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Impacts of Workplace Violence: The Role of Inequality

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IMPACTS OF WORKPLACE VIOLENCE: THE ROLE OF INEQUALITY

by

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ABSTRACT

In 2011 the National Crime Victimization Survey (NCVS) reported that of people who are employed and aged 16 and older, 24% of nonfatal violent incidents happened at work. To understand the magnitude of the problem, from 2005 to 2009, 572,000 nonfatal workplace crimes occurred against people aged 16 or older. Annually, the rate of workplace violence was about 5 victimizations per 1,000 employed persons aged 16 and older (Harrell 2011).

The impact of crime on victims is a topic that deserves attention because it extends our understanding beyond descriptive rates of violence. Workplace victimization, like most other types of victimizations can have far-reaching effects that extend from individuals to communities and society.

This study investigates incidents of workplace violence in the United States through a theoretical lens of inequality. More specifically, do social demographics like gender, race, age, and occupation predict impacts to productivity, from the perspective of the victim? Longitudinal data from the NCVS for the years 1993 through 2014 are used to model Negative Binomial Regressions for count data and Ordinary Least Squares Regressions for expenditure data. The results suggest that type of crime and being employed in high-risk occupations are the strongest predictors of experiencing adverse impacts as a result of workplace victimization.

I lovingly dedicate this dissertation to the women who came before me, inspired me, and believed in me- Fay Zinn, Florence Singer, and Josephine Montoya

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CHAPTER 1: INTRODUCTION

Crime rates have been declining steadily for the past twenty years and this trend is mirrored within the subfield of workplace violence (Farrell 2014; Harrell 2011). While workplace violence declined 62% from 1993 to 2002, in 2011 the National Crime Victimization Survey (NCVS) reported that of people who are employed and aged 16 and older, 24% of nonfatal violent incidents happened at work. To understand the magnitude of the problem, from 2005 to 2009, 572,000 nonfatal workplace crimes occurred against people aged 16 or older. Annually, the rate of workplace violence was about 5 victimizations per 1,000 employed persons aged 16 and older (Harrell 2011). Scalora et al. (2003) noted that nonfatal incidents tend to be underreported to the police and agencies that collect data on victimizations.

The issue of workplace violence has been researched within and outside the United States, with countries like Canada, Australia and several European nations publishing studies on workplace violence in journals of Management Studies, Sociology, Social Psychology, and Psychology for the past thirty years (Barling, Dupré and Kelloway 2009, Buchanan and Fitzgerald 2008, Cortina 2008, Fox and Stallworth 2005, Mayhew and Quinlan 2002, Scalora et al. 2003, Virkki 2008). The data used in this research are of varying quality and complexity. One of the most common methods of acquiring data for workplace violence research is the use of worker compensation claims (Islam et al. 2003, Piquero et al. 2013). Other research designs include surveys and interviews of workers and managers in private industry, businesses, and specific occupations.

The research from the United States (U.S.) suggests that while incidents of workplace violence as a whole are a relatively rare phenomena, the crimes can range from low severity simple assault to high severity crimes like rape, robbery, aggravated assault, and homicide. People, who experience more serious and violent crimes, may deal with consequences that do not end with the incident of victimization (Salston and Figley 2003). The impact of crime on victims is a topic that deserves attention because it extends our understanding beyond simple descriptives of violence rates. Workplace victimization, like most other types of victimizations can have far-reaching effects that extend from individuals to communities and society. According to a workshop by the Forum on Global Violence Prevention, there are several different kinds of impacts associated with workplace violence. Studies analyzing productivity impacts including productivity loss, wages lost, and days of work missed are the most common. To measure these impacts, researchers often use workers compensation claims to determine the cost to businesses and the total percentage of GDP affected (Patel and Taylor 2012).

Productivity impacts can be interpreted from the perspective of the victim and the employer. When violent incidents occur in the workplace and employees are injured, the employer may incur profit losses due to absenteeism by the victim. The employer may also incur the cost of medical expenses or be subject to a lawsuit for not taking proper safety precautions. These same impacts on a worker's productivity can be viewed from the victim's perspective. Injury stemming from an incident of workplace violence can lead the victim to miss work, perhaps with, but at times without pay. The victim may also have to pay for their own medical expenses, depending on the benefits offered by their employer.

This study investigates incidents of workplace violence in the United States through a theoretical lens of inequality. More specifically, how do different social demographics like gender, race, age, and occupation predict impacts to productivity, from the perspective of the victim. Proxy questions to measure impacts to productivity include days of work lost and medical expenses incurred due to a violent crime at work. Longitudinal data from the NCVS for the years 1993 through 2014 are used to answer five research questions:

- Does gender predict differences in the impacts stemming from incidents of workplace violence?
- Does race predict differences in the impacts stemming from incidents of workplace violence?
- Does age predict differences in the impacts stemming from incidents of workplace violence?
- Does occupation type predict differences in the impacts stemming from incidents of workplace violence?
- Is there support for social dominance theory in explaining the differing level of impacts stemming from incidents of workplace violence?

CHAPTER 2: LITERATURE REVIEW

Definitions of Workplace Aggression and Violence

A variety of terms are used to explain a spectrum of workplace aggression and violence including: bullying, incivility, sabotage, aggression, occupational violence, and workplace violence. Each indicates a different level of violence and scope. Workplace violence can be viewed from two main scenarios- 1) aggression between employees that currently or formerly worked together, or 2) violence by the public, which is far more likely to occur in jobs that come into contact with the general public like law enforcement, retail, and certain transportation jobs.

Baron and Neuman (1998) along with O'Leary-Kelly et al. (1996) further define different types of workplace violence. Workplace aggression subsumes all categories of direct violence, "a general term encompassing all forms of behavior by which individuals attempt to harm others at work or their organizations" while workplace violence is defined as, "instances involving direct physical assaults" (p.393). They further argue that workplace violence should only be used to describe incidents that stem from organizational frustration and inter-employee disputes and not violence occurring from external sources. Baron and Neuman (1998) suggest using the term occupational violence to more clearly identify incidents of violence against employees by the public, but this distinctive terminology is not often used in the literature. Thus, the more commonly accepted term of workplace violence will be used to discuss all incidents of violence that occur while a person is at work or on duty (Scalora et al. 2003 , VandenBos and Bulato 1996).

Neuman and Baron (1998) have created a foundation for much of the research surrounding workplace aggression and workplace violence. They found that most workplace aggression is verbal, passive, or covert. Hostile acts of workplace violence tend to capture media attention, but they are not the most prevalent form of workplace violence. Workplace violence is described as "the tip of the iceberg" by Neuman and Baron because it encompasses the most extreme violent behaviors, but often there are many subtler covert acts of aggression that occur in American workplaces. This realization has helped spawn a growing field of research dedicated to understanding workplace incivility, bullying, workplace deviance, and employee mistreatment (Berdahl and Moore 2006, Cooney 2010, Cortina 2008, Fox and Stallworth 2005).

Issues Concerning the Study of Workplace Violence

The research on nonfatal workplace violence varies widely because researchers often use different sources of primary data. Examples of primary data sources include: worker compensation claims by state, cross-sectional studies of specific occupations, and information collected and published by insurance companies (Neuman and Baron 1998, Piquero et al. 2013). The varying quality of published studies on workplace violence is a limitation to studying this topic. Sources like the NCVS, have made it possible to track certain types of workplace violence longitudinally. The NCVS is an excellent data set for producing national population estimates of crime, but a weakness of the survey is that it leaves much to be desired in terms of concepts and proxy variables for theory testing.

Studies of workplace violence have examined race and gender, usually separately. One study used a feminist theory of inequality to explain gender differences in workplace violence from a NCVS sample which includes data from 1992 to 1996, but they did not take race in account (Fisher and Gunnison 2001). We know that there are gender differences in workplace violence. Men tend to be the perpetrators, but depending on the type of crime- homicide, rape, robbery, and assault, there are gender differences among victims (Fisher and Gunnison 2001, Harrell 2011). The literature also shows that certain occupations are more prone to violence, e.g., sales, retail, law enforcement, and transportation occupations, but we know very little about how gender and racial differences vary (Covington, Huff-Corzine and Corzine 2009 2014) within these high-victimization fields of employment (Harrell 2011, Scalora et al. 2003).

This research is important because we do not fully understand how impacts of workplace violence may function differently by levels of social inequality and demographic characteristics. Violence is detrimental to individuals, families, businesses, and communities (Patel and Taylor 2012). People in the United States must work to survive and employers have a responsibility to make sure that workers are not subject to unnecessary danger. Tailored intervention and prevention strategies are key to addressing the short-term and long-term issues that surround crime, victimization, and the workplace. Prevention and intervention strategies work best when they are tailored to the population, thus more research into how workplace victimization incidents vary by socio-demographic characteristics would be beneficial to the literature. There is consensus within the academic community on violence that inaction is much more expensive than action (Patel and Taylor 2012).

Violence as Measured in NCVS

There are four types of nonfatal workplace violence included in the NCVS. The first is simple assault,[1] followed by the more serious violent crimes: aggravated assault,[2] robbery,[3] or sexual assault[4] that occurred while the survey respondent was working. Being on a physical job site does not matter, as some occupations require travel and have a higher risk of victimization like transportation and law enforcement.

Impacts of Violence

According to a workshop on Social and Economic Costs of Violence in 2012, there are many ways to examine the various impacts associated with violence. There are traditional cost measures like loss of productivity, wage loss, use of health services, social services, or workers compensation and insurance benefit claims. Impacts to productivity are more straightforward and easier to measure because there is more data available. There are also more difficult and complex impacts to consider like emotional pain and suffering, which are more difficult to quantify (Patel and Taylor 2012).

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[1] Attack without a weapon resulting either in no injury, minor injury (for example, bruises, black eyes, cuts, scratches or swelling) or in undetermined injury requiring less than 2 days of hospitalization. Also includes attempted assault without a weapon (Bureau of Justice Statistics 2014).

[2] An attack or attempted attack with a weapon, regardless of whether an injury occurred, and an attack without a weapon when serious injury results (BJS 2014).

[3] Completed or attempted theft, directly from a person, of property or cash by force or threat of force, with or without a weapon, and with or without injury (BJS 2014).

[4] A wide range of victimizations, separate from rape or attempted rape. These crimes include attacks or attempted attacks generally involving unwanted sexual contact between victim and offender. Sexual assaults may or may not involve force and include such things as grabbing or fondling. Sexual assault also includes verbal threats (BJS 2014).

A study of worker's compensation claims from 1996 in Minnesota, found that work-related physical assaults equaled about $5.9 million in direct and indirect costs (McGovern et al. 2000). Another later study of workers compensation claims in Rhode Island from 1998 to 2002 reported similar figures. The average cost of an individual claim in this study was about $1,000 or $7 million total (McCall and Horwitz 2006)

Experiences of historical discrimination and inequality linger within demographic characteristics like gender, race, and age. Impacts following a criminal victimization can be expected to affect individuals with minority attributes (female, non-White, young) more acutely than individuals with majority attributes (male, White, older). These demographic characteristics also predict the type of work one may qualify might engage in (Acker 2006, Massey 2007), thus putting certain individuals at a greater risk for severe impacts.

Occupations and Risk

The occupations that have the highest risk of violence are jobs that expose employees to the public as service workers- transportation, law enforcement, and sales/retail (Harrell 2011, Neuman and Baron 1998, Piquero et al. 2013). A report from the Bureau of Justice Statistics (BJS) on workplace violence using data from 2005 to 2009 found that strangers were responsible for more than half of all workplace violence incidents (53%). Intimate partners committed about one-quarter of workplace violence with similar proportions for male and female victims. Current or former coworkers committed about 16% of workplace violence against males and about 14% against females.

There is consensus in the literature that certain occupations are more prone to violence because 1) of the populations they serve; 2) they require working at night or driving; or 3) they interact more with the public. The Handbook of Workplace Violence (2006) has a chapter devoted to discussing the prevalence and predictors of workplace aggression. Studies have found that predictors of workplace aggression and violence can be traced to types of occupations that have certain characteristics like working alone, at night, and having access to money (LeBlanc and Kelloway 2002, Lynch 1987).

One study of worker compensation claims by Islam, Edla, Mujuru, Doyle, and Ducatman (2003) found that people who worked in healthcare, public safety, and education reported 75% of the total number of injuries. They also found that women who worked the night shift in healthcare were at higher risk for injury than women who worked during the day. McCall and Horwitz (2006) using workers compensation claims in Oregon found that those in healthcare reported the highest rate of injury followed by those in law enforcement. A study by Horowitz, McCall, and Horwitz (2006) using worker compensation claims from Rhode Island found that women were more likely to make claims, but men had more serious injuries with more sustained long-term damage. Ta et al. (2009) analyzed community-level factors to understand their role in workplace violence. They found that in North Carolina, industries that were near high-poverty, unstable residential areas, with less access to human and economic capital had higher risks for fatal workplace violence than neighborhoods with stronger community attachments.

In Harrell's (2011) report for the Bureau of Justice Statistics, which uses NCVS data, from 2005 to 2009, victimization for those in law enforcement was 47.7 per 1,000 (Harrell 2011). This accounts for about 19% of overall workplace violence. Law enforcement officers

represent 2.1% of the employed population. More specifically, the rates from 2005 to 2009 per 1,000 people are as follows: police officers had a rate of 77.8 per 1,000; corrections officers had a rate of 33 per 1,000; security guards had a rate of 65 per 1,000, while "other" public safety occupations had a rate of 17.5 per 1,000. According to the BLS, the law enforcement professions listed above vary widely in their pay, depending on position. For example, security guards make approximately $25,000 while detectives make about $60,000 (BLS 2014).

The next highest risk occupation type includes those who work in retail. These accounted for about 13% of the total workplace violence measured. Retail workers represent 9.0% of the employed population. The rates from 2005 to 2009 per 1,000 people are as follows: convenience store clerks had a rate of 7.1 per 1,000; gas station attendants had a rate of 30.2 per 1,000; bartenders had a rate of 79.9 per 1,000, while "other" retail occupations had a rate of 6.3 per 1,000. Piquero et al. (2012) noted that bartenders experience relatively high levels of violence but further research is needed on this population to gain a fuller understanding of the experience of workers who bartend. Gender and racial differences may also occur by type of job among these occupational categories. According to the Bureau of Labor Statistics (BLS) in May 2014, the annual salary for a retail worker was approximately $24,000.

The rate of workplace violence for those in the medical profession (physician, nurse, technician, and other) was 6.5 per 1,000 (Harrell 2011). This accounts for about 10% of the overall workplace violence. Medical professionals represent 8.2% of the employed population. More specifically, the rates from 2005 to 2009 per 1,000 people are as follows: physicians, 10.1 per 1,000; nurses, of 8.1 per 1,000; technicians, 11.1 per 1,000, while "other" medical occupations had a rate of 3.7 per 1,000. According to the BLS, the medical professions listed

above vary widely in their pay, depending on position. For example, physicians make approximately $166,000 while nurses make about $70,000 (BLS 2014).

The rate of workplace violence for those in teaching was 6.5 per 1,000 (Harrell 2011). This accounts for about 9% of overall workplace violence, whereas they represent 7.2% of the employed population. More specifically, the rates from 2005 to 2009 per 1,000 people are as follows: preschool teachers, 0.9 per 1,000[5]; elementary teachers, 4.3 per 1,000; junior high teachers, 8.6 per 1,000; high school teachers, 13.5 per 1,000; college/university professors, 1.9 per 1,000[6]; technical/industrial teachers, 54.9 per 1,000[7]; special education facility teachers, 17.8 per 1,000[8]; and "other" teaching, 8.9 per 1,000. Teachers' wages also vary widely depending on the type of teaching. The annual median wage for teachers was about $50,000, but postsecondary teachers can make well over of $75,000 annually (BLS 2014).

The rate of workplace violence for those in the transportation profession was 12.2 per 1,000 (Harrell 2011). This accounts for about 7.4% of overall workplace violence. Transportation workers represent 3.2% of the employed population. More specifically, the rates from 2005 to 2009 per 1,000 people are as follows: bus drivers, 10 per 1,000[9]; taxi cab drivers, 9 per 1,000[10]; and "other" transportation occupations, 12.6 per 1,000. The annual median wage for those in the transportation industry is about $34,000 (BLS 2014).

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[5] This statistic should be interpreted with caution as it is based on 10 or fewer sample cases
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[9] This statistic should be interpreted with caution as it is based on 10 or fewer sample cases
[10] This statistic should be interpreted with caution as it is based on 10 or fewer sample cases

The rate of workplace violence for those in the mental health profession was 20.5 per 1,000 (Harrell 2011). This accounts for about 4% of overall workplace violence. Mental health professionals represent 1.0% of the employed population. More specifically, the rates from 2005 to 2009 per 1,000 people are as follows: professionals, 17 per 1,000; custodial care, 37.6 per 1,000;[11] and "others" in mental health, 20.3 per 1,000. The annual median wage for those working in mental health is about $45,000 annually (BLS 2014).

The "other" category, which includes all other jobs that are not categorized above, had a rate of 2.8 per 1,000, but accounted for about 37% of all workplace violence. The "other" category represents 69.3% of the employed population (Harrell 2011). These occupational classifications follow previous research on workplace violence using the NCVS (Fisher and Gunnison 2001, Harrell 2011). The "other" category includes the following occupations: management, business and financial operations, computer and mathematical, architecture and engineering, life/physical/social sciences, legal, arts/design/sports/entertainment, building/grounds cleaning and maintenance, office and administrative support, farming/fishing/forestry, construction and extraction, installation/maintenance/repair, production, and other.

[11] This statistic should be interpreted with caution as it is based on 10 or fewer sample cases

Social and Occupational Inequities

The topic of workplace violence is important to understand through a lens of inequalities. Increasing diversity in the workplace has not been addressed in many traditional workplace environments, and while there have been attempts at easing cultural differences through the use of diversity training programs, the effectiveness of these programs is still up for debate (Schaefer 2013). Scalora et al. (2003) note that human resource capabilities often do not serve workers interests, and many businesses allow unsafe practices to continue. Understanding the risk of nonfatal workplace violence within various occupations will help inform safer business practices.

The Handbook on Workplace Violence mentions a few studies that have attempted to examine gender differences in workplace violence. As expected, these studies found that men were more likely to be both the victims and perpetrators of workplace violence (Duhart 2001, McFarlin et al. 2001 & Justice 2001). Schatt, Frone, and Kelloway (2006) note that the American workforce is segregated by gender and age. Scalora, Washington, Cassady, and Newell (2003) looked at the difference between situational contexts in workplace victimization and found that women were more likely to be attacked by someone they know, usually an intimate partner who approaches them at work, while men were more likely to be attacked by someone belonging to the general public.

Research like the Fisher and Gunnison study (2001) has shown that gender is a critical lens with which to view workplace violence because occupations vary by gender. Data from the BLS show that many professions are segregated by sex and within these specific occupations certain types of violence are more likely to occur if one is male or female. For example, according to the NCVS female police officers are more likely to be robbed than male police

officers (Harrell 2011). Tjaden and Thoennes (2001) analyzed a nationally representative phone survey and found that women were more likely to report rape and stalking, they were more likely to report the incident to police, and lost more time from work than males. Women are also more likely to experience violence at work by intimate partners (Friedman et al. 1996 and Imperial 1996, Swanberg, Logan and Macke 2006).

Acker (2006) discussed how social and economic inequality are strongly linked in organizations; work organizations, in particular. She highlighted the importance of examining intersectionality in workplace inequality research. The elements of race, gender, and class should not be investigated separately because it creates distinct literatures that need to be combined to gain a relatively complete picture of peoples' experiences. Feminist scholars have been calling for this integration for at least the past thirty years (Browne and Misra 2003, Collins 1999, Landrine 1985). She also discusses how work actually reproduces inequality because hierarchal bureaucracies are intrinsically structured to promote inequality and this is further perpetuated by horizontal segregation within similar occupations between men and women. Wages are also unequal for similar work. Intersecting inequalities within work organizations are "complex and mutually reinforcing" (p. 442). She further defines these hierarchal organizations as "inequality regimes" that maintain broader social inequality. Instead of work being a means of empowerment and independence for women and minorities, they are frequently, more often than not, subjected to continuing discrimination.

The subordination and exclusion of women and people of color is a historical fact in the U.S. (Acker 2006). Minorities and women typically worked in the lowest paying jobs and were often excluded from unions and institutions of higher education. Today, there are still relics of

the unequal access to jobs in resources, as women only earn 83 cents for every dollar a man makes (Bureau of Labor Statistics 2016). This is an average, as wage comparisons between men and women vary by occupation. Wage differentials also vary by the interaction of gender and race/ethnicity (Bureau of Labor Statistics 2016).

Women are overrepresented in low wage occupations like caregiving, elementary education, and secretarial work. One explanation is the feminization of work (Blackwelder 1997, England and Boyer 2009). For example, in the late nineteenth century, almost no women worked in clerical occupations. It was considered specialized men's work that offered middle-class wages. The increase of women's participation in the labor market coincided with a growing demand for office workers and a shortage of qualified men due to external forces like World War I. Between 1900 and 1930 there was a 450 percent increase in office jobs (England and Boyer 2009). Women were paid less and because of automation techniques like typewriters the tasks required were often much simpler and repetitive.

Trends in examining wage inequities often tie gender and race/ethnicity together to understand how "minority" status fully affects wages and work. Minorities experience a number of different issues in the labor market. Some scholars have suggested wage differentials between Whites and non-Whites can be explained by human capital inequities that reify over generations (Becker 2010, Tomaskovic-Devey 1993). Another explanation is outright discrimination and exclusion from prestigious positions by those in power, usually White males (Murray 1988, Tomaskovic-Devey 1993, Weber 1978). For example, the recent pushback against affirmative actions policies in the workplace and higher education are evident in recent Supreme Court cases like Fisher v. the University of Texas. Other data like the rates of college acceptance for Blacks,

African Americans, and Hispanics compared to those of Whites display clear asymmetrical racial preferences (Bobo and Tuan 2006, Carter and Baird 2015).

Research shows that women and minorities hold fewer positions of power, earn less than white men with similar educational attainment, and are often relegated to mundane tasks (Massey 2007). If women and minorities are at a higher risk of victimization, the economic burden of recovery from an incident is greater than for white males (Fisher and Gunnison 2001).

Race

The link between race and workplace violence is theoretically established, but the research testing these theoretical models are of varying quality. According to a BJS report from 2011, Whites had a higher rate of workplace victimization, but Blacks had a higher rate of non-workplace victimization (Harrell 2011). There was no significant difference between Whites and American Indians. Hispanics had a similar rate of workplace victimization when compared to Blacks and Asians (Harrell 2011). Asians were the least likely of any racial group to experience workplace violence, and this can be attributed to racial and ethnic variation among occupations. Overall, Asians tend to have higher rates of undergraduate and graduate level educations, greatly reducing their employment in higher-risk fields (Schaefer 2013).

There are qualitative studies that explore different dimensions of occupational violence within specific occupations. For example, one study investigated Hispanic nurses and their experience with violence, but none have used large national data sets to examine both gender and race as predictors of victimization at the workplace. A study by Cohen, Klugel, and Land (1981)

is an early investigation that used an older version of the NCVS, formerly called the National Crime Survey (NCS), to test their formulation of Routine Activities Theory and to dispel the anecdotal belief among social scientists at the time that individuals who experience more discrimination might be more susceptible to crime. This belief was common because of a "principle of homogamy", which states that people who share the same sociodemographic characteristics are more likely to come into contact with potential offenders. Cohen et al. used income, race, and age as indicators of social inequality and found that race was not significant predictor of assaults, burglary, and larceny at the household level. They were unable to measure robbery or rape because of data limitations.

The sociological literature suggests that occupations can have distinct racial makeups, but how does that affect impacts related to victimization? Are racial and cultural issues addressed in strategies geared towards prevention? This would be useful information for scholars involved in human resources, organizational management, and for constructs attempting to measure aggression and workplace violence.

Age

Age is a common socio-demographic characteristic used in criminological research because of the very clear link between crime rates and age. Younger people are more likely to offend and be victims of crime because of a variety of factors related to lifestyle. Piquero, Farrington, and Blumstein (Piquero, Farrington and Blumstein 2007) used longitudinal data from the Cambridge Study in Delinquent Development to track trajectories of criminal behavior. They

found that criminal activity peaks at 16 years of age and then steadily declines between 20 and 40 years of age.

Compared to the elderly, young people are more likely to be in the workforce. About half of the young people employed work in the retail and service sectors, which exposes them more to the public than other workers (Runyan et al. 2005 Gallagher 2005, Zakocs et al. 1998 Dunn, and Evensen 1998). According to the 2014 Bureau of Labor Statistics report, about 23% of those aged 16 to 19 are in the workforce, and these numbers increase dramatically for those who are 20-24; who are employed at about 63 percent. Harrell (2011) also found that among employed persons, those ages 20 to 34 had the highest rate of workplace violence.

Young workers face a distinct set of disadvantages on the job market like lower pay, restricted access to unions, and less awareness of strategies to help ensure safe working conditions (Tucker and Loughlin 2006). The Handbook of Workplace Violence dedicates an entire chapter to understanding the nature of violence and aggression young people experience at work and there are studies that have documented their elevated risk. Keashly et al. (1997), for example, found that young workers in service and retail industries reported high rates of abusive and aggressive behavior by customers. Fineran (2002) surveyed high school aged workers and found that 35% of these part-time workers/students reported sexual harassment at work from a variety of sources including management, coworkers, and others at work. Females were more likely to feel upset and threatened compared to males. Another study of young fast-food workers found that women experienced almost double the verbal aggression compared to men (Mayhew and Quinlan). The same study also found that compared to women, men were more likely to experience threats of physical violence.

This research addressed gaps in the literature because it examined how socio-demographic characteristics like racial and gender composition of work, work environments, and opportunity affect being a victim of a crime. Qualitative studies have attempted to examine risk and prevalence of violence in specific occupations, which is helpful to our overall understanding, but smaller studies lack representative samples. Are patterns and rates similar when using a data set that is nationally representative? This research also attempted to bridge a gap by including both race and gender instead of one or the other. As mentioned earlier, utilizing both concepts together are crucial for a well-rounded understanding of how violence affects different kinds of workers. Are women and non-whites in high-risk occupations at a disadvantage because of their gender and race? Will they take longer to recover from a incident of workplace violence? This research could help inform prevention strategies specific to non-whites and women involved in high-risk work. This study addressed gaps in the literature concerning age, as most studies are industry specific and not nationally representative in focus.

Studies have found that predictors of workplace aggression and violence can be traced to types of occupations that have certain characteristics like working alone, at night, and having access to money (LeBlanc and Kelloway 2002, Lynch 1987). These high-risk jobs tend to be lower in status and may have less access to benefits such as healthcare, making it more difficult to recover from a criminal victimization. Exploring the link between gender, race, age, and occupation will allow for further understanding into the nature of effects stemming from workplace violence. The research questions guiding this inquiry into the effects of workplace violence on individuals with different social demographic characteristics are: does gender predict differences in the impacts stemming from incidents of workplace violence? Does race predict

differences in the impacts stemming from incidents of workplace violence? Does age predict differences in the impacts stemming from incidents of workplace violence? Does occupation type predict differences in the impacts stemming from incidents of workplace violence? Is there support for social dominance theory in explaining the differing level of impacts stemming from incidents of workplace violence?

CHAPTER 3: THEORY

The ontological understanding of inequality has been debated since the earliest civilizations. The great Greek philosophers debated the origins and causes of inequality (Sidanius and Pratto 1999). Are humans innately self-interested or is it learned through socialization? Many sociological and psychological scholars have attempted to formulate testable theories about the persistent nature of inequality that is observed in almost all societies. Unfortunately, inequality is pervasive and long lasting. It has been embedded in all societies that are able to attain an economic surplus, either in the form of gender discrimination, power differentials, age hierarchies, and especially within families, between both adults and children and husbands and wives.

Social Dominance Theory, developed by Sidanius and Pratto (1999) addresses gaps in what they consider to be rather limited psychological and sociological theories concerning the entrenched nature of prejudice and group inequality. To do this, they borrow from and extend concepts from other scholars who theorized on conflict, power, subordination, domination, and social control, e.g., Marx, Simmel, Lenski, and Blumer.

Intergroup Domination and Hierarchies

The main tenet of Social Dominance theory is that all societies are structured through group-based social hierarchies, which in turn create high-status groups and low-status groups (Mabasa, 2003). Both individual and group-level structures constantly intersect to play a role in

this formation. The groups are considered to fall into three main types: age (adults have greater power over children), sex (patriarchal ideology in which men dominate over women), and another set called "arbitrary group distinctions." This last type can differ depending on culturally sensitive notions of what is valued in a particular society. For example, light skin is valued in many societies, so race or skin color could make up an arbitrary group distinction in Western societies. Other societies use religious-based teachings of birth into defined castes that are immutable over the life course (Weber 1998). This last group can also contain social categories like race, ethnicity, nationality, social class, religion, or any other social distinction or grouping (Pratto et al. 2004).

The high and low status groups engage together in the social structure, but there are many important differences. The interaction between the two groups is almost always unequal, with high status groups having more access to resources; e.g. power and materials/goods, which gives them an advantage. Sidanius and Pratto (1999) assert that groups will engage in behavioral asymmetry This term describes how individuals from high status groups will behave in ways that benefit their group, but that individuals in low status groups will behave in ways that are not beneficial and sometimes threatening to members of their own group, thus allowing the social order to persist.

The Sociologist Georg Simmel wrote about the nature of superordinate and subordinate groups within society. He theorized that groups derive their character through domination. Thus, groups tend to differentiate themselves by power. This process is so durable that even after much time has passed when there may not even be a group to be superordinate over, the superordinate group retains its actions and a social presence in line with its own conception of itself as the

"superordinate" group (Wolff 1950). In other words, being the most powerful group at the top of the social hierarchy becomes an essential characteristic of the group. This is how aristocracies are born. The significance of their power is so entrenched it no longer even depends on necessarily having subordinates. This can help explain the deeply ingrained nature of inequality that persists in most societies regardless of the societal structure of democracy or totalitarianism. Simmel was heavily influenced by the works of Plato, who wrote that the function of domination is always the same despite the range, type, form, or content of the domination (Wolff 1950).

Sidanius and Pratto describe the importance of institutional-level discrimination in reifying the social dominance hierarchy. Those at the top receive the best benefits like healthcare, quality education and occupations, and those in the lower status groups receive the more undesirable remnants of resources like dangerous work, unemployment, uninhabitable housing, premature death, and a variety of other social maladies.

This theory will be used to ground and guide the idea that inequality affects life chances, especially those concerning education, employment, and income. Social Dominance theory states that groups have unequal access to resources, and this has a cascading effect on life chances in many ways. Being part of a lower status group may lead to poorer educational quality and thus more limited job choices. One may even experience choosing more dangerous work for higher pay. Having less access to resources because of certain socio-demographic characteristics will also influence the ability to recover after a criminal victimization. Those in lower status groups may not have social and monetary safety nets, which can dramatically improve recuperation from a traumatic event.

This theory informed the direction of the research because it addresses how inequality pervades every aspect of society**.** As mentioned earlier in the literature review, women who work in traditionally male jobs, or high-risk jobs may be disproportionately targeted because of a perceived weakness by the attacker. According to the NCVS, female police officers are more likely to be robbed than male police officers (Harrell 2011). Women are also more likely to experience violence at work by intimate partners (Friedman et al. 1996 and Imperial 1996, Swanberg, Logan and Macke 2006). Intimate partner violence experienced at the work place is a direct example of how men intimidate and abuse women, thus reinforcing their status as the dominant group. This theory also helps explain why minorities are often working in more dangerous positions, because of a lack of opportunity from those in power who reserve the best positions for those similar to themselves. Previous research has shown that occupations that have certain characteristics like working alone, at night, and having access to money are at a higher risk for violence (LeBlanc and Kelloway 2002, Lynch 1987). Minorities are more likely to take this kind of work because it is all they can find. Social dominance theory also discusses other attributes which encourage discrimination like age. Young adults may be perceived by attackers to have less power and thus be an easier target. They are more likely to work in the high-risk industries of retail and sales. Keashly et al. (1997), for example, found that young workers in service and retail industries reported high rates of abusive and aggressive behavior by customers.

CHAPTER 4: METHODS

The National Crime Victimization Survey (NCVS) is an annual survey conducted by the U.S. Census Bureau for the Bureau of Justice Statistics (BJS). The survey consists of self-reports about victimization (nonfatal personal and household property crimes) that have occurred in the previous six months whether or not they have been reported to the police. This method of measurement allows a more accurate understanding about the extent of victimization within the U.S. population, since nonfatal victimization events are vastly underreported to police. Respondents provide demographic characteristics and are asked if they have experienced victimization in the previous six months. If they have, each incident along with incident characteristics, including whether the crime was reported to the police, characteristics of the crime, and victim experiences with the criminal justice system are recorded. The survey is administered to all persons age 12 or over at the sampled address (Bureau of Justice Statistics 2014).

A household is defined as anyone that live together at the same address. The NCVS utilizes a stratified, multi-stage cluster design. NCVS interviews are conducted throughout the year using a panel design wherein the houses are kept in the sample for three years, and interviewed every six months for a total of seven possible interviews. The first interviews are done face-to-face, while the rest of the interviews are done in person or over the telephone. Households age out of the sample at different times, so new households are constantly being added and removed. The sample includes people living in dormitories and religious group

dwellings, but excludes those in the military barracks and other institutional settings, such as correctional facilities, hospitals, and homeless facilities (Bureau of Justice Statistics 2014).

In 2013, 90,643 households were sampled and 160,040 individuals age 12 or older were interviewed. Each household was interviewed twice during the year. The response rate for households was 84% and for individuals it was 88% (Bureau of Justice Statistics 2014). Unit non-response, which is the failure to collect information from a household that has been selected for inclusion in the sample was 16% in 2013 (Bureau of Justice Statistics 2014).

The concatenated data needs weights to produce estimates of the population and the weights also help account for survey non-response and other aspects of the complex sample design. The NCVS data includes weights for households, individuals, and incidents. BJS has evaluated the difference between using the weighted and unweighted data. While the weighted data increase variance, they decrease sampling bias, so the weighted data are best used to produce population estimates. The unweighted data can be used to explore more predictive models of victimization (Lohr and Liu 1994).

A strength of the NCVS design is that estimates can be compared over time, but using the standard error of yearly estimates is vitally important. Once standard errors are accounted for, yearly estimates that seemed significantly different may not really be significant. Smaller standard errors are preferable. Users of the data should create confidence intervals using the standard errors to then create margins of error. Another way to examine the reliability of a measure is to calculate the coefficient of variation (CV). Small sample sizes and estimates with a CV of more than 50% should be interpreted with extreme caution and flagged as unreliable.

The concatenated files include household, person, and incident level data. For personal crimes, there is a distinction between incident and victimization. The number of victimizations refers to the number of criminal acts committed against a respondent. The number of incidents refers to the number of criminal acts committed against respondents and others present during such incidents. Thus, if two people are present during a robbery, it would be counted as two victimizations and one incident. The number of victimizations cannot be determined because the data were not weighted.

The results shown in Chapter 5 use unweighted data. The difference between weighted and unweighted estimates is small when using variables in regressions to examine predictive factors for a dependent variable. Weights must always be used when creating accurate population estimates, as it is necessary to account for the complex sampling design (Lohr and Liu 1994).

Variable List

Determining what the respondent was doing at the time of the incident was used as inclusion criteria for the sample. The respondent must report that they were working or on duty at the time of the incident to be included in the sample (WORKINCIDENT). The variable is coded 0= not at work and 1= at work or on duty. The incident must also be coded as a violent crime, so incidents are further selected from the variable (NEWCRIME) 1= violent crime, 2=personal larceny and 3=property.

Dependent Variables

The first dependent variable is how many total days of work were lost because of injuries (DAYSLOST). This is a ratio level count variable that ranges from 0 (less than one day) to 200. To deal with potential influence from outliers, and to create smaller means and standard deviations, another variable for total days was created that is capped at 10 days.

The second dependent variable is amount of medical expenses incurred as a result of being a victim of a crime and injured while at work or on duty. This is a ratio level interval variable that ranges from $0 to $50,000. Fifty-one percent of respondents who were victims of a crime while at work or on duty reported spending 0 dollars on medical expenses. To deal with potential influence from outliers, and to create smaller means and standard deviations, another variable for medical expenses was created that is capped at $1,000 dollars.

Independent/Predictor Variables

Gender is measured as a dichotomous variable for males and females. The indicator is coded as male =1 and female =0 (MALE) because there are slightly more males than females in the sample.

One variable was used to define racial groupings and because most of the sample is white, an indicator variable for being White was also created. The race categories are as follows: White, Black, Other, and more than one race (RACE1). Due to small sample sizes within different race categories, a dummy for White and non-White was created. This variable is coded

0=non-White and 1=White (WHITE). The non-white category includes Black, Other, and more than one race.

The NCVS uses two question to assess job type. One variable V4481 represents the old occupation codes, from 1992 to 2001 and has 27 different values. The newer variable represents the recode of the old occupation variable and is more specific. It has 44 different values. These variables were added together to make a composite occupation variable that spans from 1992 to 2014, which were then collapsed into six broad occupational codes. The first category is medical, which includes physician, nurse, technician, other medical, and mental health. The second category is teaching, which includes preschool, elementary, Jr. high/middle, high school, college/university, technical/industrial school, special education facility, and other teaching occupations. The third category is law enforcement, which includes law enforcement officer, corrections officer, security guard, and other law enforcement occupations. The fourth category is retail sales, which includes convenience or liquor store clerk, gas station attendant, bartender, and other retail sales occupations. The fifth category is transportation, which includes bus driver, taxi cab driver, and other transportation occupations. The sixth category is for other or unspecified occupations. Due to small sample sizes a dichotomous variable indicating high risk and low risk occupations was used, and the variable is coded as highrisk=1 and low risk=0 (HIGHRISK). High risk occupations were chosen based on the literature- medical/mental health, law enforcement, retail, and transportation. Low risk occupations are teaching and "other".

Age is mentioned in the literature as an important factor in workplace victimization, so a variable for working age respondents was created from the original interval level variable that included people age 12-90. The new ratio level variable includes respondents age 16-70 (AGE1).

Control Variables

Type of crime is a categorical variable that is divided into separate dummy variables, with simple assault as the reference group, as it has the largest number of cases (RAPE, ROBBERY, AGGRAVATED). These categories are taken from a larger variable that includes violent crime as well as household burglary and theft.

The NCVS measures annual household income as a discrete categorical variable (HINCOME). The largest number of respondents are in the $50,000 to $74,999 category, so this was used as the reference group. The other categories are: less than $7,500 per year, $7,500 to $14,999, $15,000 to $24,999, $25,000 to $34,999, $35,000 to $49,999, $75,000 or more. About 15 percent of respondents fell into a "residue" category and were coded as missing. Residue in the NCVS is a type of missing data. It can indicate a keying error that resulted in an out-of-range code, an incorrect or unusable answer, the absence of an entry, or when a respondent answers "yes" on a leading question, but then does not specify further in the multiple response item (Bureau of Justice Statistics 2013).

The last control variable measures the educational attainment of the respondent. This is a categorical variable and over fifty percent of the respondents are college educated, so that category is used as the reference group. Respondents that answered they had attended "some college" were included in the college category. The other response categories in this question were: no schooling, grade school, middle school, high school (EDUCATN). The categories no schooling, grade school, and middle school were collapsed because of small sample sizes.

Hypotheses

H1: Women will lose more days of work than men as a result of a workplace violence incident, holding all other variables constant.

H2: Non-Whites will lose more days of work than Whites as a result of a workplace violence incident, holding all other variables constant.

H3: Younger workers will lose more days of work than older workers as a result of a workplace violence incident, holding all other variables constant.

H4: High-risk occupations will lose more days of work than low-risk occupations as a result of a workplace violence incident, holding all other variables constant.

H5: Women will spend more on medical expenses as a result of an incident of workplace violence than men, holding all other variables constant.

H6: Non-Whites will spend more on medical expenses as a result of an incident of workplace violence than Whites, holding all other variables constant.

H7: Younger workers will spend more on medical expenses as a result of an incident of workplace violence than older workers, holding all other variables constant.

H8: High-risk occupations will spend more on medical expenses as a result of an incident of workplace violence than low-risk occupations, holding all other variables constant.

Sample Data

The sample data were drawn from the concatenated NCVS incident file, which ranges from the years 1992 through 2014 and only includes victims and does not include non-victims.

The year 1992 was excluded from the analysis because the fully redesigned NCVS was implemented in 1993. The incident was the unit of analysis, and the only incidents that were included in the sample are those that meet the following criteria: a violent crime that were either rape and sexual assault, simple assault, aggravated assault, or robbery that occurred at the respondents' place of employment or while the respondent was on duty. This sample includes individuals' who are age 16 to age 70 who were working at the time of the incident.

Analytic Strategy

Initially, there were eight dependent variables that measured a variety of potential impacts from violence. The initial goal of this study was to examine how incidents of workplace violence affected respondents to the NCVS socially, emotionally, and monetarily. The social-emotional questions are new to the survey, and are only available from 2009 and later. There is partial data included in the year 2008, but it was excluded from the initial analysis. Workplace violence is a rather rare phenomenon, and reported incidents in the NCVS are low. Upon closer inspection of the data in bivariate tables, it was clear that there were not enough cases to support multivariate analyses. The social-emotional questions were then dropped from the study. Since time restrictions were no longer an issue, the range of years were expanded to the entire concatenated file, from 1993 to 2014. Four dependent variables were left- total number of days lost from work, total amount of medical expenses, total amount of pay lost, and number of days in the hospital. It is important to mention that these are considered follow-up questions for people who reported that they were victimized and reported that they were injured. The first two

variables are the only ones out of the initial eight with large enough Ns to conduct further multivariate analysis. Number of days in the hospital stemming from a workplace violence incident only includes respondents that were victimized, injured, sought medical treatment, and sent to the hospital, had an N of 18. Total amount of pay lost had an N of 75.

Due to constraints of the data set, namely the lack of cases, the scope of this study was reduced to examine how demographic characteristics predicted differences in days of work lost and total amount of medical expenses for victims of workplace violence. While there are many other components needed to fully understand the effects of workplace violence on individuals from different social backgrounds, these two concepts are important pieces to understanding impacts associated with workplace violence.

The first step in analyzing the data started with univariate descriptives and frequencies to establish that there were enough cases to continue onto bivariate and multivariate tests. Where appropriate, t-tests and ANOVAs were performed to make sure that there were discernable differences between groups on the dependent variables.

The dependent variable, total days of work lost, is a count measure that ranges from 0 to 200. This variable fits a Poisson distribution and thus is not normally distributed. It has a long right tail and its outcomes are considered over-dispersed. A Negative Binomial Regression performed in Stata was considered the most appropriate test for this variable because the conditional variance exceeded the mean. The residuals versus the fitted (predicted) values were plotted and there was evidence of heteroskedasticity. Other tests to check the distribution of the dependent variable were used; the kdensity, pnorm, and qnorm plots all showed that the variable was not normally distributed. This means that the dependent variable violates the assumption of

normality that is required for bivariate tests and Generalized Linear Models (GLM). The results of this regression should be interpreted with caution.

The medical expenses variable was not normally distributed, as 54 percent of the cases within the variable are recorded as zero with a range from $0 to $50,000. A few different methods were attempted at dealing with the non-normally distributed expenditure data. First, a logistic regression was conducted to predicting the probability of spending at least one dollar on medical expenses. There were significant differences between income groups, so incidents that reported zero dollars spent were coded as missing. The results of that regression are essentially the same as the original OLS regression that includes all cases, in that the overall model is not significant. The results below thus include an OLS regression for medical expenses that violate some of the basic assumptions of an OLS regression. The dependent variable is not normally distributed; the null hypotheses of the "hettest" was rejected, which indicates there is evidence of heteroskedasticity. The Variance Inflation Factor (VIF) was calculated, and ranged from 1.08 to 1.73 with a mean of 1.27 indicating that there are no issues with multicollinearity. The results of this regression should be interpreted with extreme caution. A discussion of how to address this model for future research will be discussed in the conclusion.

CHAPTER 5: RESULTS

Univariate Results

Table 1 shows the univariate descriptives for all the variables included in the models. The range for total days lost was quite large and the mean days lost uncapped was 16.8 days, with a standard deviation of 36.66. The range for days lost capped was 10 days. The mean for total days capped was 4.38 and the standard deviation was 3.98. Medical expenses had an even larger range. The mean amount of medical expenses was $937 with a standard deviation of 3,682. This is clearly not a normally distributed variable. The mean for medical expenses that were capped at $1,000 was 237.32 and the standard deviation was 373.30. Just over half of the sample was male (61%) and the majority of the sample was White (88%). The mean age of this sample was about 37 years with a standard deviation of 10.8 years, and only working aged individuals were kept in the sample (16-70 years old). More than half the sample worked in high-risk occupations, about 57%. The most common type of crime to occur at the workplace is simple assault (48.4%) so this crime is used as the reference group. The other types of crime are more violent and occur less frequently. This sample is highly educated and with a corresponding high annual income. 24% of the sample makes more between $50,000 to $74,999. This was the largest income category, so it was chosen as the reference group. In terms of educational attainment, the majority of the sample has completed a college education (56.3%) making this the reference group.

Table 1. Sample Characteristics

	N	Descriptive	S.D.	Range
Dependent Variables				
Days Lost	256	Mean =16.80	36.66	0-200
Days Lost Capped	256	Mean=4.38	3.98	0-10
Medical Expenses	386	Mean = 937.44	3,682.03	0-50,000
Medical Expenses Capped	386	Mean=237.32	373.30	0-1,000
Independent Variables				
Gender (Male)	147	57.42%	--	0,1
Race (White)	213	83.20%	--	0,1
Age	254	Mean = 36.55	10.80	16-70
Type of Occupation				
Highrisk	255	57.25%	--	0,1
Control Variables				
Type of Crime				
Rape	9	3.51%	--	0,1
Robbery	18	7.03%	--	0,1
Aggravated Assault	105	41.02%	--	0,1
Simple Assault (Reference)	124	48.44%	--	0,1
Annual Income				
Less than $7,500	9	3.86%	--	0,1
$7,500 to $14,999	18	7.73%	--	0,1
$15,000 to $24,999	33	14.16%	--	0,1
$25,000 to $34,999	35	15.02%	--	0,1
$35,000 to $49,999	50	21.46%	--	0,1
$50,000 to $74,999 (Reference)	55	23.61%	--	0,1
$75,000 or more	33	14.16%	--	0,1
Educational Attainment				
No School-Middle School	7	2.76%	--	0,1
High School	104	40.94%	--	0,1
College (Reference)	143	56.30%	--	0,1

Bivariate Results

This section is focused on examining and interpreting bivariate tests for both dependent variables. First, t-tests, correlations, and ANOVAs for the dependent variable total days of work lost are presented. Following these tables, t-tests, correlations, and ANOVAs for the dependent variable medical expenses are presented. All models will examine how the uncapped, non-recoded variable differs from a version that is capped. The capped variables have smaller means and standard deviations which makes them more reliable in bivariate and multivariate analysis.

Total Days Lost

Table 2 displays the results from the bivariate t-tests between the dependent variable, total days of work lost, and the independent variables. In Stata, Variance Ratio Tests were conducted to determine if the dichotomous independent variables had equal variances. The results of the Variance Ratio Test for each of the independent variables indicated that the equal variances could not be assumed. For gender, females have a higher mean of days lost (4.85 versus 4.08 for males), but the results of the t-test indicated that there is no statistically significant difference between these two groups. For race, non-Whites have a higher mean of days of work lost (4.72 versus 4.31 for Whites), but the results of the t-test indicated that there is no statistically significant difference between these groups. Despite the lack of statistically significant findings in the bivariate tests, these variables were still included in the final model because they are theoretically relevant.

It is important to note that the indicators for the alpha level have been changed. Commonly, studies only report significant findings with an alpha level of .05, which means that the researcher expects the sample mean to fall into the critical region 5 percent of the time. It is a trade-off to increase the alpha level to .10; while it allows for more opportunities to discuss marginally significant findings that would have otherwise been ignored, it does increase the chance of a Type I error (reporting there is a difference when there is really not one) while simultaneously decreasing the chance of a Type II error. These methodological issues have been considered, and the risk of committing a Type I error is understood.

The last t-test shows the mean difference in days of work lost for people working in high-risk and low-risk occupations. The mean number of days of work lost for those in high-risk occupations is larger that of those in low-risk occupations (5.06 versus 3.41) and this test was significant ($p<.001$).

Table 2 t-Tests between Dependent Variable Total Days Lost and Independent Variables

	Uncapped		*Capped*	
Variable	Mean	*t*	Mean	*t*
Gender		1.56		1.65
Male	13.54		4.03	
Female	21.18		4.85	
Race		0.68		0.62
White	15.99		4.31	
Non-White	20.81		4.72	
Occupation		-1.42		-3.35****
High-risk	19.45		5.06	
Low-risk	13.00		3.41	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 3 displays the results of the Pearson correlation between days of work lost and age, which ranges from 16 to 70 years old. The correlation coefficient is extremely small and positive. The test with the uncapped dependent variable was significant ($p<.05$), but the effect size of the correlation indicates it is a weak correlation. For every year increase in age, days of work lost increases by 0.12.

Table 3 Pearson Correlation for Total Days Lost and Age

	Days Lost *Uncapped*	Days Lost *Capped*
Age (16-70)	0.12**	0.08

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

In Appendix A, Table 10 displays the results for the ANOVA between total days of work lost and type of crime. The model has an F statistic of .10, but it was not significant, meaning there are no statistically significant differences in the amount of days lost and the type of crime experienced. Despite the test not being significant, this variable was still included in the final negative binomial regression as a control variable because of theoretical significance.

In Appendix A, Table 11 displays the results of the ANOVA between total days lost and annual income. The model has an F statistic of 1.01 and the overall model was not significant. This means that there are no statistically significant differences for the total number of days lost between the different categories of annual income. Despite the test not being significant, for theoretical reasons, this variable was still included in the final negative binomial regression as a control variable.

In Appendix A, Table 12 displays the results of the ANOVA for total days of work lost and educational attainment. The F statistic was between 0.41 and 0.89 and it was not significant indicating that there was no difference in the mean days of work lost between the different educational attainment categories.

Medical Expenses

In Appendix A, Table 13 displays the results from the bivariate t-tests between the dependent variable medical expenses and the independent variables. In Stata, Variance Ratio Tests were conducted to determine if the dichotomous independent variables had equal variances. The results of the Variance Ratio Test for each of the independent variables indicated that the equal variances could not be assumed. Both the capped and uncapped versions were not significant, so for ease of explanation only the uncapped results are discussed. The t-test for gender shows large differences in medical expenses between males and females. Compared to females, males have almost double the medical expenses (1148.92 versus 628.97), but the test did not find any statistically significant differences between males and females. The t-test results were similar for race and occupation. Comparing the means, Whites spend almost 50 dollars over what non-Whites spend on medical expenses, but the test was not significant, indicating there were no significant differences between Whites and non-Whites. Although respondents in high-risk occupations spend almost a thousand dollars more on medical expenses than respondents who are in low-risk occupations, the test indicates that there were no significant differences in the amount of medical expenses for high-risk and low-risk occupations. These results should be

interpreted with caution. These variables were still included in the final OLS regression as independent variables because they are theoretically significant.

In Appendix A, Table 14 displays the result of the Pearson correlation between medical expenses and age. The correlation coefficient is positive, small, and weak. There was no statistically significant correlation between medical expenses and age. Both the capped and uncapped versions were not significant.

Table 4 displays the results of the ANOVA for medical expenses and type of crime, both uncapped and capped. In the uncapped model, the F statistic was 5.22 and the model was significant ($p<.01$). The overall model becomes stronger in the capped version, the F statistic was 9.50 and significant ($p<.001$). There were significant differences in the amount of medical expenses by type of crime. Table 5 shows the results of the post-hoc Bonferroni test. There were no significant differences in medical expenses between simple assault and rape, as well as between simple assault and robbery. There was a significant difference in medical expenses between simple assault and aggravated assault. Both the uncapped and capped versions show the same result. Respondents who experienced an aggravated assault while at work or on duty spent $1452.52 (uncapped) or $206.64 (capped) more on medical expenses than respondents, who experienced a simple assault.

Table 4 Summary of ANOVA for Medical Expenses and Type of Crime

	Mean (SD)		F	
	Uncapped	*Capped*	*Uncapped*	*Capped*
Rape	271.90	221.90	5.22***	9.50****
	(469.57)	(330.22)		
Robbery	2062.38	333.81		
	(4447.74)	(482.70)		
Aggravated	1810.25	363.04		
Assault	(5577.69)	(436.92)		
Simple Assault	357.73	156.40		
	(1640.75)	(296.25)		

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 5 Bonferroni Comparison of Medical Expenses and Type of Crime

	Mean Difference	
Comparisons	*Uncapped*	*Capped*
Simple Assault vs. Rape	85.83	-65.50
Simple Assault vs. Robbery	-1704.65	-177.41
Simple Assault vs. Aggravated Assault	-1452.52***	-206.64****

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

In Appendix A, Table 15 displays the results of the ANOVA for medical expenses and annual income. The model had an F statistic of 1.55, but was not significant overall. This test showed that there are no statistically significant differences in the amount of medical expenses spent by different income groups. The results were the same for both uncapped and capped variables. Despite the test not being significant, this variable was still included in the final negative binomial regression as a control variable for theoretical reasons.

In Appendix A, Table 16 displays the results of the ANOVA for medical expenses and educational attainment. The F statistic was 0.25, but the overall model was not significant. This test shows that there were no statistically significant differences in the amount of medical expenses spent by groups with varying levels of education. This result was the same for both capped and uncapped. Despite the test not being significant, this variable was still included in the final negative binomial regression as a control variable for theoretical reasons.

Multivariate Results

This section examines the results of the multivariate regressions for each of the dependent variables. Each model shows the results of each independent variable on the dependent variable, including the controls, separately, and the final model shows the full model with all the variables together.

Total Days Lost

Prior to conducting the negative binomial regression, diagnostics were conducted to check the normality of the dependent variable. The dependent variable, total days lost had many values clustered around 0, with a long right tail. A regular OLS regression was used on the model below to determine the normality of the data. If the observed data are not normal, it can still fit the assumption of normality if the fitted versus predicted residuals follow a normal distribution. The residuals of this model were predicted and plotted using a kdensity plot, pnorm

plot, qnorm plot, and an rvf plot. The variance of the residuals was not constant and should be considered heteroskedastic. The Variance Inflation Factor (VIF) was also calculated, and ranged from 1.14 to 1.60 with a mean of 1.31 indicating that there are no issues with multicollinearity for the uncapped model. The results were identical for the capped model. The results should be interpreted with caution.

Table 6 displays the results of the negative binomial regression for total days of work lost (uncapped), control variables, and separate models for each of the independent variables. Model 1 shows the results for total days of work lost, control variables, and gender. Model 2 shows the results for total days of work lost, control variables, and race. Model 3 shows the results for total days of work lost, control variables, and age. Model 4 shows the results for total days of work lost, control variables, and occupation. Model 5 shows the complete model. The results were interpreted in terms of the Incident Rate Ratio (IRR). The IRR is a more intuitive way to understand the results, as opposed to reporting the beta, which expresses the log of the expected count.

Model 1 in Table 6 displays the results of a negative binomial regression for the dependent variable total days lost, the control variables, and the first independent variable-gender. This model had an N of 232 and the overall model was significant (LR Chi^2=36.20 $p<.01$). Several variables were significant in the model. Compared to simple assault, incidents of aggravated assault are expected to have a rate 3.13 times greater for total days of work lost, holding all other variables constant ($p<.001$). Robbery was marginally significant ($p<.10$). Compared to simple assault, incidents of robbery are expected to have a rate 2.46 times greater for days of work lost, holding all other variables constant. One of the income dummy variables

was significantly related to total days of work lost; compared to respondents making $50,000 to $74,999, respondents making $75,000 or more are expected to have a rate 2.58 times greater for total days of work lost, holding all other variables constant ($p<.05$). The independent variable was also significant ($p<.10$); compared to females, males have a rate 0.46 times lower for total days of work lost, holding all other variables constant ($p<.01$).

Model 2 displays the negative binomial regression results for total days of work lost, the control variables, and the second independent variable- a dummy indicator for white (reference group is non-white). The overall model was significant (LR $Chi^2=30.51$ $p<.05$) and had an N of 232. Compared to incidents of simple assault, incidents of aggravated assault have a rate 2.81 times greater for total days of work lost, holding all other variables constant ($p<.001$). Different from Model 1, compared to incidents of simple assault, incidents of rape are expected to have a rate 3.99 times greater for days of work lost, holding all other variables constant ($p<.10$). This result was marginally significant and could be due to small sample sizes. Compared to respondents making $50,000 to $74,999, respondents making less than $7,500 are expected to have a rate 0.27 times lower for total days of work lost, holding all other variables constant ($p<.10$), although small sample sizes might be an issue here. The independent variable was also marginally significant ($p<.10$); compared to non-Whites, Whites have a rate 0.50 times lower for total days of work lost, holding all other variables constant.

In Model 3, the control variable IRRs were almost equivalent to Models 1 and 2. The overall model was significant (LR $Chi^2=32.98$ $p<.001$) and had an N of 230. The independent variable, age was significant ($p<.01$). For every year increase in age, the rate of total days of

work lost increases by a factor of 1.04, holding all other variables constant. This means that older people lose more days of work than younger people.

Model 4 follows patterns similar to the previous models. The overall model was significant (LR Chi^2=35.40 p<.001). The IRR for aggravated assault compared to simple assault (IRR=2.94, p<.001) was similar to the previous models. Also like Model 2 and 3, rape was significant, although this could be due to small samples. The IRR for respondents making $75,000 or more compared to respondents making $50,000 to $74,999 was about the same (IRR=3.48, p<.01). The independent variable, a dummy indicator for high-risk occupations was also significant (p<.01). Compared to respondents in low-risk occupations, respondents in high-risk occupations are expected to have a rate 2.23 times greater for total days of work lost, holding all other variables constant.

Model 5 displays the results of the negative binomial regression that includes the control variables as well as all of the independent variables. The overall model was significant (LR Chi^2=49.48 p<.001) and had an N of 229. Several variables were significant in the model. Compared to simple assault, incidents of rape are expected to have a rate 5.02 times greater for total days of work lost, holding all other variables constant (p<.05). Compared to simple assault, incidents of aggravated assault are expected to have a rate 2.89 times greater for total days of work lost, holding all other variables constant (p<.001). In addition, two out of the six dummy indicators for income were marginally significant. Compared to respondents making $50,000 to $74,999, respondents making $25,000 to $34,999 are expected to have a rate 2.10 times greater for total days of work lost, holding all other variables constant (p<.10). The next income category, respondents making $75,000 or more compared to respondents making $50,000 to

$74,999 are expected to have a rate 1.97 times greater for total days of work lost, holding all other variables constant ($p<.10$). All four independent variable were significant. Compared to females, males had a rate 0.57 times lower for days of work lost ($p<.05$). Compared to non-Whites, Whites had a rate 0.50 times lower for days of work lost ($p<.10$). For every year increase in age, the rate of total days of work lost increases by a factor of 1.03, holding all other variables constant ($p<.01$). The type of occupation indicator was significant. Compared to respondents in low-risk occupations, respondents in high risk occupations are expected to have a rate 2.26 times greater for total days of work lost, holding all other variables constant ($p<.001$).

Table 6 Negative Binomial Regression for Total Days Lost and Independent Variables (Uncapped)

	Model 1 N=232		Model 2 N=232		Model 3 N=230		Model 4 N=231		Model 5 N=229	
Variable	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)
Control Variables										
Type of Crime										
Rape	0.94	2.56 (1.88)	1.38	4.00* (2.95)	1.45	4.24** (3.05)	1.51	4.53** (3.31)	1.61	5.02** (3.56)
Robbery	0.90	2.46* (1.29)	0.67	1.95 (1.02)	0.47	1.60 (0.80)	0.34	1.40 (0.40)	0.74	2.11 (1.04)
Aggravated Assault	1.14	3.13**** (0.80)	1.04	2.82**** (0.73)	0.91	2.48**** (0.64)	1.08	2.94**** (0.80)	1.06	2.89*** (0.74)
Income										
Less than $7,500	-0.67	0.51 (0.33)	-1.31	0.26* (0.19)	-0.53	0.59 (0.38)	-0.16	0.85 (0.58)	-0.16	0.85 (0.59)
$7,500 to $14,999	-0.57	0.57 (0.28)	-0.60	0.55 (0.28)	-0.01	0.98 (0.47)	-0.05	0.95 (0.46)	-0.21	0.81 (0.40)
$15,000 to $24,999	0.18	1.19 (0.51)	0.19	1.21 (0.51)	0.09	1.09 (0.46)	0.76	2.14 (0.99)	0.58	1.79 (0.79)
$25,000 to $34,999	0.37	1.44 (0.55)	0.30	1.35 (0.53)	0.39	1.48 (0.59)	0.44	1.55 (0.62)	0.74	2.10* (0.83)
$35,000 to $49,999	0.05	1.05 (0.37)	-0.004	1.00 (0.35)	0.004	1.00 (0.35)	-0.008	0.99 (0.35)	0.16	1.17 (0.41)
$75,000 or more	0.95	2.58** (0.98)	0.65	1.92 (0.84)	0.94	2.56** (0.99)	1.25	3.48*** (1.40)	0.68	1.97* (0.81)

	Model 1 N=232		Model 2 N=232		Model 3 N=230		Model 4 N=231		Model 5 N=229	
Variable	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)
Education										
No Schooling - Middle School	0.36	1.02 (0.29)	0.11	1.12 (0.85)	0.38	1.46 (1.18)	-0.15	0.86 (0.65)	0.91	2.48 (1.97)
High School	0.30	1.22** (0.09)	0.16	1.18 (0.33)	0.38	1.46 (0.42)	0.14	1.15 (0.33)	0.38	1.46 (0.41)
Independent Variable										
Male	-0.78	0.85* (0.04)							-0.56	0.57** (0.16)
White			-0.69	0.50* (0.20)					-0.69	0.50* (0.18)
Age					0.04	1.04*** (0.01)			0.03	1.03*** (0.01)
High-risk							0.80	2.23*** (0.61)	0.81	2.26*** (0.61)
Constant	0.93	8.96**** (2.64)	2.54	12.77**** (5.96)	0.47	1.60 (0.91)	1.20	3.33*** (1.20)	0.64	1.89 (1.28)
Model-Level Results										
LR Chi^2		36.20***		30.51***		32.98***		35.40****		49.48****
Pseudo R^2		2.31		1.94		2.13		2.27		3.22
Alpha		2.82		2.89		2.80		2.84		2.62

Note: Reference group for type of crime is simple assault; reference group for income is $50,000 to $74,999; reference group for education is college.
**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 7 displays the results of the negative binomial regression for total days of work lost, control variables, separate models for each of the independent variables, using the capped dependent variable for days of work lost. Model 1 shows the results for total days of work lost, control variables, and gender. Model 2 shows the results for total days of work lost, control variables, and race. Model 3 shows the results for total days of work lost, control variables, and age. Model 4 shows the results for total days of work lost, control variables, and occupation. Model 4 shows the complete model. The results were interpreted in terms of the Incident Rate Ratio (IRR).

Model 1 in Table 7 displays the results of a negative binomial regression for the dependent variable total days lost, the control variables, and the first independent variable- gender. This model had an N of 232 and the overall model was significant (LR Chi^2=22.32 $p<.05$). Several variables were significant in the model. Compared to the models in Table 6, the IRRs and standard errors are much smaller. Also like Table 6, Model 1 in Table 7 showed that aggravated assault was still significant ($p<.001$). Compared to incidents of simple assault, incidents of aggravated assault are expected to have a rate 1.87 times greater for days of work lost, holding all other variables constant. The independent variable was also significant ($p<.05$). Compared to females, males had a rate 0.69 times lower for total days of work lost, holding all other variables constant.

Model 2 displays the negative binomial regression results for total days of work lost, the control variables, the second independent variable- a dummy indicator for white (reference group is non-white). The overall model was not significant (LR Chi^2=17.61) and had an N of 232. In Model 3, the overall model was not significant (LR Chi^2=18.83) and had an N of 230.

In Model 4, the overall model was significant (LR Chi^2=28.01 p<.01) and had an N of 231. Similar to Table 6, both rape and aggravated assault were significant. Compared to simple assault, incidents of rape are expected to have a rate 2.23 times greater for total days of work lost, holding all other variables constant (p<.10). The IRR for incidents of aggravated assault compared to incidents of simple assault was 1.80 times greater for days of work lost (p<.001). Income and education were not significant. The independent variable, a dummy indicator for high-risk occupations was significant (p<.01). Compared to respondents in low-risk occupations, respondents in high-risk occupations are expected to have a rate 1.74 times greater for total days of work lost, holding all other variables constant.

Model 5 displays the results of the negative binomial regression that includes the control variables as well as all of the independent variables. The overall model was significant (LR Chi^2=34.03 p<.05) and had an N of 229. Several variables were significant in the model. Again, rape and aggravated assault were important predictors to days of work lost. Income and education are not significant. Only two out of four independent variables were significant. Compared to females, males are expected to have a rate 0.71 times less for days of work lost, holding all other variables constant (p<.05). The type of occupation indicator was significant. Compared to respondents in low-risk occupations, respondents in high risk occupations are expected to have a rate 1.65 times greater for total days of work lost, holding all other variables constant (p<.01).

Table 7 Negative Binomial Regression for Total Days Lost and Independent Variables (Capped)

	Model 1 N=232		Model 2 N=232		Model 3 N=230		Model 4 N=231		Model 5 N=229	
Variable	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)
Control Variables										
Type of Crime										
Rape	0.49	1.64 (0.69)	0.62	1.86 (0.80)	0.70	2.02 (0.86)	0.80	2.23* (0.93)	0.80	2.24* (0.94)
Robbery	0.49	1.64 (0.53)	0.35	1.42 (0.45)	0.34	1.40 (0.44)	0.28	1.32 (0.41)	0.47	1.60 (0.50)
Aggravated Assault	0.62	1.87**** (0.29)	0.55	1.73*** (0.27)	0.56	1.75**** (0.27)	0.59	1.80**** (0.28)	0.64	1.89**** (0.30)
Income										
Less than $7,500	-0.53	0.59 (0.25)	-0.60	0.55 (0.24)	-0.47	0.62 (0.27)	-0.16	0.85 (0.36)	-0.22	0.80 (0.34)
$7,500 to $14,999	-0.13	0.88 (0.27)	-0.03	0.97 (0.30)	0.09	1.09 (0.33)	0.14	1.15 (0.34)	-0.01	0.99 (0.31)
$15,000 to $24,999	-0.19	0.83 (0.21)	-0.14	0.87 (0.23)	-0.13	0.88 (0.23)	0.15	1.16 (0.31)	-0.001	1.00 (0.26)
$25,000 to $34,999	-0.12	0.89 (0.21)	-0.11	0.89 (0.22)	-0.05	0.95 (0.24)	0.01	1.01 (0.24)	0.07	1.08 (0.26)
$35,000 to $49,999	0.07	1.07 (0.23)	0.09	1.09 (0.23)	0.09	1.10 (0.23)	0.14	1.15 (0.24)	0.13	1.14 (0.24)
$75,000 or more	0.22	1.24 (0.30)	0.21	1.23 (0.30)	0.18	1.19 (0.29)	0.25	1.29 (0.31)	0.16	1.17 (0.28)

	Model 1 N=232		Model 2 N=232		Model 3 N=230		Model 4 N=231		Model 5 N=229	
Variable	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)	b	IRR(SE)
Education										
No Schooling - Middle School	0.44	1.56 (0.73)	0.31	1.36 (0.64)	0.48	1.61 (0.80)	0.34	1.40 (0.64)	0.76	2.15 (1.05)
High School	0.20	1.22 (0.19)	0.17	1.18 (0.18)	0.16	1.17 (0.19)	0.12	1.12 (0.18)	0.16	1.18 (0.18)
Independent Variable										
Male	-0.37	0.69** (0.11)							-0.33	0.72** (0.11)
White			-0.17	0.84 (0.18)					-0.16	0.85 (0.17)
Age					0.01	1.01 (0.01)			0.01	1.01 (0.01)
High-risk							0.55	1.74*** (0.27)	0.50	1.65*** (0.26)
Constant	1.23	3.45**** (0.64)	1.22	3.27**** (0.86)	0.62	1.86** (0.62)	0.61	1.84*** (0.38)	0.57	1.77 (0.69)
Model-Level Results										
LR Chi^2		22.32**		17.61		18.83		28.01***		34.03***
Pseudo R^2		1.88		1.48		1.60		2.38		2.91
Alpha		0.91		0.94		0.92		0.88		0.83

Note: Reference group for type of crime is simple assault; reference group for income is $50,000 to $74,999; reference group for education is college.

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Medical Expenses

Prior to conducting the Linear Regression with Ordinary Least Squares (OLS) estimates, diagnostics were conducted to check the normality of the dependent variable. The dependent variable, medical expense, has many values clustered around 0, with a long right tail. The residuals of this model were predicted and plotted using a kdensity plot, pnorm plot, qnorm plot, and an rvf plot. The variance of the residuals was not constant and should be considered heteroskedastic. The Variance Inflation Factor (VIF) was also calculated, and ranged from 1.04 to 1.55 indicating that there were no issues with multicollinearity (Fisher and Mason 1981). The results should be interpreted with caution.

Table 8 displays the results of the OLS regression for medical expenses with the control variables, and each independent variable separately using the capped dependent variable for medical expenses. Model 1 has an N of 345 and the overall model was significant (F-statistic=3.35, $p<.05$). The R^2 indicates that 6.96 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery were significant ($p<.01$). There was an increase of 2412.29 dollars in medical expenses for incidents of robbery compared to incidents of simple assault, controlling for all other variables in the model. Incidents of aggravated assault were also significant ($p<.01$). Compared to incidents of simple assault, there was an increase of 1289.60 dollars in medical expenses, controlling for all other variables in the model. Four out of the six income dummies were significant. Respondents making $15,000 to $24,999 had a decrease of 1293.10 dollars in medical expenses compared to

respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.05). Respondents making $25,000 to $34,999 had a decrease of 1163.41 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.10). Respondents making $35,000 to $49,999 had a decrease of 1580.48 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.01). Respondents making $75,000 or more per year had a decrease of 1332.42 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.05). Gender was not significant in this model.

Model 2 tested the relationship between dependent variable medical expenses, the control variables, and the independent variable- race. The results were very similar to Model 1. The overall model was significant (F-statistic=2.08, p<.05). The R^2 indicates that 6.99 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 2391.99 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant (p<.01). There was an increase of 1284.12 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant (p<.01). Like Model 1, four out of the six income dummies were significant. Respondents making $15,000 to $24,999 had a decrease of 1330.04 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.05). Respondents making $25,000 to $34,999 had a decrease of 1177.14 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.10). Respondents making $35,000 to $49,999 had a decrease of 1584.83 dollars in medical expenses compared to respondents making $50,000

to $74,999, controlling for all other variables in the model ($p<.01$). Respondents making $75,000 or more per year had a decrease of 1342.87 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Race was not significant in this model.

Model 3 tested the relationship between dependent variable medical expenses, the control variables, and the independent variable- age. The results were very similar to Model 1 and 2. The overall model was significant (F-statistic=2.12, $p<.05$). The R^2 indicates that 7.21 percent of the variance in the dependent variable was explained by the predictors in the model. In this model, aggravated assault was not significant, but robbery was significant ($p<.01$). Incidents of robbery had an increase of 2398.32 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant. The same four income dummies that were significant in the previous models were also significant in Model 3. Respondents making $15,000 to $24,999 had a decrease of 1280.42 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Respondents making $25,000 to $34,999 had a decrease of 1176.44 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.10$). Respondents making $35,000 to $49,999 had a decrease of 1631.94 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.01$). Respondents making $75,000 or more per year have a decrease of 1411.71 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Age was not significant in this model.

Model 4 was almost the same as the previous models. The overall model was significant (F-statistic=2.24, p<.01). The R^2 indicates that 7.52 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 2388.47 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant (p<.01). There was an increase of 1317.29 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant (p<.01). The dummies for income that were significant in Model 2 and 3 were also significant in this model. Respondents making $25,000 to $34,999 had a decrease of 1169.05 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.10). Respondents making $35,000 to $49,999 had a decrease of 1624.15 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.01). Respondents making $75,000 or more per year have a decrease of 1315.03 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.05). Type of occupation was not significant in this model.

Model 5 was almost the same as the previous models, but it includes all the independent variables together. The overall model was significant (F-statistic=1.82, p<.05). The R^2 indicates that 7.79 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 2405.77 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant (p<.01). There was an increase of 1365.63 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant (p<.01). The dummies for income that were

significant in Model 2, 3, and 4 were also significant in this model. Respondents making $15,000 to $24,999 had a decrease of 1258.57 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.10$). Respondents making $25,000 to $34,999 had a decrease of 1187.77 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.10$). Respondents making $35,000 to $49,999 had a decrease of 1686.24 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.01$). Respondents making $75,000 or more per year had a decrease of 1409.54 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). None of the independent variables were significant in this model.

Table 8 Linear Regression with OLS Estimates for Medical Expenses and Independent Variables (Uncapped)

	Model 1 N=345		Model 2 N=345		Model 3 N=341		Model 4 N=343		Model 5 N=339	
Variable	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)
Control Variables										
Type of Crime										
Rape	153.55	0.007 (1271.30)	164.17	.007 (1266.14)	281.71	0.01 (1278.11)	152.06	0.007 (1266.06)	267.64	0.01 (1289.72)
Robbery	2412.29	0.15*** (900.47)	2391.99	0.15*** (882.81)	2398.32	0.15*** (888.30)	2388.47	0.15*** (2436.21)	2405.77	0.15*** (913.40)
Aggravated Assault	1289.60	0.17*** (409.92)	1284.12	0.17*** (406.67)	1332.67	0.18 (412.17)	1317.29	0.18*** (408.99)	1375.63	0.18*** (421.07)
Income										
Less than $7,500	-1565.52	-0.08 (1057.54)	-1568.47	-0.09 (1053.99)	-1523.01	-0.08 (1086.61)	-1447.90	-0.08 (1056.68)	-1424.43	-0.07 (1100.08)
$7,500 to $14,999	-1163.68	-0.08 (846.77)	-1194.07	-0.08 (849.04)	-1094.03	-0.08 (849.90)	-1145.88	-0.08 (842.98)	-1093.20	-0.08 (864.44)
$15,000 to $24,999	-1293.10	-0.13** (626.46)	-1330.04	-0.13** (635.73)	-1280.42	-0.13** (630.24)	-1261.56	-0.13 (625.55)	-1258.57	-0.13* (645.31)
$25,000 to $34,999	-1163.41	-0.12* (630.24)	-1177.14	-0.12* (630.68)	-1176.44	-0.12* (635.41)	-1169.05	-0.12* (628.65)	-1187.77	-0.12* (2109.43)
$35,000 to $49,999	-1580.48	-0.17*** (600.61)	-1584.83	-0.17*** (600.41)	-1631.94	-0.17*** (608.20)	-1624.15	-0.17*** (606.89)	-1686.24	-0.17*** (1719.73
$75,000 or more	-1332.42	-0.15** (565.81)	-1342.87	-0.16** (562.77)	-1411.71	-0.16** (571.66)	-1315.03	-0.15** (561.28)	-1409.64	-0.16** (578.25)
Education										

	Model 1 N=345		Model 2 N=345		Model 3 N=341		Model 4 N=343		Model 5 N=339	
Variable	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)
No Schooling - Middle School	-114.96	-0.005 (1214.58)	-94.75	-0.004 (1215.04)	-119.44	-0.005 (1373.58)	15.06	0.0007 (1216.71)	-40.12	-0.002 (1382.30)
High School	-402.39	-0.05 (415.01)	-395.82	-0.05 (413.76)	-363.25	-0.05 (419.95)	-402.93	-0.05 (413.49)	-360.71	-0.05 (424.42)
Independent Variable										
Male	-18.48	-0.002 (397.84)							-39.75	-0.006 (410.43)
White			-188.27	-0.02 (559.03)					-45.81	-0.004 (571.25)
Age					18.11	0.06 (18.14)			17.89	0.05 (18.39)
High-risk							555.31	0.08 (1127.97)	572.94	0.08 (394.91)
Constant	1521.90	-- (485.98)	1686.40	-- (672.03)	835.85	-- (798.58)	1155.84	-- (490.85)	-542.57	-- (1078.04)
Model-Level Results										
R^2		6.96		6.99		7.21		7.52		7.79
F-statistic		2.07**		2.08**		2.12**		2.24***		1.82**
df		12		12		12		12		15

Note: Reference group for type of crime is simple assault; reference group for income is $50,000 to $74,999; reference group for education is college.
**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 9 displays the results of the OLS regression for medical expenses with the control variables, and each independent variable separately using the uncapped dependent variable. Model 1 had an N of 345 and the overall model was significant (F-statistic=2.07, p<.001). The R^2 indicated that 10.80 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery were significant (p<.05). There was an increase of 236.42 dollars in medical expenses for incidents of robbery compared to incidents of simple assault, controlling for all other variables in the model. Incidents of aggravated assault were also significant (p<.001). Compared to incidents of simple assault, there was an increase of 186.88 dollars in medical expenses, controlling for all other variables in the model. Only one income dummy was significant. Respondents making more than $75,000 had a decrease of 149.62 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model (p<.05). Education and gender were not significant in this model.

Model 2 tested the relationship between dependent variable medical expenses, the control variables, and the independent variable- race. The results were very similar to Model 1. The overall model was significant (F-statistic=3.51, p<.001). The R^2 indicated that 11.27 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 230.50 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant (p<.05). There was an increase of 185.32 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant (p<.001). Like Model 1, one out of the six income dummies were significant. Respondents making $75,000 or more per year had a decrease of 154.79 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all

other variables in the model ($p<.01$). In contrast to Model 1, one of the education dummies was significant. Compared to respondents with a college education, respondents with up to a middle school education had an increase of 213.58 dollars in medical expenses ($p<.10$). Race was not significant in this model.

Model 3 tested the relationship between dependent variable medical expenses, the control variables, and the independent variable- age. The results were very similar to Model 1 and 2. The overall model was significant (F-statistic=3.28, $p<.001$). The R^2 indicated that 10.71 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 230.37 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant ($p<.05$). There was an increase of 178.62 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant ($p<.001$). The dummies for income and education that were significant in Model 2 were also significant in this model. Respondents making $75,000 or more per year had a decrease of 148.80 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Compared to respondents with a college education, respondents with up to a middle school education had an increase of 256.96 dollars in medical expenses ($p<.10$). Age was not significant in this model.

Model 4 was almost the same as the previous models. The overall model was significant (F-statistic=3.31, $p<.001$). The R^2 indicated that 10.75 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 234.42 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant ($p<.05$). There was an increase of 183.38 dollars in medical expenses for

incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant ($p<.001$). The dummies for income and education that were significant in Model 2 and 3 were also significant in this model. Respondents making $75,000 or more per year had a decrease of 148.28 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Compared to respondents with a college education, respondents with up to a middle school education had an increase of 215.83 dollars in medical expenses ($p<.10$). Type of occupation was not significant in this model.

Model 5 was almost the same as the previous models, but it included all the independent variables together. The overall model was significant (F-statistic=2.68, $p<.001$). The R^2 indicated that 11.08 percent of the variance in the dependent variable was explained by the predictors in the model. Incidents of robbery had an increase of 223.10 dollars in medical expenses compared to incidents of simple assault, holding all other variables constant ($p<.05$). There was an increase of 171.84 dollars in medical expenses for incidents of aggravated assault compared to incidents of simple assault, holding all other variables constant ($p<.001$). The dummies for income and education that were significant in Model 2, 3, and 4 were also significant in this model. Respondents making $75,000 or more per year have a decrease of 151.76 dollars in medical expenses compared to respondents making $50,000 to $74,999, controlling for all other variables in the model ($p<.05$). Compared to respondents with a college education, respondents with up to a middle school education had an increase of 269.74 dollars in medical expenses ($p<.10$). None of the independent variables were significant in this model.

Table 9 Linear Regression with OLS Estimates for Medical Expenses and Independent Variables (Capped)

	Model 1 N=345		Model 2 N=345		Model 3 N=341		Model 4 N=343		Model 5 N=339	
Variable	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)
Control Variables										
Type of Crime										
Rape	11.44	0.005 (131.78)	14.29	.006 (130.93)	7.17	0.003 (131.79)	12.40	0.005 (130.90)	9.53	0.003 (132.33)
Robbery	236.42	0.14*** (93.34)	230.50	0.13*** (91.29)	230.37	0.14*** (91.59)	234.42	0.14*** (91.21)	223.10	0.13*** (93.72)
Aggravated Assault	186.88	0.24**** (42.49)	185.32	0.23**** (42.05)	178.62	0.23**** (42.50)	183.38	0.23*** (42.29)	171.84	0.22**** (43.20)
Income										
Less than $7,500	-115.08	-0.06 (109.62)	-117.41	-0.06 (108.99)	-92.77	-0.05 (112.04)	-108.27	-0.06 (109.25)	-91.60	-0.05 (112.88)
$7,500 to $14,999	111.16	0.07 (87.78)	97.77	0.06 (87.79)	109.78	0.07 (87.63)	111.49	0.07 (87.16)	95.21	0.06 (88.70)
$15,000 to $24,999	-92.29	-0.09 (64.94)	-107.80	-0.10 (65.74)	-95.61	-0.09 (64.99)	-90.44	-0.09 (64.68)	-110.20	-0.11* (66.21)
$25,000 to $34,999	-31.32	-0.03 (65.33)	-37.86	-0.04 (65.21)	-43.47	-0.04 (65.52)	-31.69	-0.03 (65.00)	-49.98	-0.05 (65.76)
$35,000 to $49,999	-27.12	-0.03 (62.26)	-29.13	-0.03 (62.09)	-24.24	-0.02 (62.71)	-39.54	-0.04 (62.75)	-38.19	-0.04 (63.45)
$75,000 or more	-149.62	-0.16*** (58.65)	-154.79	-0.17*** (58.19)	-148.80	-0.16** (58.94)	-148.28	-0.16*** (58.03)	-151.76	-0.17*** (59.33)
Education										

	Model 1 N=345		Model 2 N=345		Model 3 N=341		Model 4 N=343		Model 5 N=339	
Variable	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)	B	β (SE)
No Schooling - Middle School	205.84	0.09 (125.90)	213.58	0.09* (125.64)	256.96	0.10* (141.63)	215.83	0.09* (125.80)	269.74	0.10* (141.83)
High School	-9.34	-0.01 (43.02)	-6.15	-0.01 (42.78)	-12.07	-0.02 (43.30)	-6.91	-0.01 (42.75)	-7.39	-0.01 (43.55)
Independent Variable										
Male	-2.36	-0.003 (41.24)							5.24	0.007 (42.11)
White			-76.64	-0.07 (57.81)					-77.93	-0.07 (58.55)
Age					-0.07	-0.002 (1.87)			-0.38	0.01 (1.89)
High-risk							34.69	0.05 (39.75)	21.48	0.03 (40.52)
Constant	212.40	-- (50.38)	282.44	-- (69.49)	217.03	-- (82.34)	189.66	-- (50.75)	285.38	-- (110.62)
Model-Level Results										
R^2		10.80		11.27		10.71		10.75		11.08
F-statistic		3.35****		3.51****		3.28***		3.31***		2.68***
df		12		12		12		12		15

Note: Reference group for type of crime is simple assault; reference group for income is $50,000 to $74,999; reference group for education is college.
**** p<0.001, *** p<0.01, ** p<0.05, *p<.10

CHAPTER 6: CONCLUSIONS

Discussion

This study intended to uncover differences in the effects stemming from workplace violence through a theoretical lens of inequality. Previous workplace violence research has mainly focused on specific industries and occupations, or they use data collected from worker's compensation claims. This is one of the first studies to investigate the effects of workplace violence from the victim's productivity and monetary perspective using the NCVS. The use of the NCVS is important because it collects information on crimes that may not have been reported to the police, and because it is a nationally representative data set, differences across industries, occupations, and social demographics are possible. Despite issues stemming from the distribution of the dependent variables and small sample sizes, the results from the multivariate tests will be discussed in terms of the original research questions and hypotheses. The main finding was that gender and working in a high-risk occupation were the most important predictors of impacts to productivity. In the uncapped model for total days lost, all of the independent variables were significant predictors, but this relationship changed when the dependent was capped at ten days. In contrast, all four independent variables were not good predictors for amount of medical expenses. It is clear from those models that type of crime, specifically the more violent crimes like robbery and aggravated assault were the most important predictors of medical expenses.

In the negative binomial regression models that analyzed days of work lost (uncapped) with each independent variable separately, all of the independent variables were significant. When all the independent variables are put in the model together, all the variables remain significant. The null hypotheses for gender, race, and type of occupation are rejected. Although age was also a significant predictor in days of work lost, the direction of the IRR indicated that older people lose more days of work than younger people. In the negative binomial regression that analyzed total days lost which was capped at ten days, only gender and working in a high-risk occupation were significant. Race and age were not significant.

These findings support what has been previously found in the literature on workplace violence. Younger people work in lower status jobs and may not be able to take time off because of injury. About half of the young people employed work in the retail and service sectors, which exposes them more to the public than other workers (Runyan et al. 2005 Gallagher 2005, Zakocs et al. 1998 Dunn, and Evensen 1998). Young workers face a distinct set of disadvantages on the job market like lower pay, restricted access to unions, and less awareness of strategies to help ensure safe working conditions (Tucker and Loughlin 2006). Keashly et al. (1997), for example, found that young workers in service and retail industries reported high rates of abusive and aggressive behavior by customers.

In the uncapped model for days of work lost, Whites lose less days of work than non-whites and males lose less days of work than females. The capped models attenuate this relationship. The capped models are stronger statistically because the mean, standard deviation, and standard errors are smaller, meaning the estimates are more precise. In the capped model, females still lose more days of work than men and this finding is supported by the literature.

Tjaden and Thoennes (2001) found that women were more likely to report rape and stalking, they were more likely to report the incident to police, and lost more time from work than males.

The relationship between days of work lost and type of occupation was one of the strongest in the model. A crosstab of race and type of occupation and found that more Whites work in low-risk jobs while non-Whites were more likely to work in high-risk jobs, although a chi-square test did not find a statistically significant difference. This finding supports social dominance theory in that minorities are more likely to work in lower paying and higher risk jobs, possibly because of discrimination. This finding is also consistent with the literature that describes the difficulties minorities experience in the labor market. Some scholars have suggested wage differentials between Whites and non-Whites can be explained by human capital inequities that reify over generations (Becker 2010, Tomaskovic-Devey 1993). Another explanation is outright discrimination and exclusion from prestigious positions by those in power, usually White males (Murray 1988, Tomaskovic-Devey 1993, Weber 1978)

Type of crime was a significant predictor of the number of work days lost. The more serious the crime, the more days of work missed. Incidents of aggravated assault miss about 2-3 days more of work compared to incidents of simple assault. Rape was significant in both the uncapped and capped models. Rape is a serious crime and the days lost range from 2-5 days, which could also explain why females are losing more work days than males.

In the uncapped model, income was significant, but this effect disappears in the capped model. The reference group for income was $50,000 to $74,999. As mentioned in the section on occupation and risk, this is an average salary for teachers, a group that is college educated and considered middle class. Discussions of cut offs and definitions for low, middle, and upper

classes are wrought with controversy. Atkinson and Brandolini (2011) suggest that economists often compare the bottom 20 percent to the top 20 percent, leaving the leftover 60 percent as the middle by default. Wages below $50,000 may be considered lower middle class, while salaries below $25,000 are considered working poor. An interesting result is seen in the variable for income. In lower wage salaries, respondents making less than $7,500 have a lower rate of days of work lost than those making a comfortable middle class salary of $50,000 to $74,999. Lower income workers may not be able to afford to take time off. Respondents only making about $10,000 more per year, not a huge increase, have opposite results. Respondents making $25,000 to $34,999 miss almost two more days of work than those making the comfortable middle class wage of about $50,000. This could be explained by looking at the average salaries in the earlier section on occupations and risk. Riskier occupations are paid in the range of $25,000 to $34,999. Low risk occupation salaries usually fall above and below this income group. An unexpected finding, in the uncapped model, was that those in the highest income category, making over $75,000 missed about 2-3 days more than those making $50,000 to $74,999. Respondents in the highest income category may have better benefits, more paid time off, or more general leeway to miss a few days of work.

In both the capped and uncapped models, education was not significant except for Model 1 in Table 6. Compared to respondents with a college degree, respondents with a high school diploma miss about 1.2 days more of work. A chi-square test showed that more people with a high school education work in high-risk jobs compared to those with college degrees ($p<.001$). This effect disappears in the complete model (Model 5 Table 6), and does not show up at all in the capped model (Table 7).

The regression for medical expenses had many issues that make it difficult to draw meaningful implications. There were some patterns seen in both the uncapped and capped models. None of the independent variables were significant predictors of medical expenses. In the uncapped models, the standard errors were very large, indicating a lack of precision and reliability. The smaller the standard error, the closer the estimate is to the true value; thus, these models should be interpreted with extreme caution. The capped models are thus slightly more reliable, but the standard errors are still much larger than they should be. The null hypotheses for predicting medical expenses by demographic differences failed to be rejected. The type of crime, specifically robbery and aggravated assault were significant. Robberies had the highest cost of medical expenses, compared to simple assaults. Four out of the six income categories were significant predictors of medical expenses. Every income category from $15,000 to more than $75,000 spent less on medical expenses compared to respondents making $50,000. This could be explained by access to resources. Lower income respondents either don't get any care or minimal care for injuries because they can't afford it, while higher income respondents are more likely to have insurance and other benefits to help offset the cost.

The results of this study indicate that there is partial support for social dominance theory in explaining impacts from workplace victimization. Compared to Whites, non-Whites are more likely to miss more days of work, and they are also more likely to work in high-risk occupations. Compared to males, females are more likely to miss more days of work. These assertions are made cautiously, as are all other assertions in the discussion because of issues with the data.

Limitations

Studying workplace violence is a difficult task. This study suffered many setbacks along the way. Originally, there were eight different dependent variables, which were intended to measure a variety of different impacts from workplace violence (productivity, use of health services, and socio-emotional trauma). Demographic characteristics were essential in trying to understand how inequality might affect impacts from workplace violence and this caused problems in the data analysis because selecting for subpopulations makes the sample incredibly small. Even though aggregate data from 1993 to 2014 were used, there were not enough cases in many of the dependent variables and they had to be dropped from the analysis. The two dependent variables that did have large enough Ns suffered from issues that prevent meaningful insights and implications from being made. The variables were not normally distributed and the plotted residuals were not normally distributed. They fail the assumption of normality and there was also evidence of heteroskedasticity, so results need to be interpreted with caution.

The use of a nationally representative data set that is primarily used to estimate prevalence of victimization within a population created a few limitations. First, researchers using the secondary data have no control over the questions asked. The NCVS is an excellent resource for creating accurate population estimates about crimes that are underreported, but it is not well suited to testing common criminological theories like Routine Activities Theory, Strain Theory, or Control Theory. Also, because some crimes are rare, low cell size counts can make it difficult to perform standard tests of significance. The weighted data can account for this, but the ease of applying the weights varies by statistical processing software. Due to issues with applying the weights in Stata, this study was not able to use weighted estimates. Another issue with this data

set is that it only measures four types of violent crime and the workplace violence literature has grown to encompass incivility, bullying, and other more covert forms of aggression. Those questions cannot be answered with this data set.

Future Research and Implications

This study created more question than answers. There are many factors that affect impacts from workplace violence and this study showed the link between gender, race, income, type of crime, and high-risk occupations, while also finding support for social dominance theory which explains how inequality affects life chances. This study was an exploratory introduction into the complex mechanisms that are associated with inequality, crime, and the workplace. Future research with the NCVS could compare workplace violence with non-workplace violence and this might allow for the use of more proxy variables that measure impacts with violence.

Another interesting avenue for exploration could investigate which populations have access to health insurance and more specifically, whether the cost of medical expenses includes what insurance has covered, or are only out-of-pocket expenses being reported? Another opportunity for research could investigate respondents who are chronically victimized. What are the attributes of this group? The use of weights would also be incredibly beneficial for future inquires. Transforming the medical expenses variable may also be helpful. Interaction effects between gender and race should also be investigated to fully understand the dynamic relationship between these attributes. The use of different data sets could allow for the testing of commonly used criminological theories.

Regarding policy implications, it will be interesting to see how these results could vary in the future due to the recent changes in healthcare coverage. The Affordable Care Act requires all Americans to obtain healthcare coverage or face a monetary penalty. If people working in low-income jobs have affordable access to healthcare they will be able to receive better care for their injuries. It would also be advisable for employers to offer basic benefits to all employees, like paid time off so employees can take care of themselves without fear of losing their jobs. Employers in high-risk industries need to place greater emphasis on safety measures, especially when their employees come into contact with the general public.

APPENDIX: TABLES

Table 10 Summary of ANOVA for Total Days Lost and Type of Crime

	Mean (SD)	F
Rape	5.5 (10.41)	0.10
Robbery	7.00 (26.96)	
Aggravated Assault	5.79 (18.18)	
Simple Assault	6.99 (24.39)	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 11 Summary of ANOVA for Total Days Lost and Annual Income

	Mean (SD)	F
Less than $7,500	2.00 (3.69)	0.93
$7,500 to $14,999	5.40 (10.38)	
$15,000 to $24,999	2.52 (4.98)	
$25,000 to $34,999	8.68 (29.51)	
$35,000 to $49,999	4.54 (15.60)	
$50,000 to $74,999	2.63 (11.71)	
$75,000 or more	7.97 (25.58)	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 12 Summary of ANOVA for Total Days Lost and Educational Attainment

	Mean (SD)		F	
	Uncapped	Capped	Uncapped	Capped
No School-Middle School	16.57 (19.80)	4.86 (4.91)	0.41	0.89
High School	19.34 (39.25)	4.73 (3.89)		
College	15.03 (35.63)	4.07 (3.99)		

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 13 t-Test between Medical Expenses and Independent Variables

Variable	Mean	*t*
Gender		-1.52
Male	1148.92	
Female	628.97	
Race		-0.14
White	944.42	
Non-White	893.58	
Occupation		-0.83
High-risk	1937.28	
Low-risk	1066.14	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 14 Pearson Correlation for Medical Expenses and Age

	Medical Expenses
Age (16-70)	0.047

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 15 Summary of ANOVA for Medical Expenses and Annual Income

	Mean (SD)	F
Less than $7,500	338.62 (793.91)	1.55
$7,500 to $14,999	709.23 (1300.28)	
$15,000 to $24,999	612.28 (2745.78)	
$25,000 to $34,999	767.69 (1861.97)	
$35,000 to $49,999	420.66 (924.71)	
$50,000 to $74,999	1896.44 (6239.73)	
$75,000 or more	552.65 (2170.61)	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.10

Table 16 Summary of ANOVA for Medical Expenses and Educational Attainment

	Mean (SD)	F
No School-Middle School	577.78 (691.97)	0.25
High School	780.06 (2213.32)	
College	1038.87 (4332.37)	

**** p<0.001, *** p<0.01, ** p<0.05, *p<0.1

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