer & Qu, 2015) The advent of technology and better designing of motor vehicles is also contributing to this. The research done by these individuals (as well as others) details the importance of seat belt use and with the exclusion of minor spinal injuries occurring from being buckled in, speak volumes to the reduced risk for bodily harm and/or death seat belts provide.

Theories in Seat belt Research

When discussing theories associated with seat belt use, more often than not, studies present some sort of theory that discusses the human psyche. The focus is on concepts that revolve around ideas such as risk/reward, incentive-based behavior and other psychological based ideologies. The following encompasses two of the most discussed theories in seat belt research.

Theory of Planned Behavior (Reasoned Action Approach)

Perhaps mentioned most often in seat belt studies, the theory of planned behavior (TPB) sets out to explain the effects of beliefs and behavior together. It also goes by the name of reasoned action approach. Simply stated, the theory seeks to explain attitude, behavior, subjective norms and perceived behavioral control. Originally developed by Icek Ajzen, its development was focused on improving the predictive power of another theory developed by Ajzen, the theory of reasoned action. Its main components are explaining relationships in the areas of beliefs, behavioral intentions and attitudes and how they shape individual actions, intentions and behaviors. (Ajzen, 1991) Further, according to Ajzen (1991) It fully encompasses the following variables for study: Behavioral intention, attitude toward behavior, strength of each belief, evaluation of the outcome or attribute, subjective norms, strength of each normative belief, motivation to comply with the referent, perceived behavioral control, strength of each control belief, perceived power of the control factor and empirically derived weight/coefficient. (1991)

This theory is seen in many examples of seat belt research both contemporary and classic. (Şimşekoğlu & Lajunen, 2008; Budd, North & Spencer, 1984, Strasson & Fishbein,1990) According to Şimşekoğlu and Lajunen (2008) focus was on what was believed to be a stronger relationship in the realm of seat belt use, which was studying subjective norm and behavioral intentions as opposed to attitudes and behavioral intentions. This also was supported by Budd et al (1984). Thus when applied to seat belt use in law enforcement, the perceived attitude by officers on seat belt use would be

trumped what was the subjective norm (i.e., department-wide policy would trump individual officers' opinion).

Health Belief Model

The health belief model (HBM) deals with the risk of threat and behavioral evaluation as the main components. (Sheeran & Abraham, 1996) As the name implies, the perceived behavior is mentally judged by the participant by the level of risk to their health. According to Şimşekoğlu and Lajunen (2008) the behavior works by triggering cues like: "social influence, health education campaigns for promoting healthy behaviors, and the health motivation refers to one's readiness to be concerned about the health matters in general." (2008, p. 183)

Whereas the TPB and its subsets have dominated the discussion of theory in seat belt use for quite some time, the HBM has began to see itself mentioned in contemporary studies. (Şimşekoğlu & Lajunen, 2008; Tavafian, Aghamolaei, Gregory & Madani, 2011; Peltzer, 2011; Morowatisharifabad, 2009; Ali, Haidar, Ali, & Maryam, 2011) When studying seat belt use and the HBM, the focus is on analyzing perceived benefits and barriers as they are usually the indicators of whether or not seat belt use will occur. (Şimşekoğlu & Lajunen, 2008) Analysis of the HBM and seat belt use suggests that the way to address seat belt behavior is by targeting individuals using the HBM through advertisements, literature or other educational instruments to show potential seat belt users the benefits of wearing the device and the risks to your health if you do not.

Discussion of the Theories

As mentioned, the TPB has been more widely used than the HBM. Of note within the research of the HBM has been its extensive use internationally and minimally here in the United States. Examples of countries where this theory has been applied in study has been in Iran, Lithuania and some African nations (amongst others). Şimşekoğlu & Lajunen (2008) mention why this is occurring in their article while citing other researchers to support it:

"The TPB was reported to be a more integrated and extended model that had more predictive success compared to the other specific theories (Stroebe, 2000). On the other hand, the HBM was reported to be more economical and parsimonious than the TPB in terms of the questions employed (Mullen, Hersey, & Iverson, 1987)." (Şimşekoğlu & Lajunen, 2008, p. 183)

Countries like Iran or African nations that may have a lack of resources to conduct research may find themselves using the more cost effective HBM for their studies whereas researchers in the United States and other economically sound countries, may find themselves in a better position to use the more "integrated and extended model" found in the TPB. This likely explains the vast use of the TPB in seat belt use literature.

Selected Theory: Theories of Organizational Culture and Change

As defined by Shafritz, Ott and Jang in their book, *Classics of organization theory*: "organizational culture, like social culture, is compromised of many intangible phenomena such as values, beliefs, assumptions, perceptions, behavioral norms, artifacts and patters of behavior" (Shafritz, Ott and Jang, 2011, p. 338).

This theory describes the above phenomena as being items that are rooted in the fabric of an organization and usually requiring easily and readily discernible data to begin to effect change. Although their theory is a good fit for this research, the concept of theories about organizational culture and change have come about long before Shafritz, Ott and Jang addressed it and furthermore, has been the source of previous law enforcement studies.

The exact time frame for when this theory became in existence is unknown however the development of the theory and how it is used in this study can be traced back to Putnam and Pacanowsky's book *Communication and organizations: An interpretive approach* originally published in 1983. In that book, the authors sought to begin directing attention of researchers to better understanding organizations and their culture. The principles of theory that the researchers addressed were meant to transition the research of organizations away from better understanding only the members of an organization but also the behaviors, activities and climate of the organization as well.

As mentioned above earlier in this section, research in the realm of law enforcement also adapted this theory and began to apply it to research. In 1998 Frewin and Tuffin explored organizational culture and change in their article *Police status, conformity and internal pressure: A discursive analysis of police culture.* Although this article did not involve research on seat belts specifically, it did use a variation of the theory of organizational culture and change to explore behaviors of police officers. Their study involved interviews with a series of police officers directed and researching police status, conformity and internal pressure within a law enforcement organization. Their

findings supported that police culture is inherently resistive to change, conforms to the beliefs of many and discriminates against diversity. This study was done observationally speaking and did not seek to implement changes that would alter the climate of the department that was being studied. Their study, however, did support that police organizations tend to resist change and also appeared to be subjected to pressures from the group as a whole to adapt their viewpoints.

This behavior in law enforcement was also discussed in the seat belt realm as well by Oron-Gilad, Szalma and Stafford (2005). As presented by Oron-Gilad, Szalma and Stafford in their study, Police officers seat belt use on duty is a cultural phenomenon that is in place with police officers where "in certain operational circumstances, there is a direct conflict between operational safety (effective response to threat) and driving safety (seat belt use)." (Oron-Gilad et al, 2005)

When data was conducted in the area of effective response to threats however, there was little to no data supporting that threats were even being presented. (2005) This assumption and behavior has been debunked by these researchers who present that there is little data to back up the idea of the need of this "hyper-vigilance" over the need to safely wear seat belts. In fact, as presented by the FBI in their yearly statics on officer injuries and deaths, officers are more likely to be killed or injured in a car accident than an assault. (FBI, 2015)

The authors in this article even quote an anonymous officer who discussed the issue of seat belts stating:

"I always wear my seat belt when off duty. I have found that while on duty (for me) it prevents me from exiting the car quickly—we don't know what or when something bad is going to happen— but when it does I won't be strapped in my car dead. If there was a better mechanism for the seat belt—I would use them on duty."

(Oron-Gilad et al, 2005 p. 1)

As painted by the previous discussion, the power of culture in an organization can leave it prone to resisting applicable change or supporting behaviors that can be detrimental to safety and well being of their employees. As will be discussed in the next section, in this case of law enforcement, this culture has supported myths, hearsay and behaviors that are possibly harming law enforcement officers. This theory of organizational culture and change, can be applied to this research to present data that debunks these beliefs, culture, myths and the like that have taken root within the law enforcement community. Firstly, research directed at better understanding policy impact on seat belt use in law enforcement (the first research question in this study) could generate data that shows what types of policies are resulting in the highest amount of use by law enforcement officers. Secondly, research aimed at better understanding what phenomena exist in the realm of seat belt use in law enforcement (the second research question) can be utilized in addressing the fallacies that may exist in certain phenomena. For example, and as mentioned above, one such phenomenon that comes up frequently in the seat belt use discussions is the idea of one's gear becoming entangled in a seat belt. Oron-Gilad et al (2005) seemed to debunk that theory of thought and data from this research could solidify that point (among others). Further, by utilizing the theory of

culture and change in generating this data, it could be used by law enforcement agencies to adapt or alter polices and begin to change the perception of phenomena being experienced by agencies.

Research on Seat belt Use and Law Enforcement

As discussed in chapter one, there is, without a doubt, an issue in regard to law enforcement officers not using their seat belts properly. This lack of seat belt use is not only an issue for those officers when they are involved in an accident but is also an issue for the departments who staff them (having to cover shifts for the officer while they are injured or deceased), insurance companies (dealing with payments from the accidents) and the general public, who as tax payers, would be expected to fund increases in budgets that can occur. This section of the chapter looks to explore the limited prevalent research known and discuss the gap that exists.

Supporting current statics by the NHTSA, von Kuenssberg Jehle, Wagner, Mayrose and Hashmi state: "Motor vehicle crashes are a leading cause of mortality in the United States, although seat belts significantly reduce the risk of death. Police officers do not always wear a seat belt" (von Kuenssberg Jehle, Wagner, Mayrose & Hashmi, 2005).

In the article done by these researchers, crash data from the years 1997-2001 that involved marked police vehicles was studied to determine if there was statically significant data present to support officers needing to wear seat belts. Further research was also done to explore the situational aspects of when officers were involved in accidents. This research did not focus on the aspect of injuries that could happen in these situations but rather the aspect of death occurring due to non use.

von Kuenssberg Jehle, Wagner, Mayrose and Hashmi (2005) found that in situations where a crash occurred, 59.9% of officers were responding to a non-emergency call. Further discussed by these researchers was that 79.8% of the occupants were wearing seat belts and 79.5% of those occupants survived. (2005)

The researchers also discussed the importance of seat belt use by law enforcement officers. Their findings, based on this data set, supported that officers were 2.6 times more likely to be killed in a motor vehicle accident encountered during the course of employment than what would be expected by officers wearing their seat belts. This fact was based on the analysis of crashes with unbelted occupants, where out of 104 occupants documented, 42 (40.4%) were killed. On the contrary, belted occupant case studies showed that only 64 of 412 (15.5%) were killed. (2005)

Their findings on the issues within this topic area were supported by the researchers in the following article to be discussed.

The work done by Oron-Gilad, Szalama, Stafford and Hancock represents one of the few research projects undertaken to better understand the issue of seat belt use by law enforcement. It is also one of the most in-depth studies on the topic. The authors of this article looked to study phenomena that may have existed based on a questionnaire responded to by 341 police officers that studied five specific areas of interest:

- travel context.
- crime context.
- confidence in seat belt design.
- speed and distance of travel.

- seat belt ergonomics. (Oron-Gilad, Szalama, Stafford & Hancock, 2005)

The goal of this research was to attempt to better understand the reasoning behind the lack of seat belt use that was occurring in law enforcement. Their research was also detrimental in proving a heavily discussed hypothesis which was that law enforcement officers were not wearing their seat belts out of fear of not being able to access their equipment in self-defense or being able to retreat out of their vehicle if confronted with a deadly situation. (2005. p. 16)

Within these five categories, sub questions were also posed. For example, discussions around seat belt ergonomics did not just focus on comfort related questions but also discussions about whether or not the seat belt had ever gotten caught on their equipment while being released. (2005, p. 8) 46 questions were posed to explore more factors within those five main categories.

The researchers found that as speed increased the level of seat belt use also increased for the most part. Curiously enough, at the highest speeds listed (55mph and 65mph) the percentage of wear actually went down from the previous level of 45mph. At 45mph usage was listed at 97% yet at 55mph and 65mph the percentage was 96% and 93% respectfully. (2005, p. 7) Further, if the officers were on an emergency call, their usage was reported to be higher than when not on an emergency call.

Within the topic of situational seat belt use, the researchers found that in high crime or drug problem areas, the percentage of seat belt use was 20% lower than that recorded when they were in a low crime area (86% v. 66%). (2005, p. 7) Furthermore, more experienced officers also wore their seat belts and were confident in their seat belts

less than that of newer officers. (2005 p.10) Also worth mentioning was that officers were more likely to wear their seat belts during day shift as opposed to the other shifts. (2005, p. 12)

Addressing Gaps in Research

In the specific realm of studying the level of seat belt use by law enforcement, research has been minimal and research that has been conducted, is dated. The research done by Oron-Gilad et al and von Kuenssberg Jehle et al supports that there is a problem with law enforcement seat belt use and addresses some of the issues that are present within this realm of study. There are significant gaps however that exist for further study. One such example is the discussion of policy impact on seat belt use. Oron Gilad et al state: "These data show that the agency policy regarding seat belt use is influential on officers behavior regarding to seat belt usage." (Oron Gilad et al, 2005, p. 14)

This quote and the research behind it supports that the policies set in place by the department are likely to be followed by officers who are employed by said department. Although this is a very pertinent fact, exploration needed to be done further in exploring what policies do in fact work. If it is likely that officers will follow policies set in place by a department, research should be done to figure out what policies are leading to the highest rate of use. By doing so, administration in law enforcement departments could implement those policies and expect some sort of compliance by their employees.

Cross analysis of research examples like this also shows why further research is needed to address this issue. In von Kuenssberg Jehle et al's article (2005), they discuss that a majority of traffic crashes that occur happen during non-emergency responses to

calls for service. (Von Kuenssberg Jehle et al, 2005) Oron-Gilad research shows that officers are less likely to be wearing their seat belts during non-emergency calls for service. (Oron-Gilad et al, 2005, p. 7) These statics show the need to research ways to increase seat belt use as officers are undoubtedly exposed to inherent risks from non-use.

Another issue with this research is how dated it is becoming. Both of these research studies provided a great foundation for the discussion and exploration of seat belt use by law enforcement and served as a great tool in the research being conducted in this dissertation. However, with the research now over ten years old, there was a need to complete research again on some of the issues addressed by these researchers while also asking further pertinent questions within this topic. Much has changed in the past ten years within law enforcement (technology, public perception, vigilance etc.) and it is possible the reported data could also have changed. The gap on some of what was discussed in this research as well as the gap in some questions that have not yet been explored was addressed in the research being undertaken in this dissertation.

Summary

Although specific literature in the realm of law enforcement and seat belt use is minimal, the research that is present coupled with the research into seat belts generally, reveal a few reoccurring themes. The first theme is simply, seat belts work. All literature presented in this the section shows that seat belts when worn, will reduce injury and death. Further, technology continues to develop which also is causing seat belts to become more and more effective. Secondly, it appears as if law enforcement officers do not wear their seat belts as much as they should. The studies discussed in this review

show there to be a serious issue in the level of use of seat belts by law enforcement personnel especially when compared to the national average of general users. Research in this study would help in better understanding why this is occurring. Thirdly, law enforcement is an inherently dangerous profession especially when it comes to vehicular considerations. Between increased speed for emergency operation, non-typical travel (i.e. evasive maneuvers, travelling on non-roadway surfaces, etc.) and potential assaults from other people and vehicles, officers are prone to increased risk of injury while working and seat belts can reduce that.

This study sought to fill the existing gap in this topic area by addressing these reoccurring themes while also exploring new ideas that have not yet been researched. These ideas focus around the policy and phenomenal impact of seat belt use on law enforcement. This research was achieved by contacting officers in a designated area, surveying them and analyzing their data. It is the belief of the researcher that this not only contributed more data to the already limited literature but also brought in new ideas that can be further studied by other researchers in due time. This research was conducted by a current law enforcement officer and it is believed that this allowed for more trust and participation by those being surveyed. The following chapter explains in detail the steps that were undertaken to collect and analyze data in these areas of research. It will also explain safeguards that were put in place to limit bias and tainting of the data.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to understand why law enforcement patrol officers are not wearing their seat belts and determine if the certain policies that are in place are resulting in increased adherence to and awareness of seat belt use. Prior researchers have explored the phenomena, but no research had been done to understand what polices are having the greatest impact on officer seat belt use. I also conducted this study with the aim better understanding what phenomena may or may not be having an effect on seat belt use. By understanding the phenomena as well, policy implementation and design could be better streamlined to understand where focus may need to be placed in regard to creating the best policy possible. Designing policies tailored to the data generated in this study would lead to decreased injuries and deaths because law enforcement officers would wear seat belts more often.

In this chapter, I explain what steps were undertaken to plan and conduct the study. Chapter components include the research design, rationale, methodology, sampling and sampling procedures, instrumentation, threats to validity and ethical procedures.

Research Design and Rationale

Variables

There were two types of variables observed during this research: dependent and independent. The independent variables were age, years of service, and gender. The dependent variables were as follows:

- Type of policy in place (i.e., no policy, zero tolerance policy, or certain situational policy);
- Use during emergency/nonemergency runs one mile or less;
- Use during emergency/nonemergency runs two miles;
- Use during emergency/nonemergency runs three miles;
- Use during emergency/nonemergency runs four miles;
- Use during emergency/nonemergency runs five miles and greater;
- Use on highways/interstates where speed is greater than 55mph;
- Use on highways/interstates where speed is less than 55mph;
- Use on 45mph roads that are not highways/interstates;
- Use on 35mph roads that are not highways/interstates;
- Use on 25mph or less roads that are not highways/interstates;
- Comfort and seat belt use;
- Use in high crime areas;
- Use in low crime areas;
- Seat belt having previously been caught on equipment; and
- Seat belt caught on equipment during an emergency situation.

Design

I employed a causal-comparative/quasi-experimental research design in this study. This design is part of the quantitative methodology. With this design, I sought to study associations between variables (i.e., policy vs. seat belt use) by determining if there is cause or consequence between sets of variables. The quasi-experimental side of this

research was purposely introducing specific variables into the study to see if there was any noticeable difference. An example of this would have been analyzing certain policies and seat belt use (i.e., studying zero tolerance policies vs. discretionary policies). The reason for this selection was the fact that the targeted research questions addressed cause-effect relationships. Cause-effect relationships are studied by analyzing relationships between certain variables. Unlike experimental research, these variables (i.e., independent or dependent variables) are not manipulated by the researcher in anyway; rather, they are observed to determine if there is a statistically significant relationship occurring (i.e., zero tolerance policies result in increased seat belt use; see Oron-Gilad et al., 2005). This type of research is termed quasi-experimental because it is experimental in nature by analyzing what effects policy had on seat belt use while also studying phenomenological impacts on seat belt use. It was not fully experimental because I did not assign individuals to certain treatments but rather observed them in treatments they would already a part of (i.e., part of a department with a zero-tolerance policy for seat belt use).

The format of this design allowed for minimal time and resource constraints. As will be discussed later in this chapter, using surveys to gather data and analyze relationships allowed for convenient and minimally biased reporting of data. The online survey format that was used allowed for instantaneous feedback once the surveys were completed, eliminating the process of travelling to locations to gather data, resulting in significant saving of time. Replicating the time frame that would be necessary without this process would require numerous researchers travelling to collect the surveys at once.

Using the casual-comparative/quasi-experimental design allowed for further exploration into two different components of seat belt research: (a) the impact of policy on use and (b) the phenomenological impact on use. I could not locate any prior research on policy impact, and there was only minimal and outdated research on the topic of phenomenological impact. Being that this was almost completely new research, the selected design allowed for minimal bias and easy meta-analysis for future researchers.

Methodology

The target population was defined as sworn law enforcement officers whose primary job function is the patrolling of a jurisdiction and response to calls for service. Examples of sworn law enforcement officers that could have been surveyed are police officers, deputy sheriffs, constables, state troopers/patrol/police officers, conservation officers/game wardens, or federal law enforcement officers whose duties primarily involved patrol by motor vehicle. These patrol officers could also be administrative officers (i.e., sergeants, lieutenants, etc.); however, they had to also be officers that would be expected to patrol and respond to calls for service supplemental to their administrative duties. Patrol officers had to patrol their beat using an automobile to be included; therefore, mounted horse patrol officers, bike patrol officers, motorcycle officers, or the like were not allowed to participate.

The BLS (2014) stated (at the time of the study) that there were 638,810 patrol officers in the United States. Furthermore, the BLS stated the following criteria in order to classify these officers as patrol officers:

> Maintain order and protect life and property by enforcing local, tribal, State, or Federal laws and ordinances. Perform a combination of the following duties: patrol a specific area; direct traffic; issue traffic summonses; investigate accidents; apprehend and arrest suspects or serve legal processes of courts. (para. 1)

Sampling and Sampling Procedures

Sampling Strategy

As this study was not publicly funded or otherwise sponsored in any way, I selected convenience sampling for both for time and monetary constraint reasoning. Although this led to a smaller sampling size of the population, it still yielded quality data that were meta-analyzed or otherwise applied to the rest of the population. Convenience sampling is usually prone to higher levels of bias than with other forms of sampling: however, it is the belief of the researchers that the bias present in this study was minimal.

It is actually believed that the data generated in this study were actually less favorable than that of other states or the national average. This was based on two reasons. The first was the weather conditions that Arizona faces. Being that weather in the state is more often than not quite favorable (i.e., dry, not slippery), drivers (including law enforcement officers) are aware that there is a lower likelihood that they may be involved in an accident, resulting in less seat belt use. The second reason behind this was that Arizona drivers are the 26th ranked seat belt users in the nation at 86.3% (NHTSA, 2014). This puts them almost exactly in the middle for usage nationwide. I believed that these two factors made it more likely the participants would be wearing their seat belts

less often as opposed to their national counterparts. The convenience sampling that took place was ideally going to result in data being acquired for almost 1% of the entire population (this unfortunately did not end up being the case).

Sampling Procedures

I used face-to-face meetings, e-mails, and/or phone calls to contact law enforcement agencies in the PMA and asked them to participate in a survey that would seek to measure different components of patrol officer seat belt usage. The geographical boundaries established for the PMA are represented in Figure 1. Note that jurisdictions that are located on the boundary lines of this geographical area were included in the targeted sampling population.

Figure 1. Phoenix Metropolitan Area geographical boundary. (Berkshire Hathway, 2018)

Sampling Frame

The source of the list that I used to determine sample jurisdictions within this geographical boundary was located on the State of Arizona Department of Public Safety website. The list encompasses all local, county, and state law enforcement agencies in Arizona. In order to select the proper agencies from this list, the provided zip codes were cross referenced within Google maps to see if they were located in the geographical boundaries of the PMA. If they were, I attempted contact in order to see if they would participate in the survey. Federal patrol agencies that would be attempted to be contacted in the PMA were inclusive of the U.S. Fish and Wildlife Service, Bureau of Land Management, Border Patrol, National Park Service Police, Veterans Affairs Police, Federal Protective Service Police, and railroad police officers. Other federal law enforcement agencies exist within this boundary area; however, they are not tasked with patrolling as one of the main focuses of their job description. These agencies were removed from lists provided by the U.S. federal government. Please also note that specialty agencies, such as the school police forces or the like, were classified as local agencies. As mentioned previously, only sworn officers were allowed to participate; therefore, community service officers, parking enforcement officers, reserve officers (that are not sworn), and the like, were not allowed to participate.

Sample Size

I determined sample size by the use of a formula that was cross referenced with a statistical sample size calculator found online from Survey Monkey. The equation utilized was:

$$p = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + (\frac{z^2 \times p(1-p)}{e^2 N})}$$

For the alphabetic values, *p* = sample size, *N* = population size, *e* = margin of error, and *z* = z score. The population size was 638,610 (i.e., the estimated number of patrol officers nationwide), the selected margin of error was 2.5%, and the *z* score was set at 1.96 to represent a 95% confidence interval. When numerical values were placed in their respective spots, the equation looked as follows:

$$p = \frac{\frac{1.96^2 \times p(1-p)}{.025^2}}{1 + (\frac{1.96^2 \times p(1-p)}{.025^2 638{,}810})}$$

Based on the results from the online calculator and a hand-figured analysis, 1,533 was the targeted sample size for this study.

Recruitment and Participation

As mentioned above, recruitment took place via emails, phone calls and face to face meetings with administrators (in that order) where the research being undertaken was explained. In that same email, phone call or meeting, instructions were provided in which the administrator would be requested to "forward" the email or message onto the patrol division of their perspective department so that those officers could participate in an online Google Survey. The link to that Google Survey was contained in that email/message. The criteria for participation would also be explained in that email and is detailed in the next paragraph.

Recruitment for the participants in this research followed strict guidelines. At the beginning of the survey, questions regarding certain criteria were asked. In order for a participant to take part in the research, they had to meet the following list of that criteria:

- Be a sworn law enforcement officer.
- Be employed in the PMA boundary.
- Have their primary employment function be that of a patrol officer (administrators would be allowed but had to be primarily patrolling in order to be considered).
- Their primary method of patrol had to be by car, SUV and/or truck.

Demographic information on the participants was collected. The following was the main demographics collected by researchers:

- Age.
- Gender.
- Years of service.

These demographics were collected as variables to be compared against seat belt use (i.e. does seat belt use vary by gender?).

Providing Participants With Informed Consent and Debriefing

Participants in this research were provided informed consent at the beginning of the survey they would be taking. They would acknowledge the informed consent by proceeding to the survey (the text of this consent form is located in Appendix B.). At the conclusion of the survey, a debriefing page was displayed providing contact information of the researcher and thanking them for their participation. This debriefing also explained

once more what their participation was for and allow them to officially submit or decline submission of the answers they provide.

Data Collection

For this study, data collected was used to measure two main components of seat belt use which are policy impact on seat belt use and phenomenological impact on seat belt use. Policy impact contained few variables for analysis (type of policy: mandatory wear policy, partial wear policy or left to officer discretion). Phenomenological impact was encompassing of the rest of the variables studied to include demographic information that would be collected. Data collection consisted of an online survey link through Google Forms that would be provided to departments to be distributed to patrol officers. The data from the survey was only viewable to the researcher and the members of the dissertation committee. The online survey format was used for a multitude of reasons. Firstly, it was used out of convenience, both time wise and financially to the researcher. Secondly, it was used for convenience of the participants as often they are very busy responding to calls for service and this allowed for simple use whether on a departmental computer or the computer in their squad car. It also allowed for the convenience of those officers being able to go back and finish the survey if interrupted. Lastly, it allowed for the researcher to receive instant results that would expedite the process of reporting the data. The following table shows the factors that were attempted to be analyzed.

Table 1

Factors of Survey

Factor	Description

Demographic factors	Gender, age, and years of service
Policy Factors	Type of policy being used
Phenomenological factors	Impacts of select environments and situations

Demographic factors

The characteristics of the demographic of this study were described using the mean, standard deviation and range for the measurements. Frequency and percentage were described for categorical scaled variables. The demographic items was inclusive of gender, age, and years of service.

Policy Factors

In the instrument, policy factors were analyzed through a series of questions to determine what, if any, impact was occurring due to a certain type of policy. These questions sought to answer questions specifically about policies that are in place or if there are any in place at all. Further exploration was also asked about what punishments would occur for non use if there are any in place.

Phenomenological Factors

The phenomenological aspect of this study looked to explore what phenomena are occurring that could be leading to a decrease in usage. The main realms to be studied are, vigilance, safety consideration, comfort and convenience through a series of questions in each different category. This data was then referenced with the level of seat belt use the participants reported.

Exiting the study

At the end of the study, participants were thanked for their involvement and reminded of the privacy protection that would be afforded to them. This debriefing was done on last page of the survey with participants acknowledging this debriefing by exiting the survey after clicking on an "I understand" link. A copy of this debriefing page is located in Appendix C. Being that this study is minimally intrusive, there was not much that the participants needed by way of debriefing. No follow up was required but the participants would once again be given the researcher's information to contact if there are any issues.

Instrumentation

The basis for the instrument used was derived from Oron-Gilad, Szalma, Stafford and Hancock's *Police officers seat belt use while on duty.* (2005) The questionnaire addressed some of the same categories that this research sought to explore. That questionnaire was developed after a pilot study was conducted. Their pilot study consisted of surveys being sent to 20 police officers. Those police officers not only took the survey but also provided feedback on the form and style of the questionnaire via a free text portion at the end of the survey. The officers were assured of their confidentiality during this survey and would also be during the actual survey as well. That information was put together to make a final 62 item questionnaire with three categories. Those categories were comfort, vigilance and convenience. They were defined in Oron-Gilad et al's study as design, perception of threat level and travel context, respectfully.

The study made no mention of tests or information related to reliability and validity of their instrument. Their data did, however, mostly reveal statistically significant data implying that it was well developed. The instrumentation was utilized first in a pilot study and then modified based off of the feedback from their pilot study. The pilot study was performed on 20 local police officers. Those officers were asked to provide feedback on the appropriateness of the questions while also being able to discuss their ideas and opinions freely. They were assured confidentiality and anonymity by the researchers.

The full study was sent to 600 members of police departments in jurisdictions in the southeastern United States. Oron-Gilad et al reported that 56.8% (341 out of 600) returned the questionnaire. They also reported no compensation for the participants stating it was strictly a volunteer endeavor.

Reliability and Validity

In order to ensure reliability of the instrument, Cronbach's Alpha internal consistency test was used through the SPSS to measure the reliability of the instrument. This was done by using the reliability analysis feature in SPSS.

An internal consistency test for validity was used in SPSS to measure the construct validity of the questions being asked. This process was completed through the validation of the data by using the analysis of variables function in SPSS.

The instrumentation used in this research consisted of a series of questions directed at analysis of three different categories of study. Those categories (demographics, policy considerations and phenomenological considerations) were further broken down with questions directed at subsets of those categories of study. For

demographics, gender, age, and years of service were analyzed. For policy considerations, questions were directed at types of policies which were zero tolerance, some tolerance or left to officer discretion. For phenomenological considerations, questions were asked about situational phenomena, comfort phenomena and environmental phenomena. It is believed that this instrument adequately covered all these topic areas and the research questions.

Operationalization

The following list comprises all variables that were studied as well as definitions of the variables, how the variables were measured and how scoring was done:

- Age - This is a numerical value based on the amount of years the participant has been alive. It would be measured through Arabic numbers (i.e., 1-100). It was scored against the dependent variable, seat belt usage to find out what age range had the highest rate of usage of seat belts.
- Gender - This is a value that depicts whether the participant is male, female or unknown. Unknown depicts either a refusal to answer or incomplete data (i.e., question is skipped). If the question is left blank, the researcher left the mark of that value as unknown. It was measured by males being placed as a 1 in SPSS, females a 2 and unknown a 3. Averages were calculated to determine what gender wore their seat belts the most.
- Years of service - This is a numerical valued to be measured through Arabic numbers. It was scored against the dependent variable in order to see if newer

officers or veterans were more likely to be wearing their seat belts. New officers were any officers with 3 years or less on the job.

- Seat belt use - This is a Likert survey that measureed a variable that asked how often officers wore their seat belts. The options were, almost always, most of the time, neither, mostly do not wear my seat belt and almost never. The options were assigned numerical values to see what the average use is amongst the surveyed law enforcement officers.
- Type of policy in place (no policy, zero tolerance policy, or certain situational policy) - this variable dealt with understanding what policy is in place at the department. The options were no policy, zero tolerance policy or certain situational policy. Numerical values were assigned to the policies as to determine the average (i.e., what type of policy is most widely used) and also so it could be compared against other variables (i.e., do places that have a zero-tolerance policy have a higher rate of use?) Numerical values were assigned to the options for quantitative measurement.
- Use during emergency/non-emergency runs 1 mile or less - This dealt with whether or not seat belt use is occurring during driving distances 1 mile or less and whether or not they were on emergency runs. Emergency runs are defined as travelling in their patrol vehicle with lights and sirens on. There were three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. These questions are meant to see if seat belt use is more likely to occur at

shorter or longer distance as well as if the use is more likely to occur during emergency or non-emergency travel. Numerical values were assigned to the options for quantitative measurement.

- Use during emergency/non-emergency runs 1 - 2 miles - This dealt with whether or not seat belt use is occurring during driving distances 1- 2 miles and whether or not they were on emergency runs. Emergency runs were defined as travelling in their patrol vehicle with lights and sirens on. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. These questions are meant to see if seat belt use is more likely to occur at shorter or longer distance as well as if the use would be more likely to occur during emergency or non-emergency travel. Numerical values were assigned to the options for quantitative measurement.
- Use during emergency/non-emergency runs 2 - 3 miles - This dealt with whether or not seat belt use is occurring during driving distances 2 - 3 miles and whether or not they were on emergency runs. Emergency runs were defined as travelling in their patrol vehicle with lights and sirens on. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. These questions are meant to see if seat belt use is more likely to occur at shorter or longer distance as well as if the use is more likely to occur during

emergency or non-emergency travel. Numerical values were assigned to the options for quantitative measurement.

- Use during emergency/non-emergency runs 3 - 4 miles - This dealt with whether or not seat belt use is occurring during driving distances 3 - 4 miles and whether or not they were on emergency runs. Emergency runs were defined as travelling in their patrol vehicle with lights and sirens on. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. These questions are meant to see if seat belt use is more likely to occur at shorter or longer distance as well as if the use is more likely to occur during emergency or non-emergency travel. Numerical values were assigned to the options for quantitative measurement.
- Use during emergency/non-emergency runs 4 miles and greater - This dealt with whether or not seat belt use is occurring during driving 4 miles or greater and whether or not they were on emergency runs. Emergency runs were defined as travelling in their patrol vehicle with lights and sirens on. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. These questions are meant to see if seat belt use is more likely to occur at shorter or longer distance as well as if the use is more likely to occur during emergency or non-emergency travel. Numerical values were assigned to the options for quantitative measurement.

- Use on highways/interstates where speed is greater than 55mph - This dealt with whether or not seat belt use is occurring during driving situations where speed is greater than 55mph on highways/interstates. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question were left blank. These questions are meant to see if seat belt use is more likely to occur at faster or slower speeds. Numerical values were assigned to the options for quantitative measurement.
- Use on highways/interstates where speed is less that 55mph - This dealt with whether or not seat belt use is occurring during driving situations where speed is less than 55mph on highways/interstates. There was three values, yes, no or unknown. Unknown =dealt with refusals to answer or incomplete data. Researchers selected unknown if the question were left blank. These questions are meant to see if seat belt use is more likely to occur at faster or slower speeds. Numerical values were assigned to the options for quantitative measurement.
- Use on 45mph roads that are not highways/interstates - This dealt with whether or not seat belt use is occurring during driving situations on 45mph roads that are not highways/interstates. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question were left blank. These questions are meant to see if seat belt use is more likely to occur at faster or slower

speeds. Numerical values were assigned to the options for quantitative measurement.

- Use on 35mph roads that are not highways/interstates - This dealt with whether or not seat belt use is occurring during driving situations on 35 mph roads that are not highways/interstates. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question were left blank. These questions are meant to see if seat belt use is more likely to occur at faster or slower speeds. Numerical values were assigned to the options for quantitative measurement.
- Use on 25mph or less roads that are not highways/interstates - This dealt with whether or not seat belt use is occurring during driving situations on 25mph roads that are not highways/interstates. There was three values, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question were left blank. These questions are meant to see if seat belt use is more likely to occur at faster or slower speeds. Numerical values were assigned to the options for quantitative measurement.
- Type of vehicle - This variable looked to study what type of vehicle the officers were driving. The options were, for Ford: Crown Vic, Taurus (police interceptor), F150 (or other pickup) Explorer (police interceptor utility) or Excursion. For Chevrolet: Malibu, Impala (PPV), Silverado (or another

pickup) or Tahoe. For Dodge: Charger, Ram (or another pickup) or Durango. Lastly an option, other, would be available in which a space would be left blank for the participant to say which vehicle they drove. Numerical values would be assigned to the options for quantitative measurement.

- Comfort and seat belt use - This variable looked at perceived level of comfort about the seat belts they used. This variable was used to reference whether or not officers felt comfortable with their seat belts on while also exploring what vehicle they drove. Numerical values were assigned to the options for quantitative measurement.
- Use in high crime areas - This variable looked to explore seat belt use in certain environments. In this case, seat belt use was measured when officers were in perceived high crime areas. This was measured by three options, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. Numerical values were assigned to the options for quantitative measurement.
- Use in low crime areas - This variable looks to explore seat belt use in certain environments. In this case, seat belt use would be measured when officers were in perceived low crime areas. This is measured by three options, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. Numerical values were assigned to the options for quantitative measurement.

- Seat belt having previously been caught on equipment - This variable looked to study whether or not officers have ever had their equipment (duty belt) caught on their seat belt. This was measured by three options, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. Numerical values were assigned to the options for quantitative measurement.
- Seat belt caught on equipment during an emergency situation - This variable looked to study whether or not officers have ever had their equipment (duty belt) caught on their seat belt during a perceived emergency situation (being attacked, chasing after a suspect or other emergency situation). This was measured by three options, yes, no or unknown. Unknown dealt with refusals to answer or incomplete data. Researchers selected unknown if the question is left blank. Numerical values were assigned to the options for quantitative measurement.

Data Analysis

This data was analyzed using IBM's SPSS statistical software version 25.0. Alpha levels would be set to .05. This research hosted one specific type of descriptive analysis which was correlation data analysis. This analysis was done by conducting two tailed *t*-tests on variables against certain types of seat belt use (i.e. type of vehicle v. comfort of seat belt, years of service v. level of seat belt use etc.). This analysis of the research was aimed at better understanding why officers are not wearing their seat belts in hopes that this data may be used in the better design of seat belts for police, while also being used

for training development and policy implementation. Data would be screened and cleaned through SPSS using built in programs. This was done by going under the analyze tab, then to descriptive statistics and running the frequencies program. Once this had been completed, all the variables are selected, and the minimum and maximum dispersion values would be run through the program. This showed which variables had missing values. The missing values that are located would be checked for possible data entry error. If data entry errors are present, the values were automatically switched to "unknown" values as to limit bias that could occur if a series mean or other automatically generated value was utilized.

Research Questions

The following list encompasses all the research questions and their hypothesizes/null hypothesizes:

RQ1. Does a policy that dictates a mandatory wear policy for law enforcement officers coincide with use rates increasing like that of research about general public seat belt usage?

H_0: Yes the research will show the same correlation.

H_1: Policy in the law enforcement field will not result in the same correlation.

RQ2. What phenomenological effects exist that are resulting in lower seat belt usage by law enforcement if any?

H_0: Effects stemming from the comfort of seat belts and anxiety or concern about accessing equipment on their duty belt is leading to decreased seat belt usage.

H_1: Comfort and anxiety have no effect on seat belt usage and/or other factors contribute more so than comfort and anxiety.

Statistical Tests

The research conducted in this experiment was statistically tested using two different tests. For cases where only two variables are being tested, a *t*-test was used to compare the variables. For those where three or more existed, analysis of variance (ANOVA) testing was utilized. The means of tested data sets was reported to reflect conclusions that could be derived (i.e., if a certain gender wore their seat belt more than the other). These conclusions are discussed in chapter 5.

Threats to Validity

Careful consideration was placed on understanding and minimizing threats to both external and internal validity. It is believed that threats to both validities were minimal. For external validity, consideration was placed specifically on the situational aspect of this research. The situation in which the experiment is conducted could be described as less than ideal. The sample size would be less than 1% of the total population size being studied even though a power analysis revealed it to be an ok sample. Also the location where the research would be performed is not conducive to the nationwide locations this research could also be applied to. It has been mentioned multiple times that it is the belief of the researcher that the data gathered from the PMA was actually reflective of data that would be worse than that of a national average due to the weather element officers face in this area and their reactions to it (i.e., more likely to not be belted due to the fact they are not likely at risk to being involved in an accident due to weather unlike places that have

weather issues like snow for extended periods of the year). Although all attempts were made to have the research checked by tests and other researchers, consideration would also given to the fact that the researcher conducting this research is a novice participating in his first research project.

The main issue for internal validity was the instrumentation used. The researcher in this project, created an instrument to be used in measuring multiple different variables in the realms of demographic considerations, policy impacts and phenomenological impacts. As mentioned above, the researcher being a novice does pose some potential threats to the proper design of the instrument and how it is properly administered. To reduce these risks, the instrument was designed based on a similar instrument by Oron-Gilad et al (2005) who found success in its use. In order to strengthen the instrument, a pilot study was also be conducted to receive feedback from experienced professionals in law enforcement. Unfortunately, a pilot study was unable to be performed.

Ethical Procedures

In order to ensure that this research conformed to the guidelines set forth by Walden University and U.S. Federal regulations, an application to the Institutional Review Board (IRB) for Ethical Standards in Research at Walden University was completed and sent in for review. The application addressed the research seeking to be undertaken while describing any and all issues that could be encountered by the researcher and/or the participants in the research. The following paragraphs address those issues and protections that were in place during this research. A copy of the completed application and IRB process is located in Appendix C.

Ethical Concerns

Fortunately, this research was mostly unobtrusive, and concerns were minimal. Concerns were focused around the protection of the participants from possible retaliation from their employer if they admitted to violating policy or law. In order to limit those concerns, the participants information was confidential and not allowed to be viewed by anybody other than the researchers. Outside of this, the research posed no ethical concerns to the participants. Participants were allowed to leave the study whenever they wished with no penalty and at the end of the survey, were provided a debriefing page to finalize their involvement. Because the research was not an intervention or otherwise involved any experimentation, the perceived risks were minimal to the participants as their only participation was providing data for analysis. Officers who refused participation were documented as such and those officers who withdrew from the study were documented as refused participants and their data was not include in analysis.

Data Treatment

The data generated from these participants was kept confidential and anonymous to the best of the researchers ability. Confidentiality was ensured by only allowing the author of this research, the committee members of his dissertation committee and his other research designees access to the data that would be generated. Anonymity of the participants was also ensured following those guidelines. The only perceived issue in regard to this was the ability for administrators to monitor use of departmental computers of which it is believed most participants used. To limit the risk of this, administrators explicitly requested not to do this and signed an agreement stating that they would not

monitor the survey attempts or their results. Outside of this, no personal information would be acquired unless the participant wished to receive a digital copy of the dissertation once it is completed or if they wished to further follow up about the research.

Data that is gathered was stored on a password-secured computer that only the author had access to. The data was only to be shared with committee members, the university and other designees that would be assisting in the research when appropriate. Dissemination of the raw data would not occur and only analysis of that data would be disseminated as part of this research. Once the dissertation had been approved and published, the raw data stored on the computer system of the researcher was destroyed.

Other Concerns

Other concerns that were addressed are potential conflicts of interest that occur within this research. The author, at the time of this research, is employed as a law enforcement officer the same as the participants he is studying. In order to address this potential bias, all steps in the research and the data collection phase were discussed and approved by the experienced committee members. Although the study is conducted in the same work environment that the author also worked in, there were no biases that were be believed to occur because of this. Since the data is simply generated by responses to an instrument and involved no manipulation, observation, experimentation, etc. by the researcher, it is believed that bias in this area of concern was non-existent or minimal.

Summary

The causal-comparative/quasi-experimental design of this research looked to analyze the effects of policies and phenomena on seat belt use in law enforcement. The

methods performed in this research were aligned with the quantitative ideology of research as the significance (or lack thereof) of the data were revealed through statistical analysis.

The following chapter shows the results of those statistical analysis and reveals whether or not the data generated is significant in multiple, different categories. The findings in Chapter 4 are then discussed in Chapter 5 as to address their potential implications in the law enforcement field.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to look at what the effect of certain variables were in the realm of seat belt use in law enforcement. Based on past research conducted by other parties, it was clear that there existed phenomena in this research area that had a direct result in how often officers were wearing their seat belts (Oron-Gilad et al., 2005). In this chapter, I provide a detailed account of the research undertaken to determine some of the phenomena that have been hypothesized while also looking at other variables that had not been studied before. This chapter will also include a discussion of how the study was conducted, what data collection procedures occurred, and the data analysis techniques used.

Data Generation and Data Gathering

The precise number of participants invited to this study was unknown. I sent e-mails detailing this research project as well as the actual survey were sent to upper-level managers of numerous law enforcement agencies in the PMA, and from there, the managers would distribute the surveys to the officers they oversaw. According to the BLS (2015), approximately 7,530 patrol officers work in the PMA. It is not likely that this survey made it to every one of those officers, but a conservative estimate would say that it likely was seen by a quarter of that, about 1,883.

I sent the Internet survey to managers of selected agencies (managers were defined as administrators of the agency at the rank of sergeant or higher), which consisted of 29 questions (see Appendix A) The total number of respondents to the study was 41.

Of those 41, three failed to provide all answers, which nullified the informed consent. The final sample size was 38. The amount of survey responses was significantly lower than what could have ideally been in the sample size.

Descriptive Statistics for Demographic Variables

Descriptive statistics for the demographic variables were the first statistical analyses performed on the data set. The first variable examined was age. Within this variable set, the average (and standard deviation) of those surveyed was 33.95 (5.923). The range of the ages surveyed was from 23 years old to 48 years old. The breakdown of this age range is in Table 2.

Table 2

Descriptive Statistics of Age – Frequencies

What is your age?

	Age	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	23	1	2.6	2.6	2.6
	25	1	2.6	2.6	5.3
	26	1	2.6	2.6	7.9
	28	5	13.2	13.2	21.1
	29	1	2.6	2.6	23.7
	30	2	5.3	5.3	28.9
	31	1	2.6	2.6	31.6
	32	3	7.9	7.9	39.5
	33	7	18.4	18.4	57.9
	34	2	5.3	5.3	63.2
	35	3	7.9	7.9	71.1
	36	2	5.3	5.3	76.3
	37	1	2.6	2.6	78.9
	40	1	2.6	2.6	81.6
	41	1	2.6	2.6	84.2
	42	1	2.6	2.6	86.8
	43	1	2.6	2.6	89.5
	44	2	5.3	5.3	94.7
	45	1	2.6	2.6	97.4
	48	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

For the amount of years of service, the mean was 8.92 with a standard deviation of 5.560.

The range of years of service was from 1 to 23 years on. This is seen in Table 3.

Table 3

Descriptive Statistics of Years of Service–Frequencies

How many years have you been employed as a sworn law enforcement officer?

Years in Service		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	2.6	2.6	2.6
	2	1	2.6	2.6	5.3
	3	1	2.6	2.6	7.9
	4	5	13.2	13.2	21.1
	5	4	10.5	10.5	31.6
	6	4	10.5	10.5	42.1
	7	3	7.9	7.9	50.0
	8	4	10.5	10.5	60.5
	9	2	5.3	5.3	65.8
	10	3	7.9	7.9	73.7
	11	1	2.6	2.6	76.3
	13	1	2.6	2.6	78.9
	14	1	2.6	2.6	81.6
	15	1	2.6	2.6	84.2
	16	1	2.6	2.6	86.8
	17	1	2.6	2.6	89.5
	18	2	5.3	5.3	94.7
	22	1	2.6	2.6	97.4
	23	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

In regard to gender, 86.9% (i.e., 33) of respondents claimed to be male whereas 13.2% (i.e., five) claimed to be female.

Descriptive Statistics for the Independent and Dependent Variables

Table 4 shows descriptive statistics for the independent and dependent variables. For the Likert Scale questions, the Numbers 1-5 measured the range of questions. The

categories and corresponding numbers were *strongly agree* = 1, *agree* = 2, *neutral* = 3, *disagree* = 4, and *strongly disagree* = 5.

Table 5

Descriptive Statistics for Independent and Dependent Variables

	N	Minimum	Maximum	*M*	*SD*
I wear my seat belt in high crime areas.	38	1	5	3.50	1.705
I wear my seat belt in low crime areas.	38	1	5	2.63	1.699
My seat belt has got caught on my vest/gun/duty belt/other equipment in an EMERGENCY situation.	38	1	2	1.26	.446
My seat belt has got caught on my vest/gun/duty belt/other equipment in a NON-EMERGENCY situation.	38	1	2	1.21	.413
I use my seat belt at speeds 25mph or less.	38	1	5	3.19	1.600
I use my seat belt at speeds between 25mph - 35mph.	38	1	5	3.05	1.394
I use my seat belt at speeds between 35mph - 45mph.	38	1	5	2.87	1.339
I use my seat belt at speeds between 45mph - 55mph.	38	1	5	2.71	1.313

I use my seat belt at speeds between 55mph - 65mph.	38	1	5	2.58	1.500
I use my seat belt at speeds greater than 65mph.	38	1	5	2.58	1.482
I use my seat belt when responding to an assistance call for my partner.	38	1	5	2.87	1.510
I use my seat belt in low visibility conditions.	38	1	5	2.63	1.364
I use my seat belt when responding to an emergency call .5 (1/2) a mile away.	38	1	5	2.97	1.533
I use my seat belt when responding to a non-emergency call .5 (1/2) a mile away.	38	1	5	2.92	1.496
I use my seat belt when responding to an emergency call .5 (1/2) of a mile to 1 mile away.	38	1	5	2.95	1.506
I use my seat belt when responding to a non-emergency call .5 (1/2) of a mile to 1 mile away.	38	1	5	2.84	1.424
I use my seat belt when responding to an emergency call 1 mile to 2 miles away.	38	1	5	2.92	1.477
I use my seat belt when responding to an emergency call 2 miles to 3 miles away.	38	1	5	2.82	1.392
I use my seat belt when responding to a non-emergency call 2 miles to 3 miles away.	38	1	5	2.84	1.480

I use my seat belt when responding to an emergency call 3 miles to 4 miles away.	38	1	5	2.82	1.373
I use my seat belt when responding to a non-emergency call 3 miles to 4 miles away.	38	1	5	2.84	1.498
I use my seat belt when responding to an emergency call more than 4 miles away.	38	1	5	2.76	1.403
I use my seat belt when responding to a non-emergency call more than 4 miles away.	38	1	5	2.79	1.510
I think it takes too long to take a seat belt off when in a hurry.	38	1	5	2.71	1.431
I take my seat belt off when a pedestrian approaches me.	38	1	5	2.76	1.532
I think my seat belt is comfortable.	38	1	5	2.68	1.435
I am confident in the design of my seat belt.	38	1	5	2.76	1.460
Agency policy on seat belt use	38	1	4	1.00	0
Valid N (listwise)	38				

Cronbach's Alpha

In running Cronbach's alpha for this survey, the results showed an excellent rating of .988 reliability. Almost all categories were within the favorable recommendation for alpha (i.e., above .7) Considering the Cronbach's alphas for seat belt

usage in high and low crime areas were just below .7 (i.e., .639 and 647, respectfully), the low reliability for those measures was not considered a major limitation of the study. However, the Cronbach's alphas for seat belts being caught in emergency and nonemergency situations were lower, and therefore, the subsequent results for those variables were more limited. Table 6 shows the alpha for each question.

Table 6

Cronbach's Alpha for Individual Questions

	Cronbach's Alpha
I wear my seat belt in high crime areas.	.639
I wear my seat belt in low crime areas.	.647
I use my seat belt at speeds 25mph or less.	.723
I use my seat belt at speeds between 25mph - 35mph.	.851
I use my seat belt at speeds between 35mph - 45mph.	.917
I use my seat belt at speeds between 45mph - 55mph.	.933
I use my seat belt at speeds between 55mph - 65mph.	.867
I use my seat belt at speeds greater than 65mph.	.868
I use my seat belt when responding to an assistance call for my partner.	.922
I use my seat belt in low visibility conditions.	.943
I use my seat belt when responding to an emergency call .5 (1/2) a mile away.	.900
I use my seat belt when responding to a non-emergency call .5 (1/2) a mile away.	.910
I use my seat belt when responding to an emergency call .5 (1/2) of a mile to 1 mile away.	.952

I use my seat belt when responding to a non-emergency call .5 (1/2) of a mile to 1 mile away.	.960
I use my seat belt when responding to an emergency call 1 mile to 2 miles away.	.966
I use my seat belt when responding to an emergency call 2 miles to 3 miles away.	.985
I use my seat belt when responding to a non-emergency call 2 miles to 3 miles away.	.975
I use my seat belt when responding to an emergency call 3 miles to 4 miles away.	.983
I use my seat belt when responding to a non-emergency call 3 miles to 4 miles away.	.962
I use my seat belt when responding to an emergency call more than 4 miles away.	.971
I use my seat belt when responding to a non-emergency call more than 4 miles away.	.959
I think it takes too long to take a seat belt off when in a hurry.	.973
I take my seat belt off when a pedestrian approaches me.	.942
I think my seat belt is comfortable.	.942
I am confident in the design of my seat belt.	.948
Seat belt Stuck Emergency	.230
Seat belt Stuck Non-Emergency	.359
Agency policy on seat belt use.	1.000

It should be noted that due to the high level of confidence found in most of the categories, I performed a factor analysis even though it was not discussed in previous chapters.

Factor Analysis and Reliability

To further investigate the number of constructs and structure of this survey, I conducted an exploratory factor analysis. The selection of this analysis was based on multiple criteria. These criteria included a large set of variables acquired, the goal to measure multiple different variable relationships, the use of scaled answers to questions (i.e., Likert), and the presence of a priori hypotheses. It was deemed most appropriate for this study because it allowed me to determine underlying factors and constructs within the set of measured variables. A principal-component analysis was employed to determine the appropriate number of factors to retain (see O'Connor, 2000). Although the sample size was small and unlikely to have enough power for an adequate factor analysis, the analyses were completed for the sake of comparison.

After culling, the 30-item measure had a Cronbach's alpha of .988. An exploratory factor analysis using the principle-component factor extraction was conducted to determine the factor structure of this survey. The parallel analysis performed (O'Connor, 2000, 2012) indicated a three-factor structure. This survey was conceived as multidimensional, with the various dimensions being present. Accordingly, the researcher employed a varimax method for the rotation. This analysis was also based on an Eigenvalue of .6 and also was set to suppress small coefficients less that .63. Such a

rotation created three factors. Based on the data output, those three factors were determined to be:

- Distance,
- Low speed, and
- High speed.

The factors had sums of squared loadings ranging from 4.380 to 7.12, and the clustering of items into factors seemed easily interpretable (see Table 7).

Table 7

Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.639	87.576	87.576	16.639	87.576	87.576	7.712	40.591	40.591
2	1.097	5.776	93.352	1.097	5.776	93.352	6.279	33.048	73.638
3	.635	3.341	96.693	.635	3.341	96.693	4.380	23.055	96.693
4	.305	1.607	98.300						
5	.101	.529	98.829						
6	.082	.432	99.261						
7	.058	.307	99.568						
8	.027	.142	99.710						
9	.025	.131	99.840						
10	.016	.085	99.926						
11	.008	.042	99.968						
12	.005	.026	99.994						
13	.001	.004	99.998						
14	.000	.002	100.000						
15	3.982E-16	2.096E-15	100.000						
16	7.466E-17	3.929E-16	100.000						
17	-6.789E-17	-3.573E-16	100.000						
18	-7.963E-16	-4.191E-15	100.000						
19	-1.273E-15	-6.700E-15	100.000						

Extraction Method: Principal Component Analysis.

Further, the breakdown of the items on the questionnaire and their applicable factors were seen in the below Table 8.

Table 8

Rotated Component Matrix

Rotated Component Matrix[a]

	Component		
	Distance	High Speed	Low Speed
I use my seat belt at speeds 25mph or less.			.893
I use my seat belt at speeds between 25mph - 35mph.			.818
I use my seat belt at speeds between 35mph - 45mph.			.703
I use my seat belt at speeds between 45mph - 55mph.		.797	
I use my seat belt at speeds between 55mph - 65mph.		.889	
I use my seat belt at speeds greater than 65mph.		.893	
I use my seat belt when responding to an assistance call for my partner.	.782		
I use my seat belt in low visibility conditions.		.776	
I use my seat belt when responding to an emergency call .5 (1/2) a mile away.	.787		
I use my seat belt when responding to a non-emergency call .5 (1/2) a mile away.	.702		
I use my seat belt when responding to an emergency call .5 (1/2) of a mile to 1 mile away.	.761		
I use my seat belt when responding to a non-emergency call .5 (1/2) of a mile to 1 mile away.	.716		
I use my seat belt when responding to an emergency call 1 mile to 2 miles away.	.795		
I use my seat belt when responding to an emergency call 2 miles to 3 miles away.	.710		
I use my seat belt when responding to a non-emergency call 2 miles to 3 miles away.	.754		
I use my seat belt when responding to an emergency call 3 miles to 4 miles away.	.695		
I use my seat belt when responding to a non-emergency call 3 miles to 4 miles away.	.754		

I use my seat belt when responding to an emergency call more than 4 miles away.	.670
I use my seat belt when responding to a non-emergency call more than 4 miles away.	.710

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Based on these factors and components, reliability analysis was performed on the items from the survey. The following documents the results of that analysis. For low speed, three items were analyzed. Those items included:

- I use my seat belt at speeds 25mph or less
- I use my seat belt a speeds between 25-35mph
- I use my seat belt at speeds between 35 – 45mph

Based on those three items, the reliability statistics reported a Cronbach's Alpha of .967 and a Cronbach's Alpha based on standardized items of .970. This is well above the accepted level of .7 for Cronbach's Alpha in these types of analysis.

For High speed, four items were analyzed. Those items included:

- I use my seat belt at speeds between 45-55mph,
- I use my seat belt a speeds between 55-65mph,
- I use my seat belt at speeds greater that 65mph, and
- I use my seat belt in low visibility conditions.

Based on those three items, the reliability statistics reported a Cronbach's Alpha of .989 and a Cronbach's Alpha based on standardized items of .990. This is well above the accepted level of .7 for Cronbach's Alpha in these types of analysis.

For Distance, thirteen items were analyzed. Those items included:

1. I use my seat belt when responding to an assistance call from my partner.
2. I use my seat belt when responding to an emergency call .5 (1/2) a mile away.
3. I use my seat belt when responding to a non-emergency call .5 (1/2) a mile away.
4. I use my seat belt when responding to an emergency call .5 (1/2) to 1 mile away.
5. I use my seat belt when responding to a non-emergency call .5 (1/2) to 1 mile away.
6. I use my seat belt when responding to an emergency call 1 mile to 2 miles away.
7. I use my seat belt when responding to a non-emergency call 1 mile to 2 miles away.
8. I use my seat belt when responding to an emergency call 2 miles to 3 miles away.
9. I use my seat belt when responding to a non-emergency call 2 miles to 3 miles away.
10. I use my seat belt when responding to an emergency call 3 miles to 4 miles away.
11. I use my seat belt when responding to a non-emergency call 3 miles to 4 miles away.
12. I use my seat belt when responding to an emergency call more than 4 miles away.

13. I use my seat belt when responding to a non-emergency call more than 4 miles away.

Based on those three items, the reliability statistics reported a Cronbach's Alpha of .993 and a Cronbach's Alpha based on standardized items of .993. This is well above the accepted level of .7 for Cronbach's Alpha in these types of analysis.

As seen by the above analysis, the three contributing factors for seat belt usage amongst patrol officers is accepted as low speed, high speed and distance travelled.

Data Analysis and Results

There were two main questions that focused on seat belt use and patrol officers and they were whether or not mandatory seat belt policies resulted in higher use and what (if any) phenomena existed for why officers might not wear seat belts. The questions are discussed below:

RQ1. Does a policy that dictates a mandatory wear policy for law enforcement officers coincide with use rates increasing like that of research about general public seat belt usage?

H0: Yes the research will show the same correlation.

H1: Policy in the law enforcement field will not result in the same correlation.

Unfortunately for this question, the hypothesis could not be accepted or rejected. This is because of the surveys that were completed, every single officer responded that they had a mandatory seat belt policy and thus, no comparison to other policies could be done.

RQ2. What phenomenological effects exist that are resulting in lower seat belt usage by law enforcement if any?

H0: Effects stemming from anxiety or concern about accessing equipment on their duty belt is leading to decreased seat belt usage.

H1: Anxiety and concern have no effect on seat belt usage and/or other factors contribute more so than anxiety and concern.

For this question, mean comparison was used to analyze multiple different categories. As it relates to anxiety and concern, multiple different categories were reviewed. These categories included;

- Seat belt being caught on equipment,
- Speed in taking it off,
- Taking it off when a pedestrian approaches,
- Seat belt use in high/low crime areas,
- Seat belt use at certain speeds,
- Seat belt use while responding to assistance of a partner, and
- Seat belt use at certain distances and during emergency/nonemergency situations.

As it relates to seat belt being caught on equipment, those surveyed responded that during emergency and non-emergency situations, at an average of 1.26 and 1.21 respectfully, their seat belt got caught on their equipment. For this question, a yes and no answer was in place with 1 being yes and 2 being no.

Seat belt removal time was also measured with the question being "I think it takes too long to take a seat belt off when in a hurry". It was measured on a Likert Scale with 1 being strongly agreed to 5 which was strongly disagreed. The average response was 2.64 which is *agreed.*

Seat belt removal when a pedestrian approaches an officer was measured next. It was measured on a Likert Scale with 1 being strongly agreed to 5 which was strongly disagreed. The average response was 2.69 which is *agreed.*

Seat belt use in high and low crime areas was the next category examined. It was measured on a Likert Scale with 1 being strongly agreed to 5 which was strongly disagreed. Those surveyed reported that in high crime areas, they *neither agreed nor disagreed* that they wore their seat belt (3.42 average). This was in contrast to seat belt use in low crime areas where on average, officers *agreed* that they wear their seat belt (2.72 average).

Seat belt use at certain speeds was analyzed next. It was measured on a Likert Scale with 1 being strongly agreed to 5 which was strongly disagreed. The questions focused on speeds less that 25mph, between 25-35mph, between 35-45mph, between 45-55mph, between 55-65 mph and 65mph or higher. The averages respectfully were 3.19, 3.00, 2.81, 2.64, 2.50 and 2.50.

Seat belt use at distances and emergent/non-emergent situations were measured next. The categories were .5 mile or less away, .5 - 1 mile away, 1 - 2 miles away, 2 - 3 miles away, 3 - 4 miles away and 4 miles or more. Each category had an "on emergency or non-emergency" question to it. It was measured on a Likert Scale with 1 being

strongly agreed to 5 which was strongly disagreed. For .5 miles or less away, the average responses were 2.92 and 2.86 for emergency vs. non-emergency. For .5 - 1 mile away, the responses were 2.89 vs. 2.78. For 1 - 2 miles away, it was 2.86 vs. 2.75. For 2 - 3 miles away it was 2.75 vs. 2.78. For 3 - 4 miles away, it was also 2.75 vs. 2.78. Lastly, for 4 miles or more, it was 2.69 vs. 2.72.

In totality of all these questions, the difference between the answers in the questions were negligible and thus did not show any significant effect of anxiety on officers use of seat belts. The null hypothesis in this survey was accepted (H1: Anxiety and concern have no effect on seat belt usage and/or other factors contribute more so than anxiety and concern) and the hypothesis rejected.

Summary

A total of 41 law enforcement patrol officers attempted this survey with 38 actually completing it. This survey was administered via an Internet survey and then the data was imported into SPSS software program for analysis. Descriptive statistics were conducted to identify demographic characteristics of the sample. The first variable examined was age. Within this variable set, the average (and standard deviation) of those surveyed was 33.95 (5.923). The range of the ages surveyed was from 23 years old to 48 years old. For the amount of years of service, the mean was 8.92 with a standard deviation of 5.560. The range of years of service was from 1 to 23 years old. In regard to gender, 86.9% (33) of respondents claimed to be male where as 13.2% (5) claimed to be female. Mean analyses were performed to test hypotheses. Results showed that in regard to phenomena for non-use, it appeared that factors such as speed, distance, confidence

and emergency vs. non-emergency situations did factor into the officers' decisions to use their seat belt. Data was limited/unavailable to test the hypothesis about the effects of mandatory seat belt policy on officer use. Chapter 5 includes an interpretation of the research findings, recommendations for law enforcement practitioners, implications for social change, suggestions for future research, recommendations for action, and limitations of this research study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this quantitative study, I sought to explore in-depth the realm of seat belt use in law enforcement and the reasoning for why its use was lower than the general population. This study was conducted to further expand what little research there was on the topic while also provide specific areas of interest for academics, instructors, and other law enforcement educational professionals to use in their efforts to educate law enforcement officers in patrol.

In this research, I explored two general categories in relationship to seat belt use. The first, policy implications on use, did not yield any results. This was due to there being no responses on the survey, which could have been due to a plethora of reasons, including has no knowledge of the policy, fears of repercussions for being in violation of the policy, confusion in the question, etc. Due to this, neither the alternate hypothesis nor the null hypothesis was accepted or rejected. Unfortunately, as also seen in the literature review, the lack of responses left this area with a gap in research once more. von Kuenssberg Jehle et al. (2005) did not tackle policy considerations in their research, so there is no data to be meta-analyzed or compared against. However, Oron Gilad et al. (2005) did, and they concluded, “These data show that the agency policy regarding seat belt use is influential on officers behavior regarding to seat belt usage” (p. 14).

Although there were not data derived from this research, past researchers have showed that policy does have an effect on officer seat belt use and that there is a need to address this gap in research and provide fresh data.

The second category of exploration was the phenomena for nonuse. The results showed that the phenomena for nonuse , such as speed, distance, confidence, and emergency vs. nonemergency situations, did factor into officers' decisions to use their seat belt. Although these factors were present, the direct question about officers' anxiety and concern about seat belt usage did not appear to be affected one way or the other so that hypothesis was rejected. This was in contrast to Oron Gilad et al.'s (2005) findings that within the topic of situational seat belt use (i.e., anxiety in this study), the researchers found that in high crime or drug problem areas, the percentage of seat belt use was 20% lower than what was recorded when they were in a low crime area (i.e., 86% v. 66%) (p. 7). Furthermore, the researchers found that as speed increased, the level of seat belt use also increased for the most part. Curiously enough, at the highest speeds listed (i.e., 55mph and 65mph), the percentage of wear actually went down from the previous level of 45mph (2005). At 45mph, usage was listed at 97%; yet, at 55mph and 65mph, the percentage was 96% and 93%, respectfully (Oron Gilad et al., 2005, p. 7) If the officers were on an emergency call, their usage was reported to be higher than when not on an emergency call (CITE). Their findings were not supported in this research because the surveys tended to show no real difference in seat belt use.

Interpretation of the Findings

As discussed briefly above, I was not able to explore policy implications in this study; however, applicable data in regard to phenomena of nonuse were readily available to be analyzed. Based on the analysis of that data, the following deductions could be made about policy and training.

Concerning situational wear policy, certain situations may warrant limited or no seat belt use. When officers are in high crime areas or other situations where the ability to act fast may be needed, officers are already not wearing their seat belts and should not be penalized for doing so. However, being that accidents are a large danger to officers, policy should reflect seat belt use when appropriate (i.e., distance, speed, traffic, etc.).

Concerning training, officers may have perceptions, some even false (i.e., that they need to be ready to react quickly in high crime areas) in regards to seat belt use. Trainings should be delivered to debunk some of these myths while also providing practical seat belt use training. This practical use could entail showing officers how to remove a seat belt rapidly without getting the device caught on their equipment or showing officers when they need to be wearing their seat belts as opposed to when they could probably not wear them. I made these deductions based on analysis of the following points of study:

- Seat belt being caught on equipment,
- Speed in taking it off,
- Taking it off when a pedestrian approaches,
- Seat belt use in high/low crime areas,
- Seat belt use at certain speeds,
- Seat belt use while responding to assistance of a partner, and
- Seat belt use at certain distances and during emergency/nonemergency situations.

In regard to seat belts being caught on equipment (i.e., ballistic vests, duty belts, etc.), the findings showed that officers' seat belts were indeed getting caught on their equipment and possibly delaying their exit from the vehicle/accessing gear on their person. This supported the findings of Oron Gilad et al. (2005) where they found that law enforcement officers were not wearing their seat belts out of fear of not being able to access their equipment in self-defense or being able to retreat out of their vehicle if confronted with a deadly situation (p. 16).

In regard to seat belt removal time, the results showed that officers agreed that it took too long for them to remove their seat belt when they were in a hurry. Once again, as discussed above, this was likely due to the fact that they are concerned about their seat belt becoming entangled in their gear.

When a pedestrian approaches their vehicle, officers agreed that they take off their seat belt. In using their seat belts in high crime versus low crime areas, the officers stated in the survey that they both did or did not wear their seat belt in high crime areas and agreed that they wear their seat belt in low crime areas.

In the previous two questions, the data aligned with previous research conducted in this topic area (i.e., anxiety). Oron Gilad et al. (2005) found that within the topic of situational seat belt use, that in high crime or drug problem areas, the percentage of seat belt use was 20% lower than that recorded when they were in a low crime area (86% v. 66%; p. 7) In the current study, the responses that were either did or did not wear their seat belts in high crime versus agreed that they wore their seat belt in low crime areas

was comparable to Oran Giled et al.'s findings even though it was measured by a Likert scale as opposed to a simple yes or no question.

In this study, officers were polled on if they wore their seat belts at certain speed. The responses showed that they tended to wear their seat belts at higher speeds and slightly less at lower speeds. The spread was between the "agreed that they wore their seat belt" to they "neither agree nor disagree that they wore their seat belt" did not give an accurate picture of their usage in this category.

In regard to officers wearing their seat belts in distance versus emergency/nonemergency travel, the results showed that officers did not differentiate between the two situations and distance with them responding that they agreed that they wore their seat belts in both.

The previous three areas of research were heavily studied by von Kuenssberg Jehle et al. (2005) ,and my results seem to support their findings. These researchers' findings highlighted crash data from the years 1997 to 2001 that involved marked police vehicles. They conducted their study to determine if there was statically significant data present to support officers needing to wear seat belts. Further research was also carried out to explore the situational aspects of when officers were involved in accidents.

von Kuenssberg Jehle et al. (2005) found that in situations where a crash occurred, 59.9% of officers were responding to a nonemergency call. They also reported that 79.8% of the occupants were wearing seat belts and 79.5% of those occupants survived.

von Kuenssberg Jehle et al. (2005) also discussed the importance of seat belt use by law enforcement officers. Their findings supported that officers were 2.6 times more likely to be killed in a motor vehicle accident encountered during the course of employment than what would be expected by officers wearing their seat belts. This fact was based on the analysis of crashes with unbelted occupants, where out of 104 occupants documented, 42 (i.e., 40.4%) were killed. On the contrary, belted occupant case studies showed that only 64 of 412 (i.e., 15.5%) were killed (Author, 2005).

Similarly, Oron Gilad et al (2005) also came to similar findings. The researchers found that as speed increased, the level of seat belt use also increased for the most part. Curiously enough, at the highest speeds listed (i.e., 55mph and 65mph), the percentage of wear actually went down from the previous level of 45mph. At 45mph, usage was listed at 97%; yet, at 55mph and 65mph, the percentage was 96% and 93%, respectfully (005, p. 7). Furthermore, if the officers were on an emergency call, their usage was reported to be higher than when not on an emergency call (2005 p.7).

Although these research examples dealt with some data that was not the focus in study in this research (i.e., deaths and injuries), the data about what they were doing when they crashed (i.e., on an emergency run, seat belted, distance, etc.) could be analyzed against this data set and supported their findings.

Confirmations, Disconfirmations, and Extended Knowledge

Unfortunately, a good part of the literature review was based on policy research. With there being no data gathered on this, the topics of confirmations, disconfirmations,

and extended knowledge were not able to be explored. It can be deduced that specifically with the researched phenomena, I could make observations in all of these categories.

Confirmations

von Kuenssberg Jehle et al. (2005) found that in situations where a crash occurred, 59.9% of officers were responding to a nonemergency call. The researchers also discussed that 79.8% of the occupants were wearing seat belts, and 79.5% of those occupants survived. This finding seemed to align with the data I gathered that officers in nonemergent driving situations were wearing their seat belts.

Perhaps the extant research that provided the most easily comparable data to my study was that of Oron-Gilad et al. (2005). The reasoning for this is due to my use of a modified instrument they developed that featured a lot of the same questions. The researchers found that as speed increased the level of seat belt use also increased for the most part. Furthermore, if the officers were on an emergency call, their usage was reported to be higher than when not on an emergency call (2005). This finding aligned with the results of the current study, which showed that officers both wore their seat belts more as speed increased.

Within the topic of situational seat belt use, the researchers found that in high crime or drug problem areas, the percentage of seat belt use was 20% lower than that recorded when they were in a low crime area (86% v. 66%). (author's last name, p. 7) Furthermore, more experienced officers also wore their seat belts and were confident in their seat belts less than that of newer officers. (p.10) Although not as a high of a difference, this research showed that in low crime areas, officers also wore their seat belts

more often. Not enough data was gleaned to make a comparison on experience of officers versus seat belt use.

Disconfirmations

Only one disconfirmation was discovered during this research when compared to research done by other officers. This disconfirmation was with Oron-Gilad, Szalma, Stafford and Hancock's *Police officers seat belt use* while on duty. That area of disagreement was the idea of one's gear becoming entangled in a seat belt. The authors in that study inferred that this happenstance, gear becoming entangled in a seat belt, was not of issue or concern with the officers. In this research, it was supported that indeed officers equipment was becoming entangled and it was dimensioning their confidence in getting out of a car without it happening. It should be noted, Oron-Gilad et al's (2005) research did not seem to directly tackle this question and only the inference was made, so their data may have shown something different had it been tackled directly. This was by no means a flaw of their research, merely an area studied more in depth by this researcher.

Extended knowledge

As mentioned in the previous chapter, the size of this survey extremely limited its usefulness and the "extended knowledge" that may be deduced from this research should be taken with a grain of salt. The main points of extended knowledge that did occur was further information on the confidence of seat belt use and getting it caught on equipment and the extended knowledge into the emergency/non-emergency travel which was not heavily featured in any of the peer reviewed articles found by this researcher.

This research in theoretical framework

The framework that is to be compared and applied to this research is that of theories of organizational culture and change, described in depth by Shafritz, Ott and Jang (year), in *Classics of organization theory*. They summarized it as such: "organizational culture, like social culture, is compromised of many intangible phenomena such as values, beliefs, assumptions, perceptions, behavioral norms, artifacts and patters of behavior" (Shafritz, Ott and Jang, 2011, p. 338).

Mainly, the patterns of behavior seemed to be quite evident in the research obtained. It was clear that officers had decided to wear their seat belts less due to it being stuck on gear or when they were perceiving the likelihood of a threat being present (high crime areas). Comparably, Oron-Gilad, Szalma and Stafford (years)found in their study that police officers seat belt use on duty may be being dictated by the phenomena experienced in officers. They quoted one such anonymous source as followed:
"I always wear my seat belt when off duty. I have found that while on duty (for me) it prevents me from exiting the car quickly—we don't know what or when something bad is going to happen— but when it does I won't be strapped in my car dead. If there was a better mechanism for the seat belt—I would use them on duty (Oron-Gilad et al, 2005 p. 1)."

These perceptions undoubtedly are passed from officer to officer as they share their work experiences so it is incumbent on managers and educators to be aware of the "values, beliefs, assumptions, perceptions, behavioral norms, artifacts and patters of

behavior" that are presented in research and other fact finding endeavors to properly address them.

Limitations of the Study

The limitations of this study can be boiled down to two main issues, lack of number of responses and lack of completion of the surveys that were undertaken. Both of which have serious ramifications for the validity of this research.

First, the lack of responses, this jeopardized the external validity of the survey greatly. The original sample size of this survey called for responses in excess of 1500 responses. This survey generated only 2.4% of that targeted amount. With the original target being about 1% of the entire population size of patrol officers, this response percentage means that the actually amount surveyed is below .024% of the entire populous. This likely means that the research gathered here has serious threats to its validity and can't be relied upon.

Secondly, the second half of these main limitations, lack of completion, this caused some surveys to be completely thrown out, lowering the number of useable surveys. Furthermore, the complete lack of response to the question specifically addressing policies and seat belt use, caused an entire research question to be left without a hypothesis or null-hypothesis being accepted or rejected. This left this research incomplete and unable to make comparisons that could have greatly extended this research and/or confirmed research that is already present.

Based on the totality of these two limitations, the data here is limited, if at all valid, in the application of it into other research. Although the lack of response to the

specific question on policy left much to be desired, simply having more numbers likely would have increased the response to this and further would have helped with the external validity of it.

Recommendations

There are a few recommendations that can be made from this research (similar to what was discussed in the interpretation of the findings). Naturally, due to the limitedness of this survey and its issues with validity, they should be better studied before implementation.

Recommendation 1: Policy

Although no data was derived from this research specifically about policy, policy considerations can be drawn from this data. We know that policy effects the way an officer may or may not wear a seat belt. Oron Gilad et al state:

"These data show that the agency policy regarding seat belt use is influential on officers' behavior regarding to seat belt usage." (Oron Gilad et al, 2005, p. 14)

With that being said, crafting a policy that takes into consideration situational aspects could be beneficial. Based on the data from this research, policy focused around distance, speed, emergency based travel and likelihood of immediate response could be easily drafted. For example, an agency could derive a policy that states that officers are allowed to disengage their seat belts at speeds lower than 20mph and/or when they are nearing a call for service (so they do not have to worry about their belt becoming entangled when they need to exit). Contrary, the policy could state that if an officer was

travelling more than a certain distance and/or is on an emergency run, they have to wear them.

Recommendation 2: Training

In this research, it is evident that training may be able to mitigate some of the issues present. For instance, seat belts being caught on equipment, trainers can educate officers on methods to properly exit a vehicle and lowering the chances of equipment being snagged on their gear. This would be a stop-gap measure used until technology is created to reduce these issues.

Secondly, training aimed at explaining the benefits of seat belt use could help in causing officers to wear them more often. There are examples of this like the Below 100 Campaign that strive to explain the benefits of wearing your ballistic vest and seat belt in an effort to get officer deaths below 100 a year. Based on this research, training should be aimed at explaining the benefits of continuing to wear your seat belt at all distances, all situations (emergency/non-emergency) and in both high and low crime areas as this is where the research showed discrepancies in the amount of use.

Had the survey been more robust in the number of responses, it is likely more recommendations could be made but due to that not being the case, these are the two recommendations that could be made from the research obtained.

Implications for Positive Social Change

The implications for positive change can be broken down between two facets, organization change and change with the public. Hence, organizational change, what little research that has been done has shown there to be an engrained pattern of thought when it

comes to seat belt usage, mainly the resistance to training law enforcement officers to consider wearing the devices. It is believed that due to a lack of applicable literature supporting the need for the devices and also debunking myths for why officers do not wear their seat belts, the current behavior has become rampant. As theorized previously in studies like that of Oron-Gilad et al (2005), resistance to change is to be expected. By functionally studying policies and phenomenon in seat belt use, the data could lead to positive social change within law enforcement by saving officer lives and reducing costs to the department. The data provided by this study (however limited) shows that seat belts are not being worn to the degree that they should be and individuals in administration and education have an opportunity to right those issues. Data from surveys like this, can provide foundations that administrators and/or educators can build on in an attempt to get officers to better wear these devices. For the organization specifically, having officers wearing their seat belts means in the unlikely event of an accident, the officer stands a better chance of not being injured as badly. A study done by the television station WJLA in 2014 stated that taxpayers (the general public) paid $1,000,000 for incidents related to patrol car crashes and injuries suffered from them (to include seat beltless occupants). By mitigating this, it can save a department millions of dollars which is a positive change for the department.

Arguably, the population that benefits the most from this social change is the public the officers serve. The cost both financially and emotionally to the general public when an officer is seriously injured or killed in the line of duty can be astounding. Although emotions are hard to quantify, the cost to the public of an injured or killed

officer is able to be quantified. According to a study done by the International Association of Police Chiefs (IACP) in 2009, based on the average national salary of a U.S. law enforcement officer to include benefits, the cost of replacing an injured or deceased law enforcement officer (temporarily or permanently) was in excess of $3,000,000 of which, the tax payer assumes the burden for. This research could promote social change by educating departments and officers about the usefulness of seat belts and how they save lives and reduce injuries that not only allow for improved morale and efficiency in departments but also benefit the general public financially and emotionally by allowing them to not have to experience the burden of an injured or deceased officer due to neglect from not wearing a seat belt. Further, the money saved by both the department and general public from not having to pay for these injured or deceased officers, can be applied to other public ventures that can increase the quality of life for all who are able to experience it.

Conclusion

The research undertaken in this dissertation was aimed at better understanding policy and phenomena impacts on the use of seat belts by law enforcement patrol officers. Although the responses were limited in nature, the data gleaned offered a glimpse at what surveys like this can offer. Data acquired has the ability to assist in training/education, protocols/policies, community awareness, product design and many other areas of interest that can benefit employees, managers, organizations and the community.

The data presented in this dissertation shows that seat belts have design flaws and that officers need to be better educated on the benefits of wearing a seat belt *at all times.* In educating officers, agencies that employ them and the community have the opportunity to have a better trained officer whom subjects themselves to less risk of injury or death assuming the head the advice and training presented to them. Motor vehicle companies that supply police agencies with patrol vehicles can see that there is an issue with how they design their seat belts both in the realms of comfort and how their belts interact with the officers.

In summary, this dissertation looked at numerous factors and situations in which seat belt use was a concern. Focus must be placed on the design of the seat belts and educating officers on the importance of wearing their seat belts at all times.

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Appendix A: Survey Sent to Participants

Survey

You are invited to take part in a research study about seat belt use among law enforcement officers. The researcher is inviting you, a sworn law enforcement officer, tasked with patrol duties, to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Zachary Loken, who is a doctoral student at Walden University. You may know this researcher from previous interactions as a law enforcement officer as well, however, this research is being done separate from that role.

Background Information:
The purpose of this study is to analyze the impacts of policy and phenomena on seat belt use in the patrol area of law enforcement.

Procedures:
If you agree to be in this study, you will be asked to:

- Complete an online survey that should not take longer that twenty (20) minutes to complete.

- The survey will be anonymous.

Here are some sample questions:

- Do you wear your seat belt in high crime areas?

- Do you think your seat belt is comfortable?

- Has your seat belt got caught on your vest/gun/duty belt/etc. in a NON-EMERGENCY situation?

Voluntary Nature of the Study:
This study is voluntary. You are free to accept or turn down the invitation. No one at your employer will treat you differently if you decide not to be in the study. If you decide to be in the study now, you can still change your mind later. You may stop at any time. It is expected that you will not be further contacted after this study unless you request to be contacted.

Risks and Benefits of Being in the Study:

Being in this study would not pose risk to your safety or well being.

Your involvement in this research is detrimental to understanding why law enforcement officers may not be wearing their seat belt and provides fresh research on this topic (the last relevant research was 2005).

Payment:
Participation in this study is voluntary however greatly appreciated.

Privacy:
Reports coming out of this study will not share the identities of individual participants. Details that might identify participants, such as the location of the study, also will not be shared. Even the researcher will not know who you are. Data will be kept secure by data security measures to include: password protection and data encryption. Data will be kept for a period of at least 5 years, as required by the university. If you have any questions or want to be contacted, the last question in this survey allow for you to ask those questions and leave contact information.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via XXXXXXXX or at a personal number of XXXXXXXX. If you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university at XXXXXXXX. Walden University's approval number for this study is IRB will enter approval number here and it expires on IRB will enter expiration date.

Please print or save this consent form for your records.

Obtaining Your Consent

If you feel you understand the study well enough to make a decision about it, please indicate your consent by taking part in the survey below. Submission of your answers on this survey will dictate that you agreed to the terms listed.

Thank you again for your participation and consideration,

Zach Loken

Walden University Doctoral Candidate

What is your age?

How many years have you been employed as a law enforcement officer?

Gender
M
F

Do you wear your seat belt in high crime areas?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you wear your seat belt in low crime areas?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Has your seat belt got caught on your vest/gun/duty belt/etc. in an EMERGENCY situation?
Yes
No

Has your seat belt got caught on your vest/gun/duty belt/etc. in a NON-EMERGENCY situation?
Yes
No

Do you use your seat belt at speeds 25mph or less?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt at speeds between 25-35mph?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt at speeds between 35-45mph?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt at speeds between 45-55mph?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt at speeds between 55-65mph?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt at speeds in excess of 65mph?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an assistance call for a partner?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt in low visibility conditions?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an emergency call within .5 of a mile away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an emergency call from .5 of a mile to 1 mile away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an emergency call from 1 mile to 2 miles away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an emergency call from 2 miles to 3 miles away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
Do you use your seat belt when responding to an emergency call from 3 miles to 4 miles away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you use your seat belt when responding to an emergency call greater than 4 miles away?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you think it takes too long to take a seat belt off in a hurry?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you take your seat belt off when a pedestrian approaches you?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Do you think your seat belt is comfortable?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Are you confident in the design of your seatbelt?
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Which one of the following would most closely represent your agency's policy on seat belt use?
Mandatory at all times
Officer discretion
Only mandatory at certain times
My agency doesn't have a policy
Unknown

Appendix B: Permission to Use Instrument

Gmail Zach Loken

Question about your instrument used in "Police Officers Seatbelt Use While on Duty"
3 messages

Zach Loken Wed, Feb 24, 2016 at 4:04 PM
To:

Dr. Oron-Gilad,

Greetings! I hope this email finds you well. My name is Zach Loken and I am a doctoral candidate at Walden University studying Public Policy and Administration. I am currently going through my dissertation process and the time is nearing to begin conducting research. My dissertation topic is Law Enforcement Seat Belt Use: Impact of Policy and Phenomena on Usage by Patrol Officers. Having completed a literature review, naturally one of the focus points was your research into the topic as it is one of the few pieces of relevant research out there. What in particular caught my eye was the instrument you used to gather data. As I proceed in my research, I find myself wanting to ask a lot of the same or similar questions you asked using that instrument and I am wondering if you would allow me permission to use some items from it. Being that my research will vary slightly from yours, I would likely be tweaking it quite a bit to fit my planned research but I would still be using much of the premises you devised. Being that this is the case, I felt obligated to reach out and request your permission to use components of it. If that is not OK, I will modify my questioning to avoid any conflict with the research you completed. Regardless of whether permission is granted or not, I am greatly appreciative of your consideration and time.

Thank you,

Zach Loken

Oron Tal Thu, Mar 3, 2016 at 4:13 AM
To: Zach Loken

Dear Zach

I wish that I could be of more help to you. I do not have a copy of the original instrument that we developed.

You can try contacting Shawn Stafford who was then our doctoral student, and was responsible for the study, perhaps he still has a copy. He is now faculty at UCF.

https://psychology.cos.ucf.edu/people/stafford-shawn/

Feel free to use the instrument in your study, if we find it.

Tal

From: Zach Loken
Sent: Wednesday, February 24, 2016 11:04 PM
To:
Subject: Question about your instrument used in "Police Officers Seatbelt Use While on Duty"