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Police Use of Force and Officer Injury: A Closer Examination of the Impact of Taser Deployment and Contextual Factors

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POLICE USE OF FORCE AND OFFICER INJURY: A CLOSER EXAMINATION OF THE

IMPACT OF TASER DEPLOYMENT AND CONTEXTUAL FACTORS

By

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ABSTRACT

Using secondary data from the Henderson Police Department (NV), a study was conducted to explore the contextual relationships of officers, subjects and situational characteristics related to use of force encounters. A series of research questions examine the combinations of contextual factors (i.e., officer demographics, subject demographics, and event-specific characteristics) that are associated with different types of police use of force (e.g., Taser, non-Taser), officer injuries and subject injuries. Univariate analysis, Bivariate analysis and Conjunctive Analysis of Case Configurations examine the data and identify contextual profiles associated with police use of force. The analysis shows that there is variation in the characteristics associated with Taser deployment, officer injuries and subject injuries. The consistent characteristics for the three areas of research (Taser deployment, officer injuries and subject injuries) include white officers who are in the patrol bureau and impaired subjects. The results have implications for police executives and human resource directors regarding the development of mitigating policies, practices and training protocols for officers using force.

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CHAPTER ONE

INTRODUCTION

The purpose of government (local, state or federal) is to provide for the welfare of the

citizens; as found in the Preamble of the Constitution, is to "establish justice, insure domestic

tranquility, provide for the common defense, promote the general welfare, and secure the

blessings of liberty to ourselves and our posterity." These principals are related to the purpose

and focus of police officers. The needs of the people are many and police departments go about

ensuring a just and orderly society. These transactional methods vary and adjust from simple

conversations at one end of the spectrum up to the use of deadly force.

Police must operate within the framework of the constitution, but to carry out their duties

the constitution also provides for certain powers that are not granted to everyday people. One of

those powers is the ability to suspend a person's freedom of movement and police are granted the

power to use reasonable levels of force to accomplish their mission. Police officers have various

tools and methods regarding the application of force (e.g. hands, Taser, hand gun, baton, etc.)

and the confluence of circumstances that result in a use of force encounter are numerous. The

International Association of Chiefs of Police define use of force as the "amount of effort required

by police to compel compliance by an unwilling subject" (NIJ, 2012). Additionally, officers

should not exercise more force than is needed to keep control of an incident, to effect an arrest,

or to ensure the safety of the public and themselves from imminent danger (NIJ, 2012). Various

considerations are involved in the decision to use force, to include the location of the encounter,

the people involved, their mental competences, and whether influenced by drugs and alcohol

(Taylor & Woods, 2010, p.268).

When citizens are compliant with a police officer's requests, the encounter goes smoothly and without injury. Unfortunately, not all people are compliant, and the meeting becomes tense and possibly physical; injuries and even death to either the officer or subject(s) in not an uncommon bi-product. In recent years, a brighter spotlight has been placed upon police/citizen encounters and especially when police use force. Justifications and the applications of force is easy to understand and is generally outlined in a department's use of force policy and legal precedents. Historically, there has been a large body of research exploring various techniques of force and specific areas related to excessive force or the role race may play. Little research has focused upon contextual aspects present during use of force encounters.   The purpose of this study is to examine what officer, subject and event characteristics contribute to use of force encounters. The use of Univariate, Bivariate and Conjunctive Analysis of Case Configurations will determine what combination of factors result in the most likely and least likely situations when officers and subjects will be injured. In addition, which combination of factors leads to the deployment of a Taser.

CHAPTER TWO

LITERATURE REVIEW

In the context of civilization, policing and law enforcement is a relatively immature aspect of government especially when compared to other longer standing agencies such as courts and taxation. As societies and communities became more populated during the industrial revolution era the need and importance to protect the citizenry and property from criminals precipitated the creation a professional police force. Modern policing can be traced back to the early 1800's with the ideals and principals being formulated by Sir Robert Peel (Miller & Hess, 2002). Since the origin of modern policing, multiple tasks have been allotted to police officers the world over and these tasks have evolved with society and time. Fundamentally, though, the common function of law enforcement still harkens back to Sir Peel and the London Metropolitan Police (Miller & Hess, 2002). Sir Robert Peel specified a set of principles for policing to adhere and, remarkably, they are still relevant though the actual methods have both regressed as well as progressed over time. Sir Peel articulated the following:

- The basic mission for which police exist is to prevent crime and disorder as an alternative to the repression of crime and disorder by military force and severity of legal punishment.
- The ability of the police to perform their duties is dependent upon public approval of police existence, actions, behavior and the ability of the police to secure and maintain public respect.
- The police must secure the willing cooperation of the public in voluntary observance of the law to be able to secure and maintain public respect.
- The degree of cooperation of the public that can be secured diminishes, proportionately, to the necessity for the use of physical force and compulsion in achieving police objectives.
- The police seek and preserve public favor, not by catering to public opinion, but by constantly demonstrating absolutely impartial service to the law, in complete independence of policy, and without regard to the justice or injustice of the substance of individual laws; by ready offering of individual service and friendship to all members of society without regard to their race or social standing, by ready exercise of courtesy and

friendly good humor; and by ready offering of individual sacrifice in protecting and preserving life.

- The police should use physical force to the extent necessary to secure observance of the law or to restore order only when the exercise of persuasion, advice and warning is found to be insufficient to achieve police objectives; and police should use only the minimum degree of physical force which is necessary on any particular occasion for achieving a police objective.
- The police at all times should maintain a relationship with the public that gives reality to the historic tradition that the police are the public and the public are the police; the police are the only members of the public who are paid to give full-time attention to duties which are incumbent on every citizen in the intent of the community welfare.
- The police should always direct their actions toward their functions and never appear to usurp the powers of the judiciary by avenging individuals or the state, or authoritatively judging guilt or punishing the guilty.
- The test of police efficiency is the absence of crime and disorder, not the visible evidence of police action in dealing with them.

History of Policing in the United States

Taking a historical perspective, the policing profession in the United States has advanced through four distinct eras: political, reform (professional), community policing and most recently community oriented policing and problem solving (Miller & Hess, 2002). The political era was defined by unscrupulous police officers and high levels of unbridled corruption (Miller & Hess, 2002). The dawn of policing in the United States was entwined in politics, as politicians in East coast cities were quick to grasp the value of wielding influence over the police. In 1844, the New York legislature passed a law establishing a full-time police force for New York City, but this newly created police force was distinct from the model that existed in Europe (Peak & Barthe, 2009). New York City police officers were governed by city government and local politicians. The American plan called for each ward in the city to be a solitary patrol area, in contrast to the European model, which separated areas based upon criminal activity (Peak & Barthe, 2009).

Officer selection also differed greatly between the two countries. The mayor was enabled to choose potential hires from a roll of names put forward by the aldermen and tax assessors of each ward; from this, the mayor tendered his own selections to the city council for approval. Having this type of selection process in place allowed ward aldermen to have great sway over the police. Aldermen were rarely concerned or motivated to select the best people to be police officers; quite contrary, this arrangement allowed and even promoted political patronage as well as being a means for rewarding friends (Peak & Barthe, 2009). Men were selected to become officers based upon their connections and loyalty to elected official. Consequently, the citizenry come to view police and the profession negatively with relationships being strained (Miller & Hess, 2002).

Succeeding the political era, the reform era brought the scientific theory of administration (Peak & Barthe, 2009). The era emphasized the hierarchal control of officers as well as standardizing police work and procedures. Also, police began distancing their interactions with citizens as it was believed that citizens were not needed to solve crimes (Miller & Hess, 2002). The focus became controlling crime, while interaction with the public and mitigating crime was viewed as social work (Peak & Barthe, 2009). From this philosophical shift, the professional era brought along new tactics for patrol such as randomized patrolling and responding to calls for service rapidly (Miller & Hess, 2002). This shift to professionalism and self-reliance diminished the bonds amongst the officers and the communities they were charged with policing.

The third era to emerge, Community Policing, developed near the end of the 1960's and into the 1970's with a goal of reconnecting to members of the community and becoming problem solvers instead of strictly crime fighters (Miller & Hess, 2002). Police began to change their methods, management practices and the way in which they view their work. Crime control was

still a central component of law enforcement, but crime prevention was emphasized (Peak & Barthe, 2009). These new partnerships, forged with the community, focused upon more than incarceration and police presence (Miller & Hess, 2002). COP culminated in the Violent Crime Control and Law Enforcement Act of 1994, which authorized $8.8 billion over six years to create the Office of Community Oriented Policing Services (COPS) in the U.S. Department of Justice. The act infused 100,000 police officers within communities around the country as well as creating thirty-one regional community-policing institutes (Peak & Glensor, 2002). Community Policing still has a strong presence in law enforcement today and has a connection to Sir Robert Peel's axiom: "the police are the public and the public are the police" (Miller & Hess, 2002).

During the past twenty years, the CompStat era has come about and is used as a decision making tool for many large agencies for deploying officers, use of tactics, and providing continual follow-up and assessment (Peak & Barthe, 2009). CompStat is founded upon the SARA model (Scanning, Analysis, Response, and Assessment) of data collection and data-driven operations. CompStat has been encapsulated as: "Collect, analyze, and map crime data and other essential police performance measures on a regular basis, and hold police managers accountable for their performance as measured by these data" (DeLorenzi, Shane & Amendola, 2006 (34)). Shifting to data driven performance has required law enforcement agencies to devote monetary resources into new data collecting tools and understand the benefits of operations reliant upon data. Many police departments are now relying upon analytics to drive their decision making and creating an environment of greater accountability for commanders. Only time will tell if this approach is successful and what the community costs will entail since there will be less input from line officers and residents.

Evolution of Police Tasks/Use of Force

Policing is recognized as one of the most dangerous professions and is routinely ranked in the top five regarding injuries and loss of life in relation to occupational violence (Prenzler, 2012). With that said, the authority to use physical force has always been granted to law enforcement officers and force exists at the core of the police function (Bittner, 1970). The amount of force used is based upon officer perception, suspect actions and department policies. Force is generally used to protect police and the public, make an arrest, overcome resistance, or gain control of a potentially dangerous situation (Walker and Katz, 2002). Other than hands, feet and fists officers were provided wooden batons and eventually handguns as tools to achieve their goals. Police departments have attempted to provide alternatives to lethal force as far back as the 1920's (White and Ready, 2007). During the early part of the twentieth century chemical munitions became available for use by law enforcement. Tear gas was available in hand grenades and was used to disband violent hordes during protests. Eventually tear gas was weaponized into a pen gun. Ultimately, the pen gun was discontinued due to the fact that it could and did cause serious eye injuries.

In 1965, the President's Commission of Law Enforcement and Administration of Justice made a number of criminal justice policy recommendations, including the advancement of nonlethal weapons as an alternative to deadly force for line officers (White and Ready, 2007). These recommendations became the impetus for the development of the Taser in the 1990's. The goal, as with any less than lethal tool, was to provide a choice for officers to mitigate use of force incidents while reducing the possibility of injuries to both officers and citizens. Studies conducted by McLaughlin (1992) and the U.S. Bureau of Justice Statistics (2011) indicate that police use some method of force in approximately 1.6% of all encounter with citizens.

Other tools transformed over time or were invented specifically for law enforcement which includes Oleoresin Capsicum (OC) pepper spray, handcuffs, spit masks and leg hobbles. Because of research, experience and technological leaps, equipment utilized by police officers has greatly improved over time and continues to progress as fast as technology will allow (Langworthy & Travis, 2003). As time goes by, today's police have an array of tools to help complete their jobs (Langworthy & Travis, 2003). According to Schultz (2008), technological advancements in policing progress faster than the industry can keep up. Schultz describes the assortment of innovations in less-lethal technology that includes chemical agents, projectile systems as well as electro-muscular disruption devices. Within the context of this unending progression, responsible department commanders and chief executives must assess any new piece of equipment from the auspices of operational needs, total costs, servicing and maintenance, training and legal ramifications (Schultz, 2008). Put another way, departments should ensure their equipment is both current and in the future serves a decided need such as increasing safety or efficiency, or reducing job difficulty (Schultz, 2008).

As police progress and adopt newer tools and techniques to perform their duties for the purpose of protecting society and themselves; injuries to both officers and citizens occur regularly during use of force incidents. Most of the time, attention is paid to situations where officers use force or violence during a situation. Yet, scant is the understanding concerning violence used by and against police officers in the United States, as well as abroad.

Investigating Police Use of Force

Over the past several decades, researchers have diligently worked at providing sound reasoning to explain the root causes for use of force by police officers. For the most part, their

efforts have been confined to three sweeping perspectives. Two of these perspectives, sociological and psychological, have shepherded the majority of prior analytical study. From the sociological (or situational) discipline, researchers have weighed the predominance of social status on punitive police behavior (Chevigny 1969; Friedrich 1977; Reiss 1968; Terrill 2001; Westley 1953; Worden 1995). For example, Black (1976) conceived that the application of force by officers could be determined by the variety of social spaces in which the individuals being controlled are occupying. Black (1976) theorized police officers would be more punitive (i.e., forceful) against suspects that were situated within the lower economic stratum or deemed part of a peripheral cultural status (e.g., poor, minorities, and the young). To continue, persons being influenced because of the ingestion of drugs and/or alcohol, mentally unbalanced, contemptuous, resistant, or ill-tempered are looked upon negatively and categorized by such traits. These people are regarded as offending societies' and the police officer's principals of acceptable behavior or exhibit a lack of self-control. Regardless, these classes of suspects are deemed by police to be fitting of punishment and control (Herbert 1998; Manning 1989; Muir 1977; Worden 1989).

The next perspective is structured within a psychological framework. According to this perspective, characteristics of the officer, their experiences, outlooks and viewpoints are thought to affect the behavior of police (Brown 1981; Muir 1977; White 1972; Worden 1995). This type of interpretation relies upon a belief that officers with particular attributes, beliefs and experiences will react/respond uniquely when faced with similar situations. A good case in point is Muir's (1977) writings about the role of the officer and how each handles like situations differently. Muir (1977) was mainly drawn to the concept of differentiating "good" versus "bad" police officers. He formulated an ideology that consisted of four policing styles: professionals

(those that possessed passion and perspective), enforcers (passion but no perspective), reciprocators (had perspective but no passion) and avoiders (officers did not have either passion or perspective).

Differing forms of organization theory have been considered that spotlight formal and informal features of the organization (Blau and Scott 1962:2-8). To illustrate, it has been proposed that the formal structure of police organizations help shape and, in turn, predict patterns of police actions because of established rules, training, procedures and formal direction (Wilson 1968). Conversely, the informal structure (police subculture) protects officers from any type of scrutiny and does not really contribute to forming a particular style of policing. While working under this protective umbrella of the culture, officers are freed to create their own unique style of policing uninhibited by the formal departmental structure (Brown, 1981). In spite of the fact that these writings have provided insight into use of force, there persist several limitations. Most notably, the various ideologies fail to account for the idea use of force applications vary based upon wider ranging contexts.

A majority of studies focus on the connection between police and their use of force against members of society (e.g., Gallo, Collyer, & Gallagher, 2008; Hoffman & Hickey, 2005; Lersch & Mieczkowski, 2005; McCluskey, Terrill, & Paoline, 2005; McElvain & Kposowa, 2004; Paoline & Terrill, 2007; Seron, Pereira, & Kovath, 2006; Terrill, Leinfelt, & Kwak, 2008). Currently, there is a swelling body of work that is looking at law enforcement as victims (e.g., Batton & Wilson, 2006; Brandl, 1996; Brandl & Stroshine, 2012; Kaminski, 2008; Kaminski, Jefferis, & Gu, 2003; Kent, 2010; S. Wilson & Zhao, 2008). During 2016, the FBI reported 57,180 officers in the United States were assaulted. That number represents approximately 10% of the officers in the country (FBI, 2016). From all these assaults, 28.9% of these officers

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suffered some type of injury during the incident and, tragically, 66 of the officers were killed (FBI, 2016).

Some initial research brought forth knowledge about officer injuries, the revamping of officer training and weaponry has made additional research necessary. Brandl and Stroshine (2012) discovered that the number of officers injured as well as how often they are injured gradually reduced from the late 1990s and the late 2000s, which was postulated to be the result of upgraded training, increased use of protective equipment and proliferation of less lethal force options. In truth, the focus of much more recent research has paid attention to the impact of less lethal force options (mainly Tasers) and rates of officer injuries. In addition, other options have been researched, but there are inconsistencies as well as contradictions with the findings when temporal and contextual components are factored. Studies conducted by Alpert and Dunham (2001), Meyer (1992) and Smith and Petrocelli (2002) found that officers using bodily force such as open handed takedowns or punching were the most likely to suffer an injury.

For subjects, researchers discovered that any risk of injury differs based upon the type of force used by police officers. Subjects are more likely to be injured when an officer uses bodily force like pushing or impact weapons such as an expandable baton or flashlights (Meyer, 1992). In addition, subject injury rates are increased when a K-9 is deployed (Huston et al., 1997; Campbell et al., 1998).   According to Jenkinson et al. (2006) dog bites have the capacity to cause a litany of injuries to multiple regions of the body (e.g. vascular, nerve, bone, skin and other complications).

Several researchers studied severity of injuries where police reports were the source of data reporting. The extent of injury was typically grouped as minor (i.e. bruising, sprains,

muscle strains and abrasions) or moderate; a low number of incidents were reported as severe accompanying long term health ramifications (Alpert and Dunham, 1998; Kaminski et al., 2004; Smith and Petrocelli, 2002). Furthermore, when there is a comparison between police data and hospital data, the extent of injury is routinely classified incorrectly (Rosman and Knuiman, 1994; Farmer, 2003). Farmer discovered that police officers were inclined to list injuries with blood loss as more severe than what was reality after being medically evaluated and internal injuries were documented as less acute.

Physical force options used by police officers such as punching lead to major and moderate injuries to subjects approximately 64% of the time, baton use had an injury rate of about 61%; all other types of bodily force resulted in injuries 46% of the time (Meyer, 1992). Other less lethal tools were examined and OC spray lead to minor injuries in 10% of cases (Edwards et al., 1997; Gauvin, 1995; Kaminski et al., 1999; Lumb and Friday, 1997; National Institute of Justice, 2003; Smith and Petrocelli, 2002). Conversely, it was established that Conducted Energy Devices (CED) lowered injuries to officers and subjects from 40%-79% (Jenkinson et al., 2006; Hougland et al., 2005; Charlotte-Mecklenburg Police Department, 2006).

Multiple studies have established that incidents of police/citizen interactions resulting in police use of force are uncommon with less than 2% of case ending with force (Travis, Chaiken, and Kaminski, 1999; Alpert and Dunham, 1998; Mesloh, Henych, and Wolf, 2008). Despite use of force events being infrequent, the injury rate for officers and subjects high. Researchers have estimated that subjects are injured 18.9 to 40% of the time during use of force encounters (Alpert and Dunham, 2001; Mesloh, Henych, and Wolf, 2008; Eith and Durose, 2011); officer injury rates are approximately 1.8% to 38% (Travis, Chaiken, and Kaminski, 1999; Alpert and Dunham, 2001; Mesloh, Henych and Wolf, 2008).

The literature is myriad but fairly consistent in identifying that several factors come into play affecting use of force (Klahm & Tillyer, 2010; Riksheim & Chermak, 1993; Sherman, 1980). Officers' use of force is correlated to the suspect, context and the characteristics of the officer. Further, diverse research has been concerned with the arbitrary or prejudiced treatment of different groups; yet, while evidence has been mixed, many studies have consistently reached the same uneven conclusions (Klahm & Tillyer, 2010). To clarify, many studies concluded that the race of the subject/ethnicity did not appear to be related to use of force being employed. There are a few studies that showed Caucasian citizens were less likely to have force used against them as opposed to non-Caucasians (Alpert et al., 2004; Crow & Adrion, 2011; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002; Terrill et al., 2008; Terrill & Reisig, 2003).

Outcomes were similar when some demographics were investigated such as gender, age and use of force: Certain studies concluded that force will be used at a higher rate if the subject is male or younger in age, but any correlation between gender and age regarding the outcome is inconsistent (Boivin, R., & Lagacé, 2016). A few studies attempted to research any relationship between use of force and officer characteristics; which has produced less convincing findings. Most have reported either mixed results or no relationship with regard to officer demographics along with experience and/or education. Yet, some studies have shown that officers who are younger in age and male use force at a higher rate than officers with more experience and education. (McElwain & Kposowa, 2004, 2008; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002). Next, other findings have shown that officer characterizes such as age, sex, rank, experience and race have no effect on the rate of injuries resulting from an encounter with a suspect (Covington et al. 2014, MacDonald et al. 2009, Paoline III et al. 2012, Smith et al. 2007).

Yet, analysis of suspect centric factors has produced equally mixed outcomes. For the most part, a suspect's age has not shown to be a factor in officer injuries (Covington et al. 2014, MacDonald et al. 2009, Paoline III et al. 2012, Smith et al. 2007). Furthermore, one study produced inconsistent outcomes in relation to the severity of an officer's injury based upon a suspect's sex, age and race (Taylor and Woods, 2010). Whereas other studies suggested the sex of a suspect was not associated with injuries to police; (Paoline III et al. 2012, Smith et al. 2007 and MacDonald et al. 2009) relayed that officers were most at risk of injuries from males.

One study reported that brushes with female suspects resulted in a higher rate of assaults upon officers (Covington et al. 2014). The authors believed that violent females are disposed to act out and not conform to conventional female norms. This in-depth study also reported that suspects with larger body mass indexes (BMI) along with suspects under the influence of alcohol had higher rates of assaulting police officers and that these findings are harmonious with prior research (Ellis et al. 1993, Kaminski and Sorensen 1995). Yet, one study found officers did not get injured as often during assaults from those believed to under the influence of either drugs or alcohol (Paoline III et al. 2012).

Further, differing consequences have been studied in the literature to include excessive force (Alpert, Dunham, & MacDonald, 2004); deadly force (Jacobs & Britt, 1979; Jacobs & O'Brien, 1998); amount of force within a neighborhood, city or at the department level (Alpert & MacDonald, 2001; Eitle, D'Alessio, & Stolzenberg, 2014; Hickman & Piquero, 2009; Lersch, Bazley, Mieczkowski, & Childs, 2008; Smith, 2003)*; juxtaposition of force and no force intercessions (Bayley & Garofalo, 1989; Friedrich, 1980; Johnson, 2011; Terrill & Mastrofski, 2002); problematic officers and those routinely using force (Brandl & Stroshine, 2013; Harris, 2012; Manzoni & Eisner, 2006; McElwain & Kposowa, 2004, 2008; Wolfe & Piquero, 2011);

and linkage between type of force used during an encounter and weapon choice (Crawford &
Burns, 2002; Crow & Adrion, 2011; Gallo et al., 2008; Garner, Schade, Hepburn, & Buchanan,
1995; Lawton, 2007; Lee, Jang, Yun, Lim, & Tushaus, 2010; Paoline & Terrill, 2007; Terrill,
Leinfelt, & Kwak, 2008; Terrill & Paoline, 2013; Terrill & Reisig, 2003).

From a contextual perspective, Brandl and Stroshine (2013) probed three occupational
dimensions (The role of officer attributes, job characteristics and arrest activity) attempting to
explain, like most other studies, police use of force. The authors discovered that use of force was
more likely to occur during interactions that happened during evening hours, but that officers
with higher recorded rates of use of force worked in areas with high crime rates. There is some
consensus that suspects who have resisted officers are going to be subjected to force and there is
a correlation between the amount of resistance given and the level of force used in response.
Covington et al. (2014) did not identify any series relationships among temporal elements of
time of day, day of the week and/or season towards officer injury rates. Further, Covington et al.
(2014) revealed officers were at greater risk of a battery with multiple officers involved as
opposed being a solo officer. The suggestion is that a person may deem it necessary to be out of
line when multiple officers are present.

Generally, resistance is the main legal justification for officers to use force and they are
taught, for the most part, about the use of force continuum; which starts during the academy or
initial law enforcement training. This usually continues throughout the career, but the point is
that the level of force used is to be based upon the intensity of resistance being offered.   There
are three important factors that officers need to understand and process during an encounter with
citizens/suspects; the situation, people involved and a course of action (Sykes and Brent, 1983).
Current analysis of contextual components related to officer injuries is chiefly inconsistent.

There are several studies relaying that warnings of potential resistance or danger, like the use of a weapon or mere existence of one, are positively linked to force and other contextual factors are not consistently related to force being used. Also, a few studies have illuminated a potential causal association in regard to the presence of more than one officer and force being applied, but conversely a similar number of studies did not find a relationship (Klahm & Tillyer, 2010). To continue, there are several studies demonstrating an increased tendency for the use of physical restraints if bystanders were present (Engel, Sobol, & Worden, 2000; Phillips & Smith, 2000). Lastly, other studies have proposed that officers will more likely use force if the subject(s) is violently involved with a citizen when law enforcement arrives at the situation (McCluskey, Terrill, & Paoline, 2005); this suggests that force is dually used by police officers to not only gain compliance from a resisting suspect but also to protect themselves and other citizens from harm.

Predominately, current research focuses upon which force option is employed by officers, but focus has been on conducted energy weapons such as Tasers and their impact upon lowering officer injury rates (Alpert and Dunham 2010, Lin and Jones 2010, MacDonald et al. 2009, Paoline III et al. 2012, Smith et al. 2007, Taylor and Woods 2010). Conclusions reliably report that CED's lower the likelihood of police officers getting injured during a violent encounter. In a study of twelve police departments, MacDonald et al. (2009) explored the effects of CED's and oleoresin capsicum (OC) on injury rates. When looking at encounters before and after adoption of CED's the researchers found convincing evidence that injury rates lowered when officers began utilizing CED's in the field. These findings were backed by a similar study conducted by Taylor and Woods (2010).

Tasers are a conducted energy device (CED) which is a newer addition to the use of force continuum for the military and law enforcement. The Taser is an acronym which stands for Thomas A. Swift Electric Rifle. Thomas Swift was a literary character from a series of young adult science fiction novels published at the beginning of the 1900's. Currently, more than 17,000 law enforcement agencies in the United States, and throughout the world, have adopted a form of CED's (TASER International, 2013). Conducted Energy Devices (CED's) are designated as a less than lethal force option and these devices became available for law enforcement use during the 1990's (TASER International, 2013). Less-lethal force is applied force that is not intended or designed to cause death or series injury (i.e. CED, bean-bag round, pepper spray). Conversely, deadly force is explicitly designed to cause death or serious bodily injury (i.e. firearms). Ever since the inception of CED's to police work, there have been discussions and arguments regarding the safety and efficacy of these tools.

The Taser produces an electrical charge of 50,000 volts that can be delivered two ways. Although a Taser can cause severe discomfort the device is not intended to primarily be a pain compliance weapon. These weapons create strong uncontrolled contractions, causing individuals to lose the ability to willfully control their own muscles (TASER International, 2013). CED's are designed to override the central nervous system to stimulate motor nerve and muscle tissue; causing incapacitation regardless of the resistance officer by the subject with the effect terminating as soon as the discharge is halted (TASER International, 2013). Immediately after the Taser shock, subjects are generally capable of physically performing at their baseline (Vilke and Chang, 2007:349).

The most common method of deployment is firing the Taser from up to a distance of 21 feet away from the subject where two steel darts are propelled from the Taser cartridge using

compressed nitrogen as a propellant. The darts, each attached to a thin copper wire, puncture clothing and/or skin delivering an electrical current for five seconds (The U.S. Government Accountability Officer, 2005). The time is programmed into the Taser and the electrical current is cut off automatically without any thought or input from the officer. The officer can terminate the electrical current by manually activating the safety selector switch. A second deployment method is the "drive stun." This method occurs with the probe cartridge removed. The gap left by the missing cartridge, which contains two metal probes, is placed against the skin of an individual and the electricity is conducted between the probes. The same 50,000 volts are discharged but there is no neuro-muscular disruption due to the small amount of tissue and muscle being contacted by the electricity. This method is used to gain control via pain compliance because the subject still retains all muscular function.

Police Policy Considerations

Employee actions or work processes, within any organization, are accomplished through a number of mechanisms with the most prominent being written policies. The goal of a department's policy is to guide and shape the means in which a police officer applies their discretionary authority. Within police agencies, administrators and upper management enact use of force policies to guide officers' actions and provide directions as to when and to what extent force can be applied against others. Use of force polices vary across the country, which should not be a surprise, since there are so many agencies within the United States.

Research into the usefulness of police policies in controlling the actions of an officer is scant and what does exist has generally been directed towards the high end of the use of force continuum. For example, White (2001) reports that restricted circumstances in which

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Philadelphia police officers were allowed to shoot their firearms led to lower rates of officer involved shootings. However, there is a lack of empirical study regarding the relationship between Taser use and policies directing use of the tool (Crow & Adrion, 2011). This omission of research exists in spite of the fact that officers around the world utilize less lethal tools at a much greater rate than they discharge their firearm against citizens.

Staton (2008) suggests that police agencies ought to consider partnering with other police departments as they consider adopting and implementing CED's. Interactions and networking with these agencies allow for the exchange of successes and failures experienced from CED use allowing for the adopting agencies to avoid potential negative consequences in their policy construction (Staton, 2008). The Police Executive Research Forum has recommended limiting the number of CED activations against a citizen and codifying this within a policy. In addition, Staton (2008) also recommends that agencies limit the number of activations when a CED is deployed in the field along with the number of CED's used against an individual. Staton contends that CED's are not without risk and misuse via overuse, use against the vulnerable or negligent use is likely to increase the device's misapplication (Staton, 2008). Stanton comes to the conclusion that CED's need to be placed within the force continuum that safeguards against use against anyone not physically combative (Staton, 2008). Lastly, he believes that it is important to include the need for medical intervention and observation within any CED policy (Staton, 2008).

It would seem appropriate that a means of controlling any overuse or misuse of a CED would be tied to the agencies' decision of how and when CED's can and in turn should be utilized within their force continuum. Crow and Adrion discovered a link to a suspect increasing his resistance level as well as becoming more offensive or aggressive against a police officer and

the officer's use of a CED against said person (Crow & Adrion, 2011). This same study also found that there is a justification for the need of a CED as a subject increases his resistance and their threat to the community becomes increasingly apparent (Crow & Adrion, 2011). Further it was discovered that officers were much less likely to address a subject brandishing a weapon with a CED, but at a higher rate use a CED against a suspect that was simply evading arrest or delivering verbal threats (Crow & Adrion, 2011). Crow and Adrion state that each police department should incorporate scenario based instruction and training for those that employ CED's as a less then lethal option (2011). As such the authors found that individual officers may view various levels of resistance differently and this disparity can influence the variances of force used by officers (Crow & Adrion, 2011).

A major function for a police executive is policy construction and with regard to CEDs it is important to review the Taser and its' progression as a force option. Adams and Jennison (2007) published a paper after they researched publicly available practices and policies to compare and contrast which features were similar, and which were dissimilar. Their points of emphasis were on training, deployment, force continuum placement and field usage of the CED (Adams & Jennison, 2007). The conclusion showed there are no consistent foundations upon which officers are trained to carry and use CEDs around the country (Adams & Jennison, 2007). Agencies vary with training as some have only four hour training blocks and some may have eight hour training segments (Adams & Jennison, 2007). Personnel carrying options also vary as certain agencies have full department-wide deployment while other agencies will limit the carry option to specialized officers or units (Adams & Jennison, 2007).

In 2007, Smith, Petrocelli and Scheer published a paper analyzing fifty-three court decisions regarding CED use by police officers. The purpose was to evaluate the cases and their

impact and importance to those making policies for CED implementation, management and training debates. These articles also evaluated each case for the extent of civil litigation, surrounding facts of the CED use and the extent of dissemination of these findings to policy administrators (Smith et al., 2007). Smith et al. (2007) included cases only in which CED's were used and the tort involved an allegation of excessive force. The authors conclude that police managers need to ensure that officers are being well trained on when to use the device as well as when not to use the device (Smith et al, 2007). The restrictions of the CED would apply to unprovoked non-violent encounters with citizens and, conversely, police officers must be trained to clearly articulate the circumstances and decision to deploy their CED in every single use of force incident (Smith et al, 2007).   A caveat does exist, and that is, policy makers need to also remember that any use of force is to be judged upon the totality of circumstances in each individual case; therefore, each agency's policy should be framed accordingly because any use of force will ultimately be adjudged within the courts within the context of this reasonableness standard (Smith et al, 2007). Policies should provide clear guidance to officers that they need to consider the nature, severity of the offense committed, level of resistance, physical characteristics for both the officer and suspect(s) and medical circumstances that would disallow the use of CED's (Smith et al, 2007).

Setting of the Current Study

The focus of the current study is use of force incidents documented by the Henderson Police Department (HPD), which serves the population of Henderson, Nevada. The City of Henderson and the HPD were incorporated in 1953 and is Nevada's second largest city with a population of approximately 302,000 residents. The city offers nationally accredited parks, police and fire department (www.cityofhenderson.com).

The City of Henderson consists primarily of residential communities that focuses growth around master planned communities and open space; hence the large number of parks (www.cityofhenderson.com). The city is credited with having a medium household income above the national average of $63,120 (www.cityofhenderson.com). Overall, the city demographics present a population that is Caucasian (over seventy-eight percent), middle aged adults, educated, home owners and making above the national median income. Table 1 provides recent census data for the City of Henderson (www.cityofhenderson.com).

Table 1: 2016 City of Henderson Population and Demographic Estimates

Current population estimates	302,070
Average household size	2.59
Median household income	$63,120
Median age (years)	40.9
Age 18 years and over	78.3%
Age 65 years and over	16.9%
Population ages 25+ with a bachelor's degree or higher	30.9%
White/Caucasian	78.50%
Black/African American	5.7%
American Indian and Alaska Native	0.4%
Asian	7.4%
Native Hawaiian and Other Pacific Islander	0.4%
Some other race	3.6%
Two or more races	3.9%
Hispanic or Latino (of any race)	15.3%
Not Hispanic or Latino	84.7%

Focusing on only one department for the current study has several advantages. HPD is considered a large agency based upon the number of officers employed (n = 462)[1]. Also, the city and agency are in very close proximity to the city of Las Vegas, Nevada, and this close boundary results in a shared population and criminal activities. Officers from Henderson and Las Vegas work closely together on many serious crimes since it has been demonstrated that offenders will travel between cities to look for crime opportunities. HPD has been deploying

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[1] This represents 2018 employment numbers and only an increase of 19 officers from 2016.

CED's and capturing information concerning use of force incidents for more than ten years, so large amounts of data are available.

The city of Henderson Police Department incorporates both police and correctional functions under the Chief of Police. The term "officers" in this study refers to commissioned police and correctional officers. Table 2 presents HPD officer demographics in 2016 to include gender and ethnicity by rank (COH human resource department, 2016). The department is comprised mostly of white (78.6 percent) and male (88.8 percent) officers. Table 3 presents a summary of HPD officers by age and tenure.

Table 2: 2016 HPD Demographics

Sworn Personnel	White		African American		Native American		Asian		Hispanic		Native Hawaiian		Other	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Entry Level	247	41	22	0	1	0	12	0	41	3	1	0	0	0
Supervisory Sgt/Lt	49	5	5	0	0	0	1	0	3	1	0	0	0	0
Executive Captain/Above	10	0	0	0	0	0	0	0	1	0	0	0	0	0
Subtotal	306	46	27	0	1	0	13	0	45	4	1	0	0	0

Table 3: 2016 HPD Officer Age and Tenure

Age	Tenure
>35 Years Old = 217	>10 Years = 255
<35 Years Old = 145	<10 Years = 207

Henderson Police Department Use of Force and Taser Policy

The Henderson Police Department essentially adheres with the Police Executive Research Forum recommendations with respect to CED placement upon the use-of-force continuum as a less lethal device. HPD policy authorizes officers to use their Taser, if the situation requires, to affect a lawful arrest, overcome resistance to an arrest, to prevent the escape of a suspect, and to protect a third person from injury and/or their property (Henderson Police Department, 2017). The department's policy conforms to the recommendation of the Police Executive Research Forum, that exhorts CEDs only be deployed upon someone is displaying physical aggressive resistance, and not when being confronted by a person merely exhibiting passive resistance. The Henderson Police Department policy articulates that a CED is not supposed to be used in place of any other weapon within the range of response and that each use of force must be reasonable, warranted and justified (Henderson Police Department, 2017). The Henderson Police Department also specifies that: 1) a supervisor must personally respond to all successful CED applications, 2) medical attention must be administered by paramedics and 3) the suspect needs to be observed for a reasonable amount of time after being subjected to the device (Henderson Police Department, 2017).

These conditions of the use of force policy do correspond with the Police Executive Research Forum recommendations for post-deployment. Finally, the HPD policy articulates that every discharge of a CED outside of a training environment will require the completion of a use of force report called a blue team (Henderson Police Department, 2017), which is a statistical tracking tool. This report will be completed by the officer using force and forwarded up the chain of command until reaching the Use of Force Training and Analysis Unit that is part of the training bureau. This routing procedure allows for multiple layers of review to ensure

compliance with policy and that the tool was not used improperly, which could create a potential

use of force issue/complaint (Henderson Police Department, 2017). The department's

heedfulness to post deployment responsibilities demonstrates attention to the Police Executive

Research Forum recommendations.

The initial policy for CED use was enacted on 9/17/01. This was a simple five page

document covering the initial tool deployed (M-26 Taser), deployment considerations,

deployment procedures and reporting (Henderson Police Department, 2001). The following is

the parameters of deployment from the original policy:

Officers deploying the device must consider the following prior to deployment:
- The maximum effective range is 15-18 feet.
- The optimal target area is the center of mass. When possible, aim at the suspect's back.
- More than one cycle from the M-26 may be necessary to gain compliance.
- Compliance may possibly not be gained, even after several cycles from the M-26.
  Officers should be prepared to deploy alternative methods to gain compliance, such as
  impact tools.

The initial policy was vague. The initial policy did not propose a determined number of

Taser cycles or more exact preferred target area. This policy has undergone multiple revisions

over the sixteen years it has existed. For example, circumstances of allowable use (preferred

target area is from the naval and below, number of cycles allowed (maximum of 3) and reporting

have all been modified for adherence to legal precedence and best practices (HPD policy manual,

2017).

Research Questions

The purpose of this study is to explore characteristics of police use of force incidents and to focus further on characteristics associated with Taser deployment. Incident data are examined to identify factors associated with events that result in injuries sustained by officers and subjects, as well as contextual factors that surround police use of force incidents in the City of Henderson. Police administrators may be able to improve training protocols and procedures for their agencies regarding their use of force policies if they better understand these situational and contextual factors. Further, human resource departments can use the findings to construct risk management agendas and policies, as well as responses to address police/citizen injuries. To better understand the dynamics of police use of force events this study attempts to answer the following research questions.

The first two questions focus on determining the prevalence of injuries sustained during all use of force events.

1. How often do police officers sustain injuries during use of force encounters?
2. How often do subjects sustain injuries during use of force encounters?

To better understand the conditions in which officers are most likely to be injured during use of force incidents, this study examines officer profiles, subject profiles and event characteristics that are associated with officer injury outcomes. This study answers the following questions.

3. What officer characteristics (i.e., gender, race, age and tenure), subject characteristics (i.e., gender, race, and age) and event characteristics (i.e., responding officer assignment,

call type, time of day, weekday/weekend, suspect resistance, subject impairment, and type of force) are associated with use of force incidents that result in officer injury?

To better understand the conditions in which subjects are most likely to be injured during use of force incidents, this study examines officer profiles, subject profiles and event characteristics that are associated with subject injury outcomes. This study answers the following questions.

4. What officer characteristics (i.e., gender, race, tenure, and age), subject characteristics (i.e., gender, race, and age) and event characteristics (i.e., responding officer assignment, call type, time of day, weekday/weekend, subject resistance, suspect impairment, and type of force) are associated with use of force incidents that result in subject injury?

To focus further on the use of a less-lethal use of force option, this study examines the prevalence and outcomes of Taser deployment during incidents in which officers use force to gain subject compliance.

5. What percent of use of force incidents involve Tasers?
6. Are officer and subject injury rates higher or lower when Tasers are deployed than when other types of force are used?

To better understand who is most likely to use Tasers, against whom are Tasers more likely to be used, and under what conditions is Taser deployment more common, this study examines the profiles of individuals involved in use of force incidents in which Tasers are deployed and contextual factors present during these incidents. In particular, the following question is answered.

7. What officer characteristics (i.e., gender, race, tenure, and age), subject characteristics (i.e., gender, race, and age), and event characteristics (i.e., responding officer assignment, call type, time of day, whether during weekend, subject resistance, and subject impairment) are associated with the deployment of Tasers during use of force incidents?

CHAPTER THREE

METHODS

This study uses secondary data provided by the internal affairs bureau of the Henderson

Police Department (HPD). The data were extracted from a software program called IAPro that is

used to report and document use of force incidents. A total of 3,820 use of force incidents were

recorded by HPD between 2006-2016 and are included in the current analysis. Cases were only

excluded if missing data are present. Missing data were more common during 2006 and part of

2007, since this was when the data collection program was first used by officers and supervisors.

Data collection improved during the years that followed subsequent to on-going training and

review. The variables included in the following analysis were generally determined by the types

of information collected by HPD and documented in the IAPro system.

Analysis

Univariate, Bivariate, and Conjunctive Analysis of Case Configurations (CACC)

analyses are used to explore use of force incident characteristics. Univariate analyses are used to

describe the frequency of officer and subject injury, as well as Taser deployment, during use of

force incidents. Simple percentages are provided to assess the frequency with which injuries are

incurred by either party and the percentage of use of force incidents in which an officer deployed

a Taser. A bivariate analysis is used to determine whether officer and subject injury rates are

higher or lower when Tasers are deployed than when other types of force are used. Multivariate

analyses using CACC identifies dominant demographic and situational contexts associated with

(1) officer injury, (2) subject injury, and (3) Taser deployment.

The CACC analyses examine the joint distribution or combination of various sets of risk factors for particular outcomes. CACC offers a statistical technique that helps to explore relationships between different combinations of variables (Miethe, Hart, and Regoeczi, 2008). This method considers all possible variable combinations to reveal the specific combination of factors that is most commonly associated with a particular outcome. Each variable is coded into a dichotomous variable (0 = absence of factor, 1 = presence of factor) for inclusion in the CACC analysis (see Appendix A).

Coding

Independent Variables

To create the dichotomous variables necessary for the CACC analyses, each independent variable was dummy-coded by the researcher (i.e., 0=no/not present and 1=yes/present). The independent variables, or risk factors, include officer characteristics, subject characteristics, and event characteristics. Officer characteristics examined include gender, race, age and tenure. Officer gender is coded as female (0) or male (1); officer race is coded as non-white (0) or white (1); officer age is coded as officer 35 years or older (0) or officer under 35 years old (1); and tenure is coded as 10 or more years of officer experience (0) or less than 10 years of officer experience (1).

Subject characteristics examined include gender, race and age. Subject gender is coded as female (0) or male (1); subject race is coded as non-white (0) or white (1); and subject age is coded as subject 35 years or older (0) or subject under 35 years old (1). Event characteristics examined include responding bureau, call type, time of day, day of week, subject resistance, subject impairment, and type of force used. Responding bureau is coded as non-patrol (0) or

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patrol (1); call type is coded as non-violent (0) or violent (1); time of day is coded as daytime 6:00am-5:59pm (0) or nighttime 6:00pm-5:59am (1); day of week is coded as weekday Monday-Thursday (0) or weekend Friday-Sunday (1); subject resistance is coded as no (0) or yes (1); subject impairment associated with alcohol, drug, or mental impairment is coded as no (0) or yes (1); and type of force is coded as Taser not used/other force type (0) and Taser used (1).

Dependent Variables

Three outcome measures are examined in the CACC analyses: (1) whether or not an officer was injured, (2) whether or not a subject was injured, and (3) whether or not a Taser was deployed. Each dependent variable is dummy coded (i.e., 0=no/not present and 1=yes/present). Case configurations for each outcome measure will be examined using combinations of officer, subject, and event characteristics. The CACC analyses indicate the proportion of events, within a particular combination of risk factors (i.e., independent variables) in which the outcome measure was present. Each outcome is then classified as being a "high-risk" or a "low-risk" profile (i.e., combination of risk factors).

To classify a specific combination of variables (i.e., profile) as being high- or low-risk, the mean associated with the outcome variable in the analysis was used. Officer injuries occurred in nine percent of all cases (mean = .09); subject injuries occurred in twenty-eight percent of all cases (mean = .28), and Tasers were deployed in nineteen percent of all cases (mean = .19). Profiles with a higher proportion of cases with the outcome of interest (i.e., proportion falls at and above the mean) were classified as high-risk, while profiles with a lower proportion of cases with the outcome of interest (i.e., proportion falls below the mean) were classified as low-risk.

For example, only profiles that deployed Tasers nineteen percent of the time or more were classified as high-risk.

CACC Interpretation

To determine whether a particular variable attribute is classified as being high-risk or low-risk, the number of times the attribute appears in the high-risk profiles and the number of times the attribute appears in the low-risk profiles is counted. If the attribute appears in fifty percent or more in either profile category (high or low risk), the presence (+) or absence (-) of the attribute is noted in the analysis tables (see tables in results).

Each table displays the number of profiles within the high risk and low risk categories. Further, the numbers under the + and – represent the percentage of that attribute being present or absent (e.g. if 60.0 appears below the male column with a +, this means that 60% of the profiles include presence of the male attribute; if 66.7 appears below the male column with a –, this means that 66.7% of the profiles include the female attribute). If the attribute appears 50% of the time, it is considered not to be associated with the variable of interest because no effect exists; this is represented with N/A.

CHAPTER FOUR

RESULTS

The analysis consisted of 3,820 cases, but many cases contained missing event characteristics (n = 1,345). The first research question asks how often police officers sustain injury during use of force encounters. A univariate analysis revealed 325 officers were injured (8.5%) and 3,495 were not injured (91.5%) during these incidents. The second research question asks how often subjects sustain injury during use of force encounters. A second univariate analysis revealed 1,071 subjects were injured (28%) and 2,749 were not injured (72%) during these incidents.

Officer Injury Context

The third research question asks what officer characteristics, subject characteristics and event characteristics are associated with use of force encounters that result in officer injury. The CCAC analysis of the relationship between officer characteristics and likelihood of officer injury revealed 2,135 cases in high risk profile categories (n = 5) and 1,685 cases in low risk profile categories (n = 10). Table 4 shows that male (3/5), white (4/5), less experienced (3/5) and older (3/5) officers are more likely to sustain injury during use of force incidents. Alternatively, non-white (6/10), more experienced (6/10) and younger (6/10) officers are less likely to sustain injury during use of force incidents. Officer gender was not a factor associated with low risk of officer injury (5/10).

Table 4: Officer Characteristics Associated with Officer Injury During Use of Force Incidents

Risk Level (# profiles)	Officer Characteristics (% profiles)			
	Male	White	Tenure	Age
High-Risk (5)	+ (60.0)	+ (80.0)	- (60.0)	+ (60.0)
Low-Risk (10)	N/A (50.0)	- (60.0)	+ (60.0)	- (60.0)

With regard to subject characteristics associated with use of force incidents resulting in officer injuries, there were 1,993 cases in high risk profile categories (n = 2) and 1,827 cases in the low risk profile categories (n = 6). Table 5 shows subjects being male (2/2) and younger (2/2) is associated with officers likely sustaining injury while using force; race is not a factor (1/2). While subjects being female (4/6) and older (4/6) is associated with officers being less likely to sustain injury while using force; race, again, is not a factor (3/6).

Table 5: Subject Characteristics Associated with Officer Injury During Use of Force Incidents

Risk Level (# profiles)	Subject Characteristics (% profiles)		
	Male	White	Age
High-Risk (2)	+ (100.0)	N/A (50.0)	- (100.0)
Low-Risk (6)	- (66.7)	N/A (50.0)	+ (66.7)

Event characteristics associated with officer injury during use of force incidents involved 1,276 cases in the high risk profile categories (n = 54) and 1,199 cases in the low risk profile categories (n = 65). A total of 2,475 use of force cases were examined, but many (n = 1,345) were excluded due to missing event-related data. Table 6 shows patrol response (34/54), non-violent call type (29/54), subject impaired (30/54), day time (29/54), subject resisting (35/54) and non-Taser use of force (32/54) are event characteristics associated with use of force incidents

likely to result in officer injuries; day of week is not a factor (27/54). Non-patrol response (35/65), violent call type (38/65), subject not impaired (33/65) night time (34/65), weekday (34/65), subject not resisting (40/65) and Taser use of force (34/65) are event characteristics associated with use of force incidents less likely to result in officer injuries.

Table 6: Event Characteristics Associated with Officer Injury During Use of Force Incidents

Risk Level (# profiles)	Event Characteristics (% profiles)						
	Patrol	Violent	Taser	Night	Weekend	Resist	Impaired
High-Risk (54)	+ (63.0)	- (53.7)	- (57.4)	- (53.7)	N/A (50.0)	+ (64.8)	+ (55.6)
Low-Risk (65)	- (53.8)	+ (58.5)	+ (52.3)	+ (52.3)	- (52.3)	- (61.5)	- (50.8)

Subject Injury Context

Research question four asks what officer characteristics, subject characteristics and event characteristics are associated with use of force that result in subject injury. Analysis of subject characteristics associated with subject injuries involved 1,616 cases in the high risk profile categories (n = 2) and 2,204 cases in the low risk profile categories (n = 13). Table 7 shows white (2/2), less experienced (2/2) and younger (2/2) officers are more likely to be associated with use of force events involving subject injuries; officer gender is not a factor (1/2). Officers that are male (7/13), non-white (6/13), more experienced (6/13) and older (7/13) are less likely to be associated with events resulting in injuries to subjects during use of force incidents.

Table 7: Officer Characteristics Associated with Subject Injury During Use of Force Incidents

Risk Level (# profiles)	Officer Characteristics (% profiles)			
	Male	White	Tenure	Age
High-Risk (2)	N/A (50.0)	+ (100.0)	- (100.0)	- (100.0)
Low-Risk (13)	+ (53.8)	- (53.8)	+ (53.8)	+ (61.5)

Subject characteristics associated with subject injuries during use of force incidents revealed 2,385 cases in the high risk profile categories (n = 4) and 1,435 cases in the low risk profile categories (n = 4). Table 8 shows subjects being younger (4/4) is the only characteristic associated with a higher likelihood of subject injury during use of force incidents; subject gender (2/4) and ethnicity (2/4) are not associated risk factors. Subjects being older (4/4) is the only characteristic associated with subjects less likely to sustain injury during use of force incidents; again, subject gender (2/4) and ethnicity (2/4) are not associated risk factors.

Table 8:
Subject Characteristics Associated with Subject Injury During Use of Force Incidents

Risk Level (# profiles)	Subject Characteristics (% profiles)		
	Male	White	Age
High-Risk (4)	N/A (50.0)	N/A (50.0)	- (100.0)
Low-Risk (4)	N/A (50.0)	N/A (50.0)	+ (100.0)

Event characteristics associated with subject injury during use of force incidents involved 1,475 cases in the high risk profile categories (n = 52) and 1,000 cases in the low risk profile categories (n = 67); 1,345 cases were again excluded due to missing event-related data. Table 9 shows patrol response (52/52), violent call type (27/54), subject impaired (30/52), night time (31/52), weekend (27/52), subject not resisting (24/52) and non-Taser use of force (30/52) are the

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event characteristics likely to result in subject injury. Low risk of subject injury during use of force incidents involves non-patrol response (55/67), violent call type (36/67), subject is not impaired (35/67), day time (39/67), weekday (36/67), subject resisting (36/67) and Taser use of force (34/67).

Table 9: Event Characteristics Associated with Subject Injury During Use of Force Incidents

Risk Level (# profiles)	Event Characteristics (% profiles)						
	Patrol	Violent	Taser	Night	Weekend	Resist	Impaired
High-Risk (52)	+ (100.0)	+ (51.9)	- (57.7)	+ (59.6)	+ (51.9)	- (53.8)	+ (57.7)
Low-Risk (67)	- (82.1)	+ (53.7)	+ (50.7)	- (58.2)	- (53.7)	+ (53.7)	- (52.2)

Injury Rates

Research question five asks what percent of use of force incidents involve a Taser. The percentage of incidents involving Tasers is 19%; 737 cases out of 3,820. Research question six asks whether officer and subject injury rates are higher or lower when Tasers are deployed than when other types of force are used. When a Taser is deployed, officers are injured 7.1% of the time and subjects are injured 31.6% of the time. When compared to all other types of use of force, officers are injured 8.9% of the time and subjects are injured 27.2% of the time. The data show that Taser deployment decreases officer injury rates during use of force incidents, but subjects are injured at a higher rate when a Taser is deployed opposed to the use of other types of force.

Research question seven asks what officer characteristics, subject characteristics and event characteristics are associated with deployment of a Taser during a use of force incident. The analysis examining officer characteristics associated with Taser deployment during use of force incidents included 3010 cases in the high use profile categories (n = 6) and 810 cases in the low use profile categories (n = 9). Table 10 shows male (4/6), white (5/6), and more experienced (4/6) officers are most likely to deploy a Taser during use of force situations; officer age (3/6) is not a factor. Female (5/9), non-white (6/9), less experienced (5/9) and younger (5/9) officers are less likely to deploy a Taser during a use of force situation.

Table 10:
Officer Characteristics Associated with Taser Deployment During Use of Force Incidents

Risk Level (# profiles)	Officer Characteristics (% profiles)			
	Male	White	Tenure	Age
High-Risk (6)	+ (66.7)	+ (83.3)	+ (66.7)	N/A (50.0)
Low-Risk (9)	- (55.6)	- (66.7)	- (55.6)	- (55.6)

The analysis examining subject characteristics associated with Taser deployment during use of force incidents, included 3100 cases in the high use profile categories (n = 4) and 720 cases in the low use profile categories (n = 4). Table 11 shows male subjects (4/4) are more likely to be involved in a use of force situation involving deployment of a Taser; ethnicity (2/4) and age (2/4) are not factors. Female subjects (4/4) are less likely to be involved in a use of force situation involving deployment of a Taser; again, ethnicity (2/4) and age (2/4) are not factors.

Table 11: Subject Characteristics Associated with Taser Deployment During Use of Force Incidents

Risk Level (# profiles)	Subject Characteristics (% profiles)		
	Male	White	Age
High-Risk (4)	+ (100)	N/A (50)	N/A (50)
Low-Risk (4)	- (100)	N/A (50)	N/A (50)

The analysis examining event characteristics associated with Taser deployment during use of force included 1,214 cases in the high use profile categories (n = 29) and 1,261 cases in the low risk use profile categories (n = 34). Like previous analyses including event characteristics, 1,345 cases were excluded due to missing data. Table 12 shows event characteristics more likely associated with the deployment of a Taser during use of force incidents involve patrol response (21/29), non-violent call type (16/29), night time (17/29), week day (16/29), subject not resisting (16/29) and subject impaired (16/29). Event characteristics less likely associated with Taser deployment during use of force incidents involve non-patrol response (23/34), violent call type (19/34), day time (20/34), weekend (18/34), subject resisting (19/34) and subject is not impaired (18/34).

Table 12: Event Characteristics Associated with Taser Deployment During Use of Force Incidents

Risk Level (# profiles)	Event Characteristics (% profiles)					
	Patrol	Violent	Night	Weekend	Resist	Impaired
High-Risk (29)	+ (72.4)	- (55.2)	+ (58.6)	- (55.2)	- (55.2)	+ (55.2)
Low-Risk (34)	- (67.6)	+ (55.9)	- (58.8)	+ (52.9)	+ (55.9)	- (52.9)

CHAPTER FIVE

DISCUSSION

This study has investigated the human and situational characteristics linked to deployment of Tasers during use of force situations. Seven research questions inquired about injuries to officers and subjects along with contextual characteristics associated with use of force. Data were compiled from the Henderson Police Department over a ten-year period that resulted in 3,820 cases utilized for this study. The data were examined using univariate, bivariate, and conjunctive analysis of case configuration analyses.

The data show that police officers are rarely injured during use of force incidents, but subjects are injured at a much higher rate (8.5% vs. 28.0%). These injury rates are consistent with previous findings of injury rates, including officer injury rates that range between 1.8% and 38% and subject injury rates that range between 18.9% and 40% (Mesloh, Henych and Wolf, 2008; Eith and Durose, 2011).

The common individual characteristics leading to officer injuries during use of force incidents involve officers that are white, male, older and less experienced. Further, officers are most likely to be injured when subjects are male and younger. The event characteristics involved in incidents in which officers are most likely to be injured include patrol assignment, non-violent type call, Taser not used, daytime, resisting subject and impaired subject. Officer characteristics related to officer injuries is inconsistent in past research. Most findings regarding officer injuries while examining the effects of officer characteristics such as age, sex, rank, experience and race show no effect on rate of injuries (Covington et al., 2014, MacDonald et al., 2009, Paoline III et al., 2012, Smith et al., 2007). The type of analysis used in this study, Conjunctive Analysis of

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Case Configurations, might offer a new and more nuanced method to identify potential risk and protective factors.

Subject race is not a risk factor for any of the outcomes in the study for officer injuries; this is consistent with prior research which reports that subject race is not relevant; (Alpert et al., 2004, Crow & Adrion, 2001; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002; Terrill et al., 2008; Terrill & Reisig, 2003). Several prior studies have concluded that a subject's age is not a factor with officer injuries, but the findings of this study report the contrary. The subject being younger (<35) is associated with the high risk category for both officer and subject injuries. One event risk factor that is associated with officer injury, subject injury and Taser deployment is the subject being impaired. This risk factor is consistent with prior findings that those under the influence of alcohol had higher rates of assaulting police officers (Ellis et al. 1993, Kaminski and Sorensen 1995).

Most prior studies have led to inconsistent or contradictory findings with regards to contextual factors. Brandl and Stroshine (2012) found that the rate of officer injuries declined from the 1990s to the late 2000s. They hypothesized the decrease could be attributed to better protective equipment and increase in less lethal options. Again, there is little research into situational factors and officer injuries. Brandl and Stroshine (2013) examined contextual factors and found that more injuries occur during night incidents and when subjects resisted. Covington et al. (2014) did not find any correlation regarding time of day or day of week. This study supports Brandl and Stroshine, as subject resisting was associated with high risk profiles and day of week was not a contributing factor, but does not show the same findings with regard to time of day. This study revealed daytime (0600 hours to 1759 hours) to be the most likely time of day for officers to be injured.

This study finds that white, younger and less experienced officers are risk factors for subject injuries. Further, if the subject is younger in age and the situation includes officers on patrol, responding to a violent call type, Taser not used, during night time, on the weekend, the subject does not resist and the subject is impaired, there is an increased likelihood of subject injury. Prior studies have produced inconclusive or no correlations with officer characteristics; yet some have shown that officers who are younger and male with less experience use force against subjects at a higher rate (McElwain & Kposowa, 2004, 2008; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002). There are comparable findings in this examination. Subject age has not been shown to be a factor for prior research (Covington et al., 2014, MacDonald et al., 2009, Paoline III et al., 2012, Smith et al., 2007). This study reveals that subject age (i.e., being younger) is a risk factor. There has been scant research for event characteristics involved with subject injuries. Several studies (Huston et al., 1997; Campbell et al., 1998) examined subjects' injuries related to the type of force used by a police officer (e.g. pushing, impact weapons, K9, etc.). There is some evidence in this study showing support with prior research since high risk profiles were more likely to involved an officer not using a Taser (i.e. physical force, expandable baton, pepper spray, handgun, etc.).

Officers being male, white and more experienced are associated with a higher likelihood of deploying a Taser during a use of force incident in this study. Subjects who are male have a higher likelihood of a Taser being deployed against them. Event characteristics most likely to contribute to a Taser being deployed include patrol officers, non-violent call type, night time, weekday, subject not resisting and impaired. Most prior studies had inconclusive findings between use of force and officer characteristics. However, some studies have shown officers

who are young and male use force at a higher rate than officers with greater levels of experience (McElwain & Kposowa, 2004, 2008; Paoline & Terrill, 2007; Terrill & Mastrofski, 2002).

Certain studies concluded that higher rates of force will be used against subjects that are male or younger in age, but the impact of gender and age is inconsistent (Boivin & Lagace, 2016). This study reveals that males are most likely to have a Taser deployed upon them during a use of force incident; showing support for some prior research. In reviewing the extant research, no studies were located investigating a relationship between contextual factors and Taser deployment. However, longitudinal studies, unlike the current analysis have reported a positive relationship between Taser adoption by an agency and lowered officer injury rates (MacDonald et al., 2009; Taylor & Woods, 2010).

Agency Implications

Understanding the most likely contextual scenarios for officers and citizens experiencing injury would be of use to agency and government leaders who are tasked with constructing risk management protocols. Police agencies are becoming more aware of the importance of self-auditing so that strong policies are in place to minimize risk. Understanding likely contextual factors when officers are likely to use force allows for an unbiased view of how the use of force policy is constructed; are the policies accounting for contextual factors and providing actionable direction? Also, if the policy is in-line with on-going analysis, will this further protect the agency against liability?

Of interest are the event characteristics that an officer responding to a non-violent call, the subject was resisting but impaired as likely factors leading to officer injuries. This finding offers a training consideration. Situations can turn from calm to violent, and officers need to be

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vigilant. The subject of resisting could be a matter of how the department defines resistance.

Officers, in the past, had been allowed to utilize force for passive resistance such as refusing to

stand up to be handcuffed. The subject could be coded as resisting, but instead was passively

resisting by not complying. Currently HPD policy only allows for force to be used against

subjects that are being "actively aggressive" or "physically resistant" meaning the individual is

perceived as being able to imminently fight or resist the officer (e.g. a subject turns on an officer

and takes an aggressive fighting stance, tenses muscles groups or verbalizes intent to resist). The

current finding may suggest a need to revisit policy, data collection, or current practice.

Based upon these findings, supervisors should focus their attention through oversight and

training on teaching and emphasizing de-escalation skills when particular risk factors are present.

Also, this information can also be incorporated into departmental training for self-awareness

purposes to the younger officers. Police agencies can tailor supervisor training to include how to

manage younger officers and provide the information that they are the most likely to use force

leading to injuries.

Risk management departments might also have an interest in assisting with constructing

and implementing protocols. Knowing that older officers are more likely to be injured, and if the

casual mechanism is physical ability, policy changes could be enacted requiring officers to

maintain a certain level of physical fitness to perform as a patrol officer. Incentives such as free

gym memberships, access to a dietician or creation of agency wide fitness program could be

provided. These would be much less expensive alternatives to injury claims if the culture is to

maintain a level of fitness allowing officers to be stronger and more flexible.

The data indicate that the common elements leading to officer and subject injury is being a white officer, officer inexperience, being a patrol officer, the subject is younger as well as impaired and when a police tool other than a Taser is deployed. This is interesting information for police administrators. Generally, younger officers and subjects without much police or life experiences might be more likely to be aggressive and quicker to engage in high-risk actions than those who are older and more experienced. This would indicate that supervisors should focus their attention on training and simulations to teach younger officers de-escalation skills. Also, this information can also be incorporated into the training for self-awareness purposes to younger officers.

Subject impairment is present in all high risk categories, so this point should be emphasized to officers as well as structured within a dispatcher's protocol to inquire about the impairment status of all parties to be contacted.

With an improved understanding of force incidents, administrators can make knowledgeable decision as to whether to purchase Tasers, which requires on-going officer training, and will influence an agencies' budget. Additionally, administrators can create more robust policies regarding placement of Taser use within their use of force continuum. Training can be more relevant and consistent with a stronger understanding of the various profiles associated with Taser use and injuries.

Limitations of Current Research

During the past decade numerous published studies from academic, governmental and medical fields have supported the use of Tasers with in-depth research. As stated earlier, greater numbers of police agencies are adopting Tasers despite any controversy. The primary limitation

of the current study exists with data collection. All literature that has been reviewed involved

data that were collected from the law enforcement agencies directly. No independently and

objectively obtained data sets were created and recorded by researchers. Reporting bias as well

as reporting inconsistencies is likely since no two agencies obtain use of force statistics in the

same manner. Some agencies may collect a large amount of data involving the encounter such

as time of day, ethnicity of all parties, age, sex, height, weight, type of call, type/number of

deployments, injuries, and so forth. Other agencies may decide to collect only a fraction of that

type of information following use of force incidents.

This study also exhibits the same research limitations of previous studies since all data

have been sourced by a single agency, the Henderson Police Department. HPD employs an

independent program called IAPro, which has an interface called Blueteam that is utilized

worldwide by many police agencies to collect and compile use of force, vehicle accident, and

pursuit data for agencies (www.iapro.com). Blueteam reports provide a measure of

independence and consistency since the data are uniform for all users of the platform. Blueteam

also prevents officers from altering the data or from deviating from the manner of collection;

limiting internal bias. However, single source data collection reduces generalizability; the results

cannot be applied to other agencies with confidence. The demographics of the City of

Henderson and the police department, as well as the environmental context are not likely

representative of most other communities around the country.

There is another data limitation regarding the reporting of officer and subject

characteristics that could influence the findings. The data such as an officer indicating or not

indicating an injury is based upon self-reporting. The analysis shows that older officers are in

the high risk category for injury based upon officer characteristics and younger officers are in the

low risk category. A reasonable assumption is that as people age, they are more susceptible to injury during intense activity such as being involved in a use of force incident and that younger people are stronger and in better shape so injuries would be less likely. The data does not provide this clarity. The situation could also involve the possibility that older officers are more willing to report an injury and that younger officers choose not to report an injury so as to not look weak or soft. In other words, ego could be a contributing factor to under reporting injuries and, therefore, influencing the outcomes. Also, at the time that force is used, a subject may not feel he was injured but the next day he may feel some type of symptom and realize he did suffer an injury. There is no known mechanism for follow up with a subject to confirm there is any delayed symptom indicating the force applied caused an injury. This type of underreporting would also be an influencing factor that affects reported injury rates for subjects.

Further, no pretest-posttest could be implemented to fully explore the impact of Tasers on the department. This is a good option for experimental and quasi-experimental research designs because it allows for the identification of a variable that effects change. This pre-post design would have been necessary to test for causal factor(s) that increasing or decreasing risk factors for injuries and Taser deployment, but the cross-sectional nature of the data only allowed a review of contextual factors that contributed to risk.

Future Research

Future research could examine if there is a correlation between Taser use and injuries (officer or subject) based upon where an agency places the device upon their use of force continuum. Most questionable uses of CED's that boarder on cruelty seem to be a result of bad policy, unethical officers or poor training/supervision. There should be an attempt at validating

the current research by independently reviewing Taser use through on-site interviews and requesting that agencies fill out questionnaires after deployment to supplement the use of agency specific data. Also, factors related to injury rates and effectiveness against subjects under the influence of drugs and/or alcohol or affected by excited delirium could be examined.

IAPro is a tested and widely-used program throughout the United States. This study could be replicated on a much larger scale using multiple data from multiple agencies, allowing greater generalizability of the results. Also, having a better understanding of the impact of demographic variables over time should be examined. For example, as officers progress through their careers and gain more wisdom and experience, does this lead to a reduced number of incidents involving force? Another characteristic that should be explored is the education level of both the officer and subject involved in use of force.

Officers that are female, non-white, less experienced and younger are less likely to deploy a Taser during a use of force encounter. This is an interesting finding since these characteristics include those least likely to use a Taser; while white, male and more experienced officers are more likely to use a Taser. As the number of female police officers increase of over time, this is a topic in need of further research.

Conclusion

The results reveal that officers are injured at a much lower rate (8.5%) than subjects (28.0%) during contacts involving force. Officers that are white, male, less experienced and older are the most likely to be injured using force. Officers that are non-white, more experienced and younger are least likely to be injured during a use of force incident. Subject characteristics in the high risk category for officer injury include males who are younger and low risk categories

are females who are older. Contextually, factors present leading to high risk of injury include patrol, non-violent type call, Taser not used, day time, subject resisting and impaired.

Subjects are most likely to be injured during use of force situations if the officer is white, less experienced and younger and the subject is younger. Subjects are least likely to be injured if they are older and the officer is male, non-white, experienced and older. Event characteristics most likely to involve force against a subject include officer on patrol, violent call type, Taser not used, night time, weekend, subject not resisting and impaired.

Officer characteristics in the high risk category for Taser deployment involve officers that are male, white and more experienced. Female, non-white, less experienced and younger officers are least likely to use the Taser during a use of force incident. Male subjects are more likely to have a Taser deployed against them during a use of force incident and females least likely to have a Taser deployed against them.

Event characteristics most likely to contribute to Taser deployment during a use of force incident involve officers on patrol, non-violent call, night time, weekday, subject not resisting and impaired. Event characteristics least likely to contribute to Taser use involve non-patrol officer, violent call type, daytime, weekend, subject resisting and not impaired.

The commonality within risk factors across the three research categories (i.e. officer injuries, subject injuries and Taser deployment) include officers on patrol and subject impairment. Risk factors present in two out of three high-risk categories include non-violent type call, Taser not used, day time and subject not resisting.

The study also revealed that contextually, patrol officers responding to non-violent calls, at night with the subject generally not showing resistance but is impaired are the most likely

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situations involving a Taser use (i.e. use of force) and resulting in injuries. This is not likely a surprise to most officers and police departments, but it does re-enforce the fact that patrol officers are the most likely to use force and be injured. Also, this study confirms that impaired subjects are a high risk factor with officers having to use force that leads to an increased probability of injuries.

This study contributes to the existing body of research by examining the contextual characteristics leading to officer and subject injury along with contextual factors for deployment of a Taser. Many of the conclusions of other research studies that also examined contextual factors influencing injury rates and use of force by officers, albeit with fewer risk factors considered, were re-enforced. The findings have applications for police training, supervision and managerial decision making. The information and results are unique to HPD, but the methods can be replicated and expanded to include multiple agencies.

Variables	Coding	
Dependent Variables		
Officer Injury	0 = No Injury	1 = Injury
Suspect Injury	0 = No Injury	1 = Injury
Taser Deployed	0 = Not Deployed	1 = Deployed
Independent Variables		
Officer Gender	0 = Female	1= Male
Officer Race	0 = Non-White	1 = White
Officer Age	0 = > 35 Years Old	1 = < 35 Years Old
Officer Tenure	0 = > 10 Years	1 = < 10 Years
Subject Gender	0 = Female	1= Male
Subject Race	0 = Non-White	1 = White
Subject Age	0 = > 35 Years Old	1 = < 35 Years Old
Bureau	0 = Non-Patrol	1 = Patrol
Call Type	0 = Non-Violent	1 = Violent
Time of Day	0 = Daytime (6:00am-5:59pm)	1 = Nighttime (06:00pm-5:59am)
Day of Week	0 = Weekday (Monday-Thursday)	1 = Weekend (Friday-Sunday)
Subject Resistance	0 = No	1 = Yes
Subject Impairment (Alcohol/Drugs/Mental)	0 = No	1 = Yes
Type of Force	0 = Other Force	1 = Taser

Variable	Coding	% (N)	Officer's Injury		Suspect's Injury	
			No	Yes	No	Yes
Dependent Variables						
Officer's Injury	0 = No Injury	91.5 (3495)	---	---		
	1 = Injury	8.5 (325)	---	---		
	99 = Missing	(0)	---	---	---	---
Suspect's Injury	0 = No Injury	78.0 (2749)			---	---
	1 = Injury	28.0 (1071)			---	---
	99 = Missing	(0)			---	---
Type of Force	0 = All Other	80.7 (3083)	91.1%	8.9%	72.8%	27.2%
	1 = Taser	19.3 (737)	92.9%	7.1%	68.4%	31.6% **
	99 = Missing	0.0	---	---	---	---
Independent Variables						
A. Officer's Profile						
Gender	0 = Female	9.7 (369)	91.1%	8.9%	86.4%	13.6%
	1 = Male	90.3 (3451)	91.5%	8.5%	70.4%	29.6% **
	99 = Missing	0.0	---	---	---	---
Race	0 = Non-White	18.1 (692)	95.2%	4.8%	84.4%	15.6%
	1 = White	81.9 (3128)	90.7%	9.3% **	69.2%	30.8% **
	99 = Missing	0.0	---	---	---	---
Age	0 = ≥ 35 years old	48.7 (1862)	91.5%	8.5%	78.4%	21.6%
	1 = < 35 years old	51.3 (1958)	91.5%	8.5%	65.8%	34.2% **
	99 = Missing	0.0	---	---	---	---
Tenure	0 = ≥ 10 years or more	20.3 (777)	89.1%	10.9%	9.5%	20.5%
	1 = < 10 years	79.7 (3043)	92.1%	7.9% **	70.0%	30.0%**
	99 = Missing	0.0	---	---	---	---
B. Suspect's Profile						
Gender	0 = Female	18.8 (720)	95.1%	4.9%	80.6%	19.4%
	1 = Male	81.2 (3100)	90.6%	9.4% **	70.0%	30.0% **
	99 = Missing	0.0	---	---	---	---
Race	0 = Non-White	34.9 (1332)	89.7%	10.3%	65.2%	34.8%
	1 = White	65.1 (2488)	92.4%	7.6% **	75.6%	24.4% **
	99 = Missing	0.0	---	---	---	---
Age	0 = ≥ 35 years old	37.6 (1435)	94.1%	5.9%	100.0%	0.0%
	1 = < 35 years old	62.4 (2385)	89.9%	10.1% **	55.1%	44.9% **
	99 = Missing	0.0	---	---	---	---
C. Situational Factors						
Bureau	0 = Non-Patrol	40.5 (1546)	93.5%	6.5%	100.0%	0.0%
	1 = Patrol	59.5 (2274)	90.1%	9.9% **	52.9%	47.1% **
	99 = Missing	0.0	---	---	---	---
Service Call Type	0 = Non-Violent	28.3 (1081)	89.2%	10.8%	58.6%	41.1%
	1 = Violent	71.7 (2739)	92.4%	7.6% **	77.3%	22.7% **
	99 = Missing	0.0	---	---	---	---
Time of Day	0 = 0600-1759 Hours (day)	38.9 (1486)	90.0%	10.0%	79.1%	20.9%
	1 = 1800-0559 Hours (night)	61.1 (2334)	92.4%	7.6%**	67.4%	32.6% **
	99 = Missing	---	---	---	---	---
Day of Week	0 = Monday-Thursday	49.6 (1895)	91.8%	8.2%	74.7%	25.3%
	1 = Friday-Sunday	50.4 (1925)	91.2%	8.8%	69.3%	30.7% **
	99 = Missing	0.0	---	---	---	---

Subject Resistance	0 = Fleeing/Non-Combative	46.4 (1774)	94.6%	5.4%	74.9%	25.1%
	1 = Combative/Resistance	53.6 (2046)	88.8%	11.2% **	69.4%	30.6% **
	99 = Missing	0.0	---	---	---	---
Subject Impairment	0 = Not under the influence	22.5 (861)	89.8%	10.2%	76.4%	23.6%
	1 = Under influence or mentally unstable	42.3 (1614)	90.6%	9.4% **	63.8%	36.2% **
	99 = Missing	35.2 (1345)	---	---	---	---
Type of Force	0 = All Other	80.7 (3083)	91.1%	8.9%	72.8%	27.2%
	1 = Taser	19.3 (737)	92.9%	7.1%	68.4%	31.6% **
	99 = Missing	0.0	---	---	---	---

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