Evaluation of Underreporting of Work-Related Injuries and Illnesses in the United States Military

By

Floyd O'Connell

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Director of Thesis: Dr. Michael Behm

Major Department: Department of Technology Systems

The purpose of the research was to characterize underreporting of occupational illnesses and injuries among the United States (U.S.) military veterans. The researcher interviewed 100 U.S. veterans and 100 U.S. civilians. A semi-structured interview questionnaire was used to collect both qualitative and quantitative data in an effort to identify the causes of underreporting of injuries and illnesses among U.S. military veterans. A similar survey evaluated U.S. civilians' perceptions and experience of underreporting of injuries and illnesses and allowed for comparison. Due to the lack of empirical research on employee underreporting, the questions were derived from literature reviews, reflections with the thesis committee, and the researcher's life experiences as a U.S. Disabled Veteran. The surveys were designed so that they could help answer and measure the three research questions that the researcher had. The researcher wanted to know to what degree is underreporting occurring in the military. Secondly, does underreporting of work-related injuries and illnesses continue after the military. Finally, is underreporting of work-related injuries and illnesses higher during the military or after the military. The surveys, which were conducted through in-person and telephone interviews, focused on understanding the participants' experience related to incentive programs, fear of

reporting, and the stigma associated with reporting. The research showed that underreporting is a significant problem in the military and different factors can influence how often it happens. Underreporting in the U.S. workforce was less than the military, but it was still higher than expected. The research also showed that different factors influence underreporting in the military when compared to the U.S. workforce.

Evaluation of Underreporting of Work-Related Injuries and Illnesses in the United States Military

A Thesis

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by

Floyd O'Connell

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Floyd O'Connell

APPROVED BY:

DIRECTOR OF
THESIS:

_____

Michael Behm, PhD

COMMITTEE MEMBER:

_____

Dylan Hardison, PhD

COMMITTEE MEMBER:

_____

Charles Lesko, PhD

COMMITTEE MEMBER:

_____

Sharon Rouse, PhD

CHAIR OF THE DEPARTMENT
OF TECHNOLOGY SYSTEMS:

_____

Tijjani Mohammed, PhD

DEAN OF THE
GRADUATE SCHOOL:

_____

Paul J. Gemperline, PhD

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CHAPTER 1: INTRODUCTION

The Occupational Safety and Health Act (OSHA) was enacted in 1970 (House of Representatives, 2008) has helped to reduce the number of work-related illnesses, injuries, and fatalities that take place in the U.S. Although the OSHA Act was enacted to protect U.S. workers while at work, there appears to be a lack of reporting work-related injuries and illnesses on the part of U.S veterans in the workforce. The underreporting of work-related injuries and illnesses is occurring 45% of the time while in the military (Hourani et al., 2012; Kovcan et al., 2019; Smith et al., 2016). Although the military underreporting of workplace illnesses and injuries appears to be on the decline, the research in this thesis indicates that it is still a significant problem for U.S. veterans in the U.S workforce. Workplace deaths and reported occupational injuries have decreased by over sixty percent; although, fatalities, illnesses, and injuries are still a common occurrence in the U.S. workforce (Department of Labor, 2012). The Department of Labor (2012) reported that there were more than twelve fatalities per day, including more than 3.4 illnesses and injuries per 100 workers that occurred in the U.S. in 2012. In 2017, illnesses and injuries dropped to 2.8 per 100 workers, while fatalities increased to fourteen per day (Department of Labor, 2018). Between 2011-2015, 48 states reported a decrease in their workers' compensation benefits, which was a 25-year low. In 2014, injuries and illnesses declined by 1.5% even though the number of workers in the workforce was increased that year (McLaren & Baldwin, 2017). The National Academy of Social Insurance (2017) reported that worker fatalities have decreased by twenty-three percent over the last twenty years.

In the U.S., each state must also pay for the indirect costs that are associated with workers' compensation. These costs include any wages paid to injured workers that are not covered, administrative expenses, employee training, replacement cost, lost production time, damaged goods, machinery, and property (Department of Labor, 2012). However, there are many more injuries and illnesses that go unreported every year. The underreporting of work-related illnesses and injuries in the U.S. has been occurring over the years, causing inaccurate statistics (Leigh, Marcin, and Miller, 2004). This has caused the reported numbers of injuries and illnesses to be lower than they should be, which makes it seem as if fatalities, injuries, and illnesses are decreasing, when in fact, they are not. The real numbers would disturb everyone and show how distressing the problem is in the U.S. Underreporting will continue to grow if workers and employers do not report injuries and illnesses that are work-related (Leigh, Marcin, and Miller, 2004).

Many different factors that contribute to underreporting in the U.S. have been identified. A significant factor that influences underreporting is that public employees and self-employed individuals that account for 20% of the workforce are not counted by the Bureau of Labor Statistics (BLS) (House of Representatives, 2008). Another factor is that some work-related illnesses are hard to identify or can mimic non-work-related illnesses. Changes in OSHA's recordkeeping regulations have also affected the number of musculoskeletal disorders (MSD) that are reported because they can mimic non-occupational disorders. When they mimic other disorders, they are not reported, which can cause underreporting (House of Representatives, 2008). Other times, workers and employers do not fully understand the new rules and regulations. Misinterpretation of the reporting criteria by employers is yet another area where mistakes can be made (Wuellner & Phipps, 2018). Immigrants are less likely to apply for

benefits because of the language barriers, and they are also afraid of being exploited by their employers (House of Representatives, 2008). The data processed by OSHA workers can also cause problems if they are not well-trained. However, the primary cause of underreporting comes directly from employers who do not report injuries or illnesses because of the benefits that are gained by the employer when they don't (House of Representatives, 2008). Some of the benefits of underreporting illnesses and injuries are obtaining future jobs and receiving lower insurance rates. Workers have also claimed that widespread harassment and intimidation happens when a worker reports an accident. Some employers have even fired or disciplined the worker for reporting the incident (House of Representatives, 2008).

Occupational injuries have become a global problem; it has been estimated that there are over 312,000 worker fatalities worldwide per year. However, there is an indication that the number is higher because of underreporting that has occurred (Concha-Barrientos et al., 2005). Some of the causes of Worldwide underreporting are the lack of comprehensive data, insufficient record-keeping, and limited insurance coverage are just a few of the reasons. In the U.S., Australia, and Canada, underreporting has become an important topic because it has shown how poorly injured workers are treated (Petitta et al., 2017). However, in other parts of the world, underreporting is not acknowledged to the same degree (Petitta et al., 2017). Many countries do not realize that underreporting is going on because there is not enough research being done on the topic to inform them. If more research was done, it could provide the evidence needed to show that a problem exists and that it needs to be addressed. Today many countries are just starting to realize that they have a problem with underreporting because of the increased research that is being published throughout the world. Many countries still just look the other way because they choose not to recognize the problem, which is called moral disengagement (Petitta et al., 2017).

Moral disengagement is when an individual ignores the moral consequences of their actions because they believe that ethical standards do not apply to them. This allows people to overlook injuries because they think the worker was at fault, which will enable them to classify the event how they see fit. This can cause underreporting numbers to be relatively small because the events have been reclassified as something else (Petitta et al., 2017). Another group that shows signs of underreporting is the U.S. military. A study by Anestis et al. (2019) indicated that 10 out of every 100 military personnel, who are having thoughts of suicide, do not report it. A second study showed when 1,388 U.S. Army soldiers we asked if they reported injuries during a twelve-month period, 49% of them did not report the injuries that occurred to them (Smith et al., 2016). Construction, factory, and services industries show similar results of underreporting as in the construction field, manufacturing, and services industries (Smith et al., 2016).

CHAPTER 2: REVIEW OF THE LITERATURE

2.1 Occupational Safety and Health Administration (OSHA)

In 1884 the Bureau of Labor Statistics (BLS) was established, and shortly after that, they began administering worker safety studies. Many of these studies were for workplace injuries in the steel and iron industry only. In the 1910s and 1920s, workers' compensation laws were being adopted by many of the states, which required the employers to report worker injuries (Wiatrowski, 2014). Workers' compensation laws varied from state to state, which caused variations in the data (Wiatrowski, 2014). The variations skewed the results of the data, which made the data hard to interpret from a national perspective. Another problem with the data collection is that it was voluntary, which could cause underreporting of the injuries, illnesses, and fatalities occurring in the workplace because no one is held accountable. In 1926, the BLS started an annual survey to record the frequency and severity of injuries, illnesses, and fatalities in the industrial workplaces (Wiatrowski, 2014). In 1970, the federal government tried to address the concerns with the inconsistent data and underreporting of injuries and illnesses by creating the Occupational Safety and Health Act of 1970 (OSH Act), which was adopted by the Senate and the House Representatives of the United States of America (House of Representatives, 2008; Wiatrowski, 2014; Wuellner, 2016). The OSH Act was designed to keep Americans safe at work and to provide a healthy working environment by creating standards that would help protect the workers. Under the OSH Act, the Secretary of Labor was charged with developing and maintaining a capable system that would be able to collect data, show findings, and be able to interpret the occupational safety and health statistics (House of Representatives, 2008; Wiatrowski, 2014). Some employers were not required to report the number of injuries

and illnesses to BLS unless they were selected. Some of these groups are small farms, and state and local governments unless they are required to by law. The OSH Act requires states to work with the federal government in the compilation and development of occupational safety and health statistics (House of Representatives, 2008; Wiatrowski, 2014). The data varied from state to state because each state decides what data they want to give, and some states choose not to give any data at all. If a state does not participate, BLS will collect data from a small number of employers in that state to include in their data. The data is then compiled into the Survey of Occupational Injuries and Illnesses (SOII) (House of Representatives, 2008; Wiatrowski, 2014). Figure 1 shows nonfatal occupational injuries and illness rates by case type, private industry for 2003-2015 (Department of Labor, 2018). The SOII is a report that shows the data collected by the BLS on nonfatal injuries and illnesses that occur in the workplace (House of Representatives, 2008; Wiatrowski, 2014). BLS has acknowledged to some extent that underreporting is taking place; however, they are trying to find ways to reduce the underreporting (Wiatrowski, 2014).

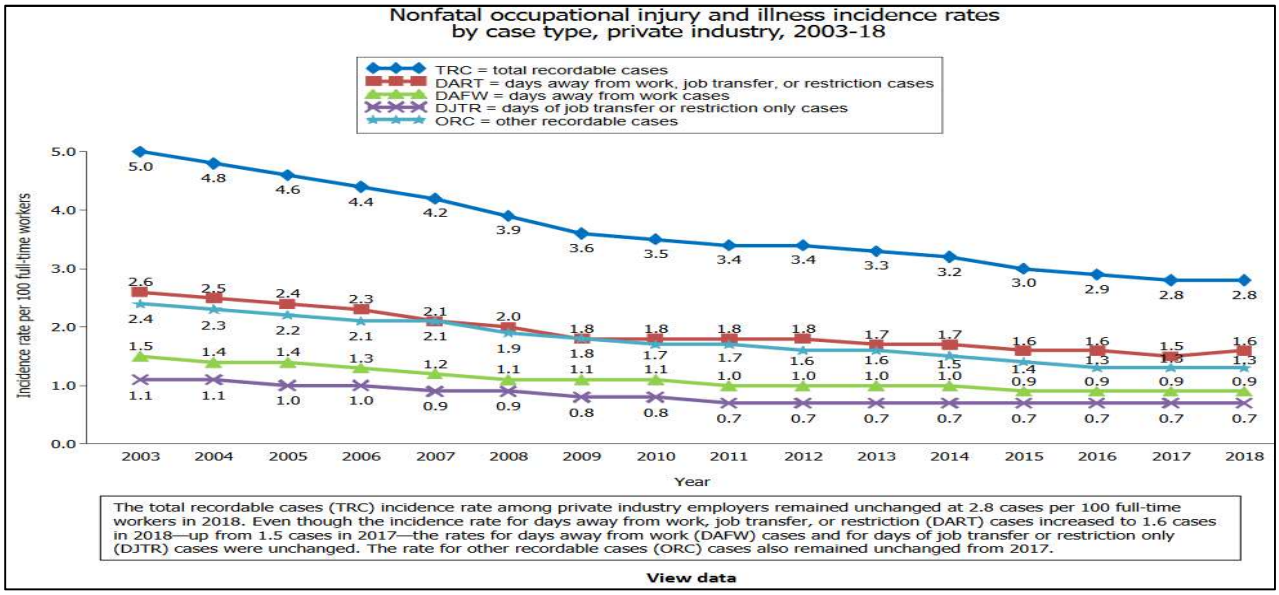

Figure 1: Nonfatal occupational injury and illness incidence rates by case type, private industry,

Note. Reprinted from "2017 SURVEY OF OCCUPATIONAL INJURIES & ILLNESSES CHARTS PACKAGE," by the United States. Department of Labor. Bureau of Labor Statistics. 2018, November 8. Retrieved from https://www.bls.gov/iif/

There is overwhelming evidence from media reports, academic studies, and worker statements that show underreporting is a severe problem in work-related injuries and illnesses in the United States (U.S. House of Representatives, 2008; Wuellner & Phipps, 2018). It has been estimated that over two-thirds of injuries and illnesses may never be reported to the Bureau of Labor Statistics (U.S. House of Representatives, 2008). If these facts are accurate, it means that many workers continue to work while they are incapacitated in some manner. The Occupational Safety and Health Administration (OSHA) continues to defend themselves by stating that injuries, illnesses, and fatalities are on the decline according to the data that they have collected. They believe their success is from the successful implementation of their programs. Although OSHA has made the workplace safer, there are still too many workers getting hurt daily, which can cause unfit workers to continue to work. In 2006, there were 5,840 fatal work injuries in the United States due to electrocutions, explosions, falls, trench collapse, vehicle crashes, and violence (Bureau of Labor Statistics, 2006). It has been estimated that 160 people die from occupational diseases daily, and over 11,000 workers are injured daily (Bureau of Labor Statistics, 2006). Congress has criticized OSHA many times because it has not been able to fulfill the original mandate of the Occupational Safety and Health Act. Congressional hearings have been held to discuss the present problems with underreporting of illnesses and injuries at OSHA, but OSHA has been able to convince the U.S. Congress that they are reducing injuries, illnesses, and fatalities by showing them reports that have been done (House, 2008). When they show the reports on injuries, illnesses, and fatalities it shows that injuries, illnesses, and fatalities continuously going down year after year. Congress realizes that underreporting is the main culprit but acknowledges that it is hard to debate the numbers that OSHA has obtained from the BLS, showing they are doing a great job (House, 2008). For the U.S. Congress to determine

whether OSHA's programs are achieving the mandate set by policymakers, they need accurate and reliable numbers that show the actual number of occupational injuries, illnesses, and fatalities that are occurring (House, 2008).

In a case study that was done by Leigh et al. (2014), it was found that there was a severe underreporting of injuries and illnesses in agriculture, which is made up of crop farms and animal farms in the United States. The case study estimated that the SOII failed to notice seventy-four percent of the crop farm incidents and eighty-two percent of the animal farm incidents (Leigh et al., 2014). When the two numbers were averaged together, it resulted in a seventy-eight percent average for the total agriculture sector. Sensitivity analysis was done on the agriculture sector, and the findings were that the incidents were not noticed between sixty-two percent to eighty-three percent of the time. Although the underreporting was significant, the BLS had previous knowledge about the ongoing problem. The SOII does not have to count farms with less than 11 employees, all self-employed farmers, and family members that work on the farms (Leigh et al., 2014). According to Pegula (2004), the underreporting may even be higher because self-employed individuals may be willing to accept more risk than a typical employee because they have more to gain. Usually, self-employed individuals have an increased fatality rate when they are compared to employees that work in agriculture jobs or workers who are not in agriculture jobs, which should be a red flag for everyone (Pegula, 2004). The results from a recent case study show that over ninety percent of the SOII participants polled were not in compliance with the OSHA recordkeeping regulations. The primary reasons why many businesses were not in compliance were due to disorganized record-keeping, misunderstandings, misconceptions, and non-compliant practices (Wuellner & Bonauto, 2014). Similar findings on noncompliance were found again when the SOII data was reviewed by researchers in 2018,

which has shown that the problem with compliance has not yet been resolved (Wuellner & Phipps, 2018). To improve the results, OSHA should provide more training and increase their outreach to make sure people understand the requirements of OSHA recordkeeping (Wuellner & Bonauto, 2014). A second study was done by Wuellner (2016) to check the reliability of the SOII results in Washington State. The data was linked to the Washington State workers' compensation claims data so that the data could be matched up to the SOII data so that a comparison could be made. The data revealed that nearly 70% of Washington State workers' compensation claims were reported in the SOII (Wuellner, 2016). The data illustrates that underreporting is still a problem in Washington State, especially in small educational services establishments.

In 1988, the U.S. General Accounting Office (GAO) was asked to review the problem of inaccuracies in employer injury and illness records and to come up with some recommendations to reduce inaccuracies (General Accounting Office, 1988). The first thing that was noticed was that if an employer was below the national average for lost workday injury (LWDI) that the employer would only receive an inspection of their records instead of a physical inspection. The GAO felt this process could lead to many kinds of dangerous situations in the workplace. When an employer has a low LWDI, they know that the government inspector will only be looking at their records so they can get away with other infractions that are on-going. If they under-record their LWDIs, it would increase the chance that they would not receive a full inspection. An inspection was performed of 200 employers, and seventy-five percent had violations. Twenty-three percent of the employers had been under-recording LWDIs in their logs (General Accounting Office, 1988). The review disclosed that inaccurate recordkeeping happens for many different reasons, which are deliberately forging records, misunderstanding of the standard,

and careless recordkeeping. OSHA has increased the size of fines and modified its review procedures to improve recordkeeping. After the LWDI was abolished, another inspection was conducted with 148 worksites. Under the old rule, only 98 inspections would have been conducted. After all the worksites were inspected, it was shown that serious violations were present above and below the LWDI (General Accounting Office, 1988).

The penalties that an employer faces can be seen in Table 1, which shows the minimum and maximum penalties that OSHA could assess a company (Senate, 2008). The fatality below was used to show the ineffectiveness of OSHA penalties. A fatal accident occurred in 2004 to a chipper attendant. The chipper machine killed the attendant due to safety features disabled by management, rendering the machine unsafe to operate. The company was cited for a serious safety violation and assessed $4,500, which was later reduced by OSHA to $2,250 (Senate, 2008).

Table 1: OSHA 2006 (Violation Penalty Chart Minimum and Maximum)

Violation Type (ranked greatest to least severity)	**Minimum Civil Penalty**	**Maximum Civil Penalty**
Willful	$5,000	$70,000
Repeat	$0	$70,000
Serious	$100	$7,000
Other than Serious	$0	$7,000
Unclassified (also known as "Section 17")	None specified	None specified

Note. Reprinted from "*Discounting Death: OSHA's Failure to Punish Safety Violations That Kill Workers,"* by the United States. Congress. Senate. The Committee on Health, Education, Labor, and Pensions, 2008, p. 7, Washington, D.C..: U.S. Senate.

In 2006, there were 5,840 worker fatalities. While injuries and illnesses have been decreasing, workplace fatalities have been increasing each year (Senate, 2008). The penalties assessed by OSHA for safety violations in worker fatalities carry smaller fines when compared to other

agencies in the United States. Six months is the maximum time the law permits for willfully violating safety violations, which results in the death of a worker in the criminal context. In the civil context, the maximum amount that OSHA can impose is a $70,000 penalty. The civil penalties are often reduced by thirty-eight to fifty-eight percent of the original amount (Senate, 2008). The harder an employer contests a penalty, the higher the amount is reduced overall. Employers usually do not ever pay the full amount of a penalty, and OSHA doesn't try to collect the amount owed to the victim. In contrast, if someone violates the South Pacific Tuna Act, The Department of Commerce has the authority to decree a penalty of $325,000 (Senate, 2008). In 1996, the Inflation Adjustment Act of 1996 required eighty of the federal agencies to increase their penalties to account for inflation every four years. OSHA was excluded from this act, which has caused the penalties to remain the same. If OSHA had kept up with inflation, the maximum penalty would have been increased by sixty-eight percent to the sum of $117,600 (Senate, 2008).

According to Abrams (2016), on July 1, 2016, the U.S. Department of Labor (DOL) increased the civil penalties for mine safety and health violations, and other types of employment law infractions. Table 2 shows the new penalties as of August 1, 2016. The new rule caused some penalties to increase as much as eighty percent. The increase was done to ensure that all agencies would be following the Federal Civil Penalties Inflation Adjustment Act as amended in 2015. The act would use the Consumer Price Index to increase the penalties due to inflation, which will be adjusted yearly. The increase would move the old maximum penalty from $70,000 to $124,709. The maximum penalties will allow OSHA to impose higher consequences for employers that violate the law.

Table 2: OSHA Penalty Charges as of August 1, 2016

Type of Citation	Max/Min Penalty Before August 1, 2016	New Max/Min Penalty After August 1, 2016
Other Than Serious	$7,000 max	$12,471 max
Serious	$7,000 max	$12,471 max
Repeat	$70,000 max	$124,709 max
Willful	$70,000 max/$5,000 min	$124,471 max/min $8,908
Failure to abate (per day)	$7,000 max	$12,471 max

Note. Reprinted from "OSHA & MSHA Penalties Significantly Increased," by Abrams, A. L., 2016, *Professional Safety, 61*(9), p. 50.

In 2007, OSHA oversaw the health and safety of 112.5 million workers in the United States. As a result of unsafe or unhealthy working conditions, there were roughly four million cases of injuries or illnesses that occurred to workers in the United States in 2007. Due to their injuries, more than 5,600 workers have died; although, there has been a steady decline in injuries and illnesses from 1992 through 2007 (General Accounting Office, 2009). Fatalities also decreased from 1991 through 2001; although, from 2002 through 2007, fatalities remained constant. OSHA accomplished this by enforcing its health and safety standards, inspections, regulations, and rules to ensure employer compliance. In the United States, there are about 8.6 million worksites. Table 3 below shows how many inspections were done per year, which were around 39,000 per year (General Accounting Office, 2009). The total inspections per year are surprisingly low, considering how many worksites there are in the United States. OSHA believes that the decline can be contributed to safer workplaces and a decrease in manufacturing jobs in the United States. Manufacturing jobs have declined by twenty-four percent since 1988 (General Accounting Office, 2009). Various disincentives could be the actual cause of the decline. Disincentives can be used by the employer to influence workers' decisions to report work-related injuries and illnesses.

Table 3: The Number of Inspections Conducted by OSHA, 2003-2007

Year	2003	2004	2005	2006	2007
Total Inspections	39,778	39,112	39,828	38,537	39,323
Programmed Inspections	22,436	21,576	21,404	21,506	23 ,035
Unprogrammed Inspections	17,342	17,536	18,424	17,031	16,288
Fatality Investigations	1,021	1,060	1,114	1,081	1,043
Complaints	7,969	8,062	7,716	7,376	7,055
Referrals	4,472	4,585	4,787	5,019	5,007
Other	3,880	3,829	4,807	3,555	3,183

Note. Reprinted from "*Workplace Safety and Health: Enhancing OSHA's Records Audit Process Could Improve the Accuracy of Worker Injury and Illness Data: Report to Congressional Requesters,*" by the United States. Government Accountability Office, 2009, p. 5, Washington, D.C.: U.S. Govt. Accountability Office.

2.2 Underreporting – Other Countries

Underreporting is not limited to the U.S.; it can be found throughout the world. It is thought that the increased industrialization of developing countries has caused a surge in fatalities. The International Labor Organizations (ILO) has reported that there are 160 million new cases of occupational injuries per year (Moreno-Torres & Ventura-Alfaro, 2018). Some of the contributing factors to underreporting are intimidation or harassment, considering pain as a normal consequence of work or aging, failure to detect or long latency periods, and improved earnings. The occupational illness in the Mexico population from 2000 to 2015 was eighty-one percent (Moreno-Torres & Ventura-Alfaro, 2018). The underreporting in Mexico was roughly twenty percent higher than in the U.S., on the other hand, they have shown a significant decrease in underreporting of occupational illnesses and injuries like the U.S. (Moreno-Torres & Ventura-Alfaro, 2018). The decrease was contributed to the implementation of new policies. In 2015, Mexico had the lowest percentage of occupational illness because of the improved diagnosing, improved reporting, and enhanced screening techniques that were being used (Moreno-Torres &

Ventura-Alfaro, 2018). Another area that needs improvement in Mexico is the medical field because medical personnel have received insufficient training for years. To address the inadequate training of the medical personnel, it will require continuing education in administrative work and recordkeeping to improve the accuracy of the medical personnel. There are still many improvements that are needed before Mexico can reduce their numbers (Moreno-Torres & Ventura-Alfaro, 2018).

Even countries with low underreporting numbers should be examined to make sure they are accurate. Italy is one example of this because, for every 100 full-time workers, there are only 3.7 workers that are injured (Petitta et al., 2017). The body of knowledge has been slowly increasing over the years for Italy, revealing problems. The research shows that the numbers that have been given are drastically underreported. Furthermore, research has shown the actual numbers are between fifty-seven and seventy-six percent (Petitta et al., 2017). The research will need to be validated before the findings can be accepted. These numbers have caused many researchers to conduct studies in underreporting in hopes to increase the accuracy. These studies have been useful in identifying several factors that can cause underreporting, which include job security, organizational safety climate, and perceived production pressure (Petitta et al., 2017). Moral disengagement is thought to be one of the reasons why underreporting is not a significant concern for many people, because they feel that ethical standards do not apply to them (Petitta et al., 2017). Canadian workers are an excellent example of underreporting because one survey showed that 57 out of 143 injured workers did not seek treatment for their injuries (Won et al., 2007). When Canadian workers do not use their sick leave for injuries, it makes it harder for the injuries to be tracked, which can cause underreporting. In South Korea, to be covered for occupational injuries and illnesses, a worker must need treatment for at least four continuous

days to receive benefits under the Industrial Accident Compensation Insurance (IACI). When a survey was given to 797 labor unions, twenty-four percent stated that their company did not report injuries and illnesses accurately. In addition, sometimes, other insurance was used instead, which can cause the injury to go underreported. The South Korea occupational injury frequency rate per one million working hours was 3.13 injured workers. Japan had a rate of 1.79 injured workers, which is significantly smaller than Korea. When Korea compares its blue-collar workers to the white-collar workers, the numbers showed that musculoskeletal injuries occurred more often to blue-collar workers at the rate of 3.47 more cases per 100 than white-collar workers (Won et al., 2007).

2.3 Underreporting Case Studies

Sometimes injuries and illnesses are not reported in construction work because it can affect the rates, which can determine if a company will be competitive when they are bidding on jobs. An example of this would be when Lipscomb et al. (2013) surveyed 1,155 carpenters from Washington State, and reported that underreporting was occurring among them. The carpenters felt they could report work-related injuries to their supervisor without the fear of being disciplined. Be that as it may, forty-seven percent of the carpenters stated that it is best not to report minor injuries that occur at work, and they sometimes use their private insurance to cover the injuries. The main reason why the carpenters were not reporting minor injuries is that they realize it can hurt a company's chance in securing a bid because worker's compensation claims are a significant factor in bidding. The more accidents a company has, the less likely they are going to win bids. Incentive programs can also cause underreporting at companies because employees are worried about losing the extra benefits. Incentives are a common practice in the

carpenter industry in Washington State; Table 4 shows how frequently rewards and incentives are given in the carpenter industry in Washington State. Table 4 also indicates that a drug test is given seventy-seven percent of the time when an injury occurs at work, which suggests that the employee is considered at fault when an injury occurs. This can be classified as disincentive because the worker is learning about the negative outcome when a worker gets hurt on the job. Based on the data collected in the survey, it can be summarized that behavioral-based safety is being implemented incorrectly because the supervisors are trying to change the worker's behavior through incentives rather than fixing the problems that are causing the injuries. The survey data can be used to show how incentives can influence employees to conceal minor injuries from their supervisors. When minor injuries go unchecked, they can sometimes develop into a more severe condition (Lipscomb et al., 2013). OSHA stated that it does not have an official policy that deals with incentive programs or practices. Still, it has the power to discourage employers if they are reporting inaccurate injury and illness numbers. OSHA recordkeeping requirements may also be responsible for some of the inaccuracy of the injury and illness data. Some of the individuals that are handling the recordkeeping do not fully understand the OSHA requirements. It is thought the misinterpretation stems from the differences between OSHA's requirements and the workers' compensation claims requirements. If a workers' compensation claim is denied, there is a chance that it will not get recorded as an injury or illness. This is because the office worker processing the paperwork does not realize that each agency has a different set of requirements. OSHA has several tools that employees can use so that they fully understand the occupational injury and illness recordkeeping requirements. If an employee has a question that they can not resolve on the OSHA website, they can call a local OSHA office or send an e-mail (General Accounting Office, 2009).

Table 4: Prevalence of Experiences with Rewards, Incentives, and Injury Reporting in Current Workplace, Union Carpenter Survey Respondents Washington State,

Type of program[a]	Prevalence percent (n)[a]
Post injury drug testing	77.5% (879)
Policy of discipline for not reporting injury	36.7% (415)
Safety coaching that focuses on workers risky or unsafe behaviors	33.0% (372)
Rewards for taken part in safety activities, identifying hazards, or correcting unsafe practices	30.6% (345)
Offered cash/prizes to individuals for no injury	29.1% (331)
Absenteeism policy that can result in discipline for too many days away from work	20.4% (232)
Offered cash/prizes to group for low injury reporting	20.4% (232)
Policy of discipline or threats of discipline for injury	16.5% (186)
Rewards to supervisors for low injury reports	15.3% (174)
Injury reporting	
Can report injuries to your supervisor or foreman without worrying about how it will affect your job	76.2% (856)
How often workers report job injuries in current workplace	
All of the time	20.2% (219)
Most of the time	46.3% (502)
Some of the time	21.6% (234)
Rarely	7.9% (86)
Almost never	4.0% (43)

[a]Programs are not mutually exclusive.
[b]Percentages based on number who responded to each item; those who responded. Do not know are not included in total.

Note. Reprinted from "Non-Reporting of Work Injuries and Aspects of Jobsite Safety Climate and Behavioral-Based Safety Elements Among Carpenters in Washington State: Non-Reporting of Work Injuries Among Carpenters," by Lipscomb et al., 2015, *American Journal of Industrial Medicine*, 58(4), p. 414.

It is essential that a business correctly counts injuries and illnesses because it affects many things that cannot be seen. It allows the government agencies to keep track of disease and injuries, which will enable them to assign their different assets to areas that need it. It also alerts them to the changing needs of the country. When underreporting occurs, it can hurt the workers. When the government is unaware of diseases and injuries, it cannot update the regulations and standards that they have in place to protect the workers. It also diminishes the amount of money that is given to different agencies, which reduces their effectiveness. When workers have not been compensated for their injuries or illnesses, the burden shifts from the employer to the employee, which can destroy a worker's finances and self-worth. Underreporting can also impact the way people feel about injured workers because if the public is not aware of a disease or illness, they may not have compassion for them. When people lose compassion for workers, it

allows them to be maltreated by the employer. Finally, it could cause injuries and illnesses to increase because people are not taking steps to protect the workers (Spieler & Wagner, 2014).

An example of a manager abusing their power for a self-gaining purpose happened when a federal contractor decided to omit some of the injuries and illnesses that were facing his employees so that he could get a more significant bonus from the federal government. The employee was a federal contractor for the Tennessee Valley Authority (TVA). The contractor was supposed to provide maintenance and modifications for the TVA. The federal contractor was falsifying injury rates so that the federal contractor company would qualify for safety bonuses. From 2004-2006 the contractor collected safety bonuses worth over 2.5 million dollars. In 2008, the TVA filed a civil suit against a federal contractor. On November 12, 2013, the federal contractor was given 78 months in prison for committing fraud against the TVA. The judge sentenced the individual more severe after the evidence showed that the individual was a willing participant to fraud (Former Shaw Group Safety, 2013).

A case study was conducted in Tar Heel, North Carolina, at the Smithfield Packing Plant because the injury rate was increasing at an accelerated rate (Research Associates of America, 2006). In 2005, the plant had 421 injuries for the entire year. In the first seven months of 2006, there had been 463 injuries that occurred at the plant. If the plant continued to have accidents at this rate, the total for the year would be 794 injuries, which would be an increase of eighty-nine percent. There was an average of 66 injuries per month or three injuries per day. From May 1 to July 31, 2006, the findings showed that repetitive motion was increasing faster than any other type of injury. Since Jan 1, 2004, a total of 221 repetitive motion disorder or tendonitis had been reported; out of the 221 reported injuries, thirty percent occurred from May 1 to July 31, 2006. OSHA logs said the injuries could have resulted because of excessive line speed or the lack of an

ergonomics program. Yet, workers reported that wet floors were causing injuries. These floors were causing slip and fall accidents, vehicle accidents, and equipment accidents due to the slippery floors. The wet floors resulted in 257 reported contusions and blunt traumas. Also, there were 217 reported sprains and strains caused by the wet floors. The sharp tools used by the workers would sometimes produce accidental cuts and puncture injuries because of blade slippage. Twenty amputations and avulsions occurred at the plant. Also, the plant had many minor injuries that were occurring, such as burns, hernias, rashes, and swelling. The workers reported that the managers used fear and intimidation so that the workers would not report the injuries. Sometimes the managers would tell the workers that the injury was reported, but the workers wouldn't find out until later that the workers' compensation coverage had been denied or that a claim had not been submitted for the injury. This caused many of the workers to hire lawyers so they could receive the coverage that they deserved. There were only two planned safety inspections by the North Carolina Department of Labor Occupational Safety and Health Administration (NCDOL-OSHA) from 2002 to 2005 at the Smithfield Packing Plant. Over a ten year period, NCDOL-OSHA has been to the plant at least ten times due to accidents and complaints. The recommendations from NCDOL-OSHA were that the plant should be inspected yearly and reduce the production levels so that workers could work in a safer environment (Research Associates of America, 2006).

2.4 Military Underreporting

A recent case study showed that underreporting is a chronic problem in the U.S. military (Smith et al., 2016). When 1,388 U.S. Army infantry soldiers were asked how many injuries occurred over the past twelve months, the response was 3,202 injuries. When the soldiers were

asked how many of these injuries were reported, they said that fifty-one percent were reported, which means that forty-nine percent went underreported. It was also noted that most soldiers do not report injuries because they are afraid of receiving a profile (physical restrictions) or be denied future promotability in the military (Kovcan et al., 2019). Another study showed that the U.S. Army had a higher rate of suicide when compared against the other branches of the U.S. military (Department of Defense, 2019). The survey by Smith et al. (2016) asked the soldiers why they chose not to report the injuries, and the results can be seen in Figure 2. The two most common answers for underreporting was that the soldiers were afraid that an injury would affect their careers in the Army, and they wanted to avoid being placed on a duty-limiting profile (light duty). The reasons given in Figure 2, shows the responses of the U. S. Army soldiers when asked why they do not report injuries. It also shows how soldiers view the medical treatment given by the Army and the repercussions that it can have when a soldier receives medical treatment. The values in Figure 2 are presumed to be an estimate because the data in the figure was not given in the case study. The case study shows that underreporting in the military should be examined further to see if it can be reduced or eliminated. Another study showed that when soldiers from the United Kingdom (UK) reported mental illness in the military, it had a stigma associated with it, which made soldiers not want to report being ill. This has caused underreporting to occur in the UK's military. Trials were conducted to see if they could lower the stigma associated with mental illness, but the results were inconclusive. More research was needed to see if de-stigmatization programs would work for the soldiers (Johnson & Agius, 2018).

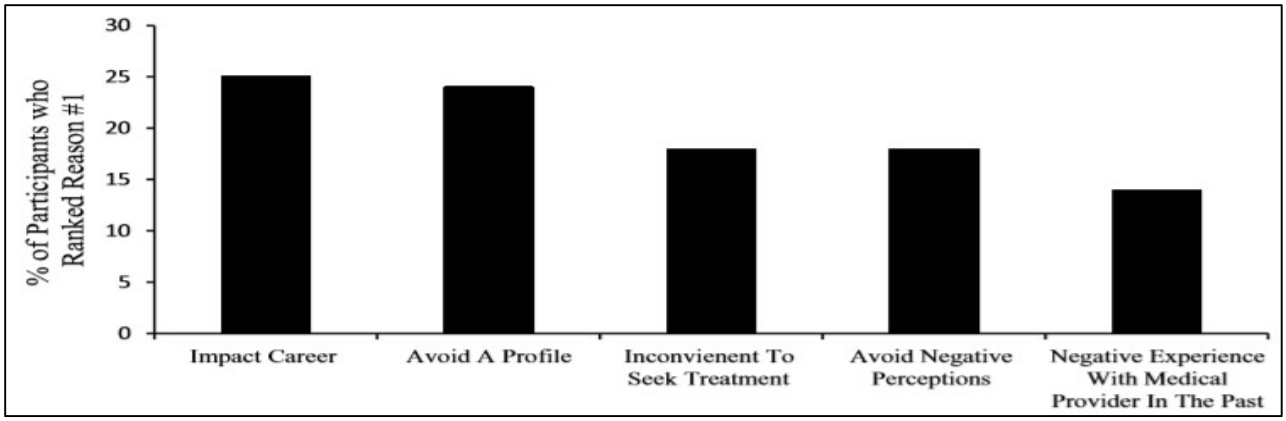

Figure 2: The Most Common Reasons Reported by Soldiers for Underreporting Injuries

Note. Reprinted from "Underreporting of Musculoskeletal Injuries in the US Army: Findings from an Infantry Brigade Combat Team Survey Study," by Smith et al., 2016, *Sports Health: A Multidisciplinary Approach, 8*(6), p. 511.

Underreporting of suicide ideation by soldiers is another problem that faces the military both while the soldiers are in the military and after leaving the military. The suicide rate for the National Guard has been increasing over the past several years. A case study was done of 497 National Guard personnel to measure their suicide ideation (Anestis et al., 2019). The findings showed that many of the National Guard soldiers had underreported ideation of suicide. The researchers felt that if they worked with the soldiers, it would have improved the assessments of individuals in the National Guard. If additional soldiers were studied, it would allow the researchers to develop methods to reach individual soldiers. Although the results are preliminary, the researchers hope that their research can be used in the future as a roadmap for others to use and develop effective ways to treat injured soldiers (Anestis et al., 2019). Another way that underreporting can occur is when the injury is not reported correctly through the entire chain of command. Hsieh et al. (2003) found that during 1985, the Army 101st Airborne Division located at Fort Campbell reported eye injuries at a rate of 132.6 per 1000 employees. During the same year, the Army Safety Center at Fort Campbell only reported four eye injuries for the entire base,

which shows how paperwork can cause underreporting to take place. The Army Safety Center at Fort Campbell should have had higher results because they are tracking the fatalities, injuries, and illnesses for the entire base.

According to Fouts et al. (2015), Musculoskeletal Injuries (MSI) present a problem to the U.S. military because of the medical expense, disability pay, and separation that they cause, which can make the military less effective. Many jobs and tasks in the military are physically stressful to the soldier's body, which can increase the risk of MSI. MSIs are responsible for over 50% of disease and nonbattle injuries. A military job that falls into this category is military personnel that are assigned to the aeromedical team, which has two flight nurses and three medical technicians. Due to the small quarters of the helicopter and heavy lifting that is required, it puts them at a higher risk for developing MSI. If a military aeromedical team member seeks treatment for an MSI, they could face losing their flight status, which would remove them from the aeromedical team. Evidence from a recent study has shown that underreporting has been going on because military soldiers are afraid of job loss if they report an injury (Fouts et al., 2015). The fear of losing one's flight status is a unique problem that only faces a small portion of the military because not many jobs in the military require a soldier to maintain their flight status. When 1,366 post-deployment health assessment (PDHA) military aeromedical nurses were compared to 1,959 military nurses, the results showed that military nurses were more likely to complete the forms than aeromedical nurses. The study also shows that military nurses had a 1.2% higher MSI reporting than the aeromedical nurses, which should not have been possible because the aeromedical nurses are more prone to MSI injuries. The authors hypothesized that aeromedical nurses do not seek medical treatment until the last possible second because they are afraid of losing their flight status. Research by Kovcan et al.

(2019) on the Slovenian Armed Forces (SAF) also supports that underreporting is happening in that country's military. One of the main culprits is how they determine when an injury is a time-loss injury or not. The requirement for a time-loss injury is that a soldier must be absent from work for more than three consecutive days in a row. This policy overlooks minor MSD that could potentially become permanent MSD over time. When soldiers were interviewed about past injuries, it was shown that past injuries are significantly associated with current injuries and that MSIs occur more often than recorded. The study showed that MSIs are occurring at a rate of forty-nine percent instead of five percent, which was reported by SAF (Kovcan et al., 2019).

Another survey that showed underreporting in the military was conducted by (Hourani et al., 2012) on 3,770 Marines that were attending a Transition Assistance Program (TAP), which is used to help military personnel transition from the military to civilian life. The Marines attending took the Post-Deployment Health Reassessment (PDHRA). A total of 355 out of the 3,770 Marines were chosen by only selecting Marines that were mandated to take the program and took the survey within ninety days of the survey. The mandated Marines' PDHRA were compared against voluntary research-based PDHRA. The results can be seen in Table 5, which shows how often underreporting happens for different ailments. The numbers overall show how serious the problem of underreporting is in the Marines Corps. The prevalence rates overall were double the typical amount when they are compared against the Department of Defense PDHRA numbers. This shows underreporting is occurring in all of the military branches in the U.S.

Table 5: Percent Frequencies, Prevalence, and Underreporting Statistics (N = 355)

Item	Number Missing		Endorsement Frequencies		Prevalence (%)			Underreporting (%)
	Mandated PDHRA	Survey	Mandated PDHRA	Survey	Mandated PDHRA	Survey	Ratio	
Chronic Cough	0	0	4	25	1.13	7.04	6.25	7.12
Fever	0	0	0	4	0.00	1.13	—	1.13
Weakness	0	0	21	33	5.92	9.30	1.57	6.29
Headaches	0	0	48	105	13.52	29.58	2.19	21.82
Swollen/Stiff/Painful Joints	0	0	66	148	18.59	41.69	2.24	38.06
Back Pain	0	0	90	216	25.35	60.85	2.40	49.81
Muscle Aches	0	0	40	136	11.27	38.31	3.40	34.60
Numbness/Tingling Hands/Feet	0	0	26	76	7.32	21.41	2.92	17.63
Skin Diseases or Rashes	0	0	19	36	5.35	10.14	1.89	7.74
Ringing in the Ears	0	0	62	133	17.46	37.46	2.15	31.06
Redness of Eyes w/ Tearing	0	0	12	23	3.38	6.48	1.92	5.25
Dimming of Vision	0	0	8	16	2.25	4.51	2.00	4.32
Chest Pain or Pressure	0	0	19	49	5.35	13.80	2.58	9.82
Dizziness/Fainting/Light Headedness	0	0	11	33	3.10	9.30	3.00	8.14
Difficulty Breathing/Shortness	0	0	12	30	3.38	8.45	2.50	7.29
Diarrhea/Vomiting/Indigestion	0	0	14	28	3.94	7.89	2.00	4.99
Problems Sleeping/Tired	0	0	73	172	20.56	48.45	2.36	39.72
Difficulty Remembering	0	0	55	117	15.49	32.96	2.13	22.67
Increased Irritability	0	0	60	130	16.90	36.62	2.17	27.12
Risk Taking (e.g., Driving Fast)	0	0	13	43	3.66	12.11	3.31	10.53
Self-Harming Ideation[a]	5	2	1	15	0.56	8.24	14.75	7.39
Might Hurt/Lose Control w/ Other	15	79	8	87	2.35	31.52	13.40	30.74

[a]Comparison data for this item was only available on our first survey administration, thus the total *N* for this item was 184.

Note. Reprinted from "Comparative Analysis of Mandated Versus Voluntary Administrations of Post-Deployment Health Assessments Among Marines," by Hourani et al., 2012, *Military Medicine, 177*(6), p. 644.

The Department of Defense (2019) released its Department of Defense Suicide Event Report (DoDSER) Calendar Year 2016, which reports on military suicide mortality and attempted suicides between 01/01/2016 and 12/21/2016. Figure 3 below shows a comparison between population rates for men and women in the military versus men and women residing in the U.S. The data is very skewed because population rates are higher for the military personnel in the early ages versus the U.S. population. The U.S. population remains consistent with only a few variations shown in Figure 3. The population rates reduce in the later years for military personnel because military personnel usually retire after twenty years of service (Department of Defense, 2019). Most people join the military between 18-23 and leave or retire within 20 years after their start date. Figure 3 shows how population rates dramatically diminish after the age of 39 because of the retirements that have occurred. The Department of Defense says this can skew the results of suicide because most people in the military are in one age group instead of being

equally dispersed among all ages. Some researchers have claimed that misclassifications of suicides on death certificates of both active duty military and veterans have caused underreporting to happen. Huguet et al. (2014) researched the topic and found that misclassifications did not impact the suicide rate of military personnel. Although, the results revealed that there was a higher suicide rate for younger male and female military personnel. When military suicide rates were compared against the suicide rates for the U.S. population, the rates were considerably higher until the later years. When a closer look is taken at individual branches of the military, it was noticed that the National Guard and U.S. Army had a higher rate of suicides than the other branches (Department of Defense, 2019). According to Anestis et al. (2019), military personnel are at an increased rate for suicides, and attempts made by them are usually more successful when compared to the U.S. population. The DoDSER reported that there were 1,263 attempted suicides during 2016, which demonstrated that there is a serious problem in the U.S. military concerning suicides and attempted suicides (Department of Defense, 2019).

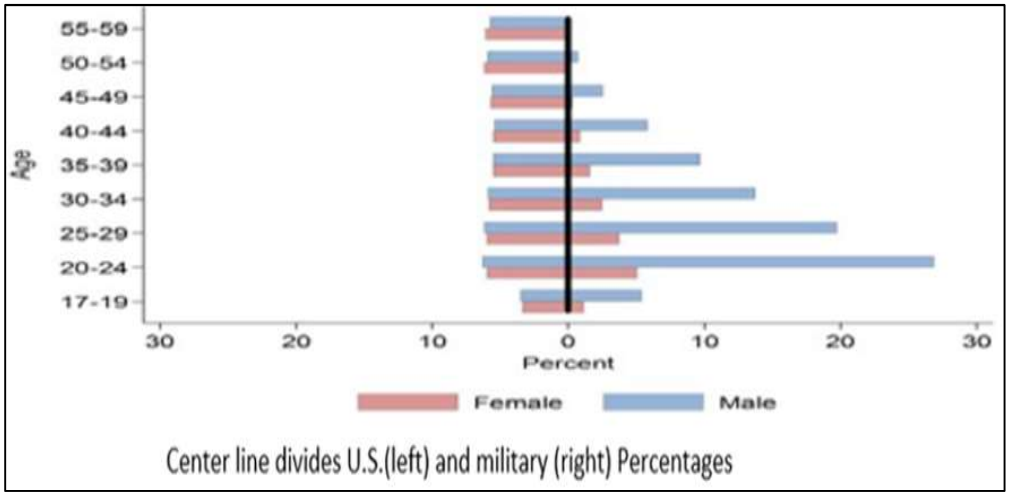

Figure 3: Population of U.S. vs. U.S. Military

Note. Reprinted from "Department of Defense Suicide Event Report Calendar Year 2016 Annual Report", by the U.S. Department of Defense. 2018 June 20. Retrieved from https://www.dspo.mil/Portals/113/Documents/DoDSER%20CY%202016%20Annual%20Report_For%20Public%20Release.pdf?ver=2018-07-02-104254-717

When military personnel have completed their contracts or when they are separated from the military, they receive the title U.S. Veteran. The suicidal tendencies that occurred on active duty or that were underreported on active duty do not magically disappear when a person leaves the military. The problem only tends to compound over time, as seen in Figure 4. The U.S. Department of Veterans Affairs (2019) has reported that the suicide rate of veterans is 2.1 times higher when compared to non-veteran adults in the U.S. Suicide rates were found to be the highest between the ages of 18-34 year-old veterans, which is the same age range that the U.S. Department of Defense (2019), found in their study. Figure 4 compares the suicide rate for veterans and non-veterans between the ages of 18-34 and shows how the suicide rates are higher for veterans (Department of Veterans Affairs, 2019). Even though there is a strong correlation between suicides in the military and veterans' suicides the only way that cases can be linked is if mental illness diagnoses done during military service, and then only if the illness continues after being discharged from the military service. Many cases that go underreported in the military cannot be tied back because of this reason, which makes it hard to connect the mental illness to the military. The U.S. Veterans Affairs has been more lenient since Desert Storm. The U.S. Veterans Affairs will evaluate veterans that served in combat that were not diagnosed with mental illness during the military so that it can be connected to the military (Department of Veterans Affairs, 2019). This not only helps the veteran, but it also reduces the number of suicides that occur to U.S. Veterans. This measure will hopefully reduce the number of U.S. Veteran suicides.

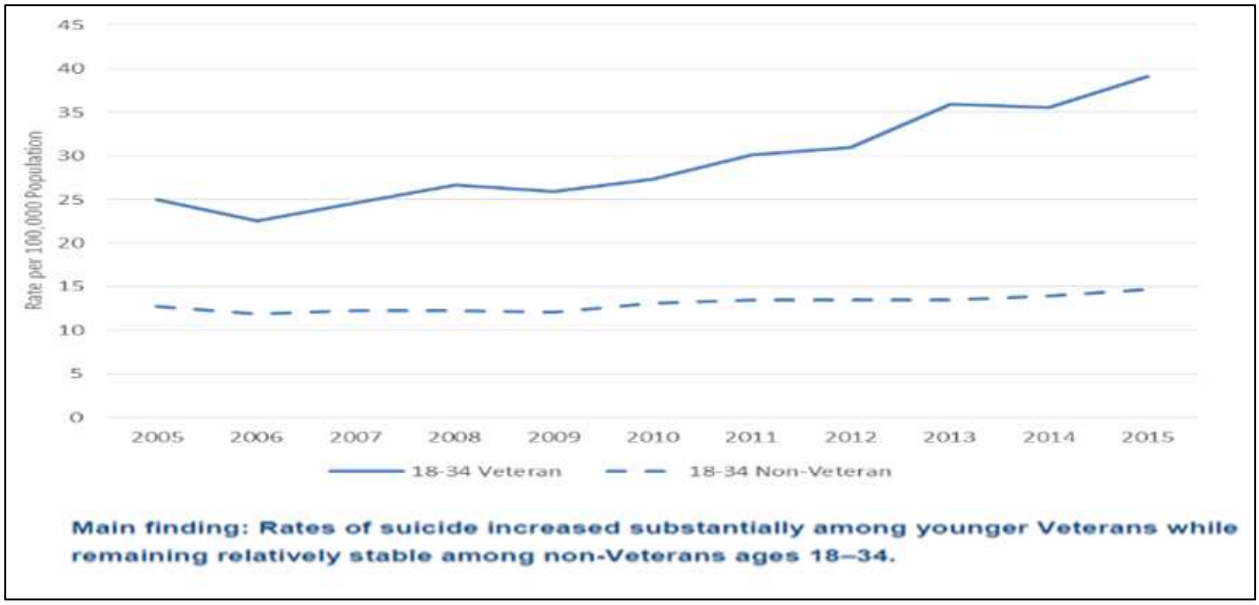

Figure 4: Rates of Suicide Among Veterans and Non-Veterans Ages 18-34, Between 2005-2015

Note. Reprinted from "VA National Suicide Data Report2005–2015," by the U.S. Department of Veterans Affairs. 2018, June 1. Retrieved from https://www.mentalhealth.va.gov/docs/data-sheets/2015/OMHSP_National_Suicide_Data_Report_2005-2015_06-14-18_508.pdf

CHAPTER 3: METHODS

3.1 Objectives

The aim of the research was to evaluate the extent and magnitude that underreporting of injuries and illness is occurring in the U.S. military and to assess the underreporting after the military service to see if the practice continued or diminished over time. The results from 100 U.S. veterans' participants that took the Military Survey were compared against the results from the 100 U.S. veteran participants and 100 U.S. civilian participants that took the Civilian Survey. The results from the two surveys were compared to see if U.S. veterans or U.S. civilians have a higher rate of underreporting of injuries and illnesses.

3.2 Participants

The Researcher used various types of methods to gather data. The analyzed data was used to reveal answers, evoke discussion, and compare results so that the researcher could make informed decisions on the data that was collected. Before selecting a survey method, research was done to determine what survey method should be used. The research revealed that each type of survey method has its own advantages and disadvantages to using them. The four major types of surveys are face to face, online, telephone, and mobile devices. Face to face surveys allow the researcher personal interaction between the participant and the researcher. Although, they can take a great deal of time to administer and be expensive because of the supplies that are needed (Szolnoki & Hoffmann, 2013). Online and mobile device surveys are cheaper to administer because they can be done without the use of paper surveys and pens. The results from the survey can be transmitted over the internet or wirelessly to another device. The major drawback to

these types of surveys is that there is no personal interaction between the participant and researcher and the response rate can be smaller when compared to face to face or telephone surveys responses. Telephone surveys allow the researcher to interact with the participants while saving money on paper surveys and pens that would be needed for face to face surveys. The one major drawback is that many people do not answer their phones every time, which can decrease the response rate (Szolnoki & Hoffmann, 2013).

A recent study in wine consumer research showed that face to face surveys were the preferred method followed by telephone surveys (Szolnoki & Hoffmann, 2013). A second study also suggested that when personal interactions are needed during an interview that face to face and telephone surveys are better to use than online surveys (Opdenakker, 2006). In addition, the veterans' group at ECU suggested that online surveys would not be a good idea to obtain information about the veterans on campus. The researcher was informed by the veterans' group at ECU that they only receive on average ten internet survey responses per survey from all the veterans at ECU. There are currently over 1,400 students that are veterans that attend ECU (University, Life & University, 2020).

The paper and phone surveys were selected for this study because of the researcher's personal connection to many of the participants, which allowed interaction between the researcher and the participants. The empathetic interaction put the participants at ease, which improved the results of the surveys because the participants felt comfortable with the researcher. Online and mobile surveys were eliminated because it is challenging to get people to fill out surveys online and next to impossible to obtain qualitative data. The paper survey allowed the researcher to ask professional colleagues and friends to participate, which allowed them to tell their friends and family about the survey, which lead to more participants who were willing to take the survey. In

order to make the participants feel comfortable completing the survey, each survey was numbered; therefore, linking each participant to a number to keep anonymity. The phone survey was used to contact colleagues or friends that have moved away over the years so that they could take part in the surveys. To locate additional veterans, the researcher used the veterans' lounge at East Carolina University, called other veterans, and attended local veteran's association events. Over fifty veterans initially agreed to take the survey, and ten of those veterans were willing to answer the qualitative questions on the survey. In addition, the researcher had acquired many personal and business acquaintances over the last thirty years in the workforce, which were contacted and surveyed. The researcher is medically retired from the U.S. Postal Service and is also medically retired from the U.S. Marine Corps, which gives the researcher a connection to both groups. The researcher chose to investigate the underreporting of occupational illnesses and injuries because the data will assist the government and employers with identifying and treating ill and injured workers more effectively.

Two surveys were developed based on participants who served in the military and participants who work in the United States workforce with military experience and no military experience. Each group was given a different survey; however, the civilian questions were identical to the military except questions 3-5. These questions were worded differently, so information about work history in the military and civilian work history could be obtained. The military group did both surveys so that a comparison could be done on them during military service and then after military service. Question 19 was only on the civilian survey. All participants had the opportunity to see and answer question 19. The questions on the surveys were derived from previous research results (Kovcan et al., 2019; Johnson & Agius, 2018; Smith et al., 2016; Lipscomb et al., 2013) and the researcher's life experiences as a Disabled Veteran. The surveys

focused on understanding the participants' experience related to incentive programs, fear of reporting, the stigma associated with reporting, etc. This was done so a comparison could be made between the two groups. The Military Survey and the Civilian Survey was given to 100 U.S. veterans, and the Civilian Survey was given to 100 U.S. citizens with no prior military experience. There were 150 green military surveys produced, and 300 white civilian surveys produced in case additional surveys were needed, which brought the final number of surveys to 450. The remaining copies were destroyed at the end of the study. When the surveys were completed, or not in use, they were stored in a locked drawer.

The Military Survey was developed to assess underreporting of injuries and illnesses that occurred while in the military. The Civilian Survey was designed to ask U.S. veterans and U.S. citizens the same type of questions to see how common underreporting of injuries and illnesses are in the U.S. workforce. When conducting the survey, the participants were told that an injury/illness was defined as something that required more than first aid or an injury/illness that got worse overtime effecting the participants quality of life. No incentives were offered or given during the survey and all participants who were asked to complete the survey did complete the survey. Each participant was asked a qualitative question at the end of the survey, and they had the option to answer the question or not. The researcher asked, "can you tell me a time that you have not reported an injury/illness or seen someone else not report an injury/illness." The first part of the assessment assessed if U.S. veterans report injuries and illnesses more often after being discharged from the military. The second part of the evaluation assessed the results from the Military Survey to the results of the civilian participants from the Civilian Survey to see if underreporting is more common in one group than the other. The minimum age to participate in the survey was eighteen years. The military participants needed U.S. military experience and

one year of work experience outside the military. The civilians had to be U.S. citizens, had no military experience, and had to have at least one year of work experience. A pilot study was done to check the validity of survey questions for the two different surveys that were used in the study. The participants were randomly selected from the general population to ensure there was a wide range of ages represented in the study. The first pilot study group consisted of a 21-year-old, 35-year-old, 45-year-old, and 57-year-old who never served in the military. They were asked to review the survey questions for the Civilian Survey to find out if there were any discrepancies. No discrepancies were found in the Civilian Survey. The second pilot group consisted of a 19-year-old, 29-year-old, 43-year-old, and 62-year-old who served in the military. They were asked to review the survey questions for the military survey to find out if there were any discrepancies. No discrepancies were found in the military survey either. Both surveys were administered after approval was given by the East Carolina University & Medical Center Institutional Review Board (UMCIRB). See Appendix A.

Each participant was given two surveys if they had served in the military and one survey if they did not. The participants also received a Survey Research Consent Letter, which can be seen in Appendix B. The letter explains what the research is about, who is performing the research, the rights of the participant, and how to contact the researcher or UMCIRB if any additional information was needed.

The results from each survey were put into an Excel spreadsheet. The data was then imported into the International Business Machine (IBM) Corporation software program named Statistics Product and Service Solutions (SPSS) version (22.0; IBM Corporation). The data was divided into three subgroups so that the data could be compared against each other. The three subgroups were named During Military, Civilian, and After Military. Each subgroup was then asked

questions based on a period of time in an individual's life. The During Military group were asked questions based on events that occurred during time in the military, the Civilian group were asked questions based on events that occurred while they were in the U.S. workforce, and the group named After Military were asked questions based on events that occurred while they were in the workforce after the military. The two military groups were comprised of the same veterans. The veterans' time was separated so that the events that occurred in the military could be compared against events that occurred after the military or compared against the civilians.

The Civilian Survey was given to 100 U.S. civilians and 100 U.S. veterans to evaluate the extent and magnitude that underreporting of injuries and illness is occurring in the U.S. Military and to assess the underreporting after military service to see if the practice continued or diminished over time. The results from the Military Survey were compared against random participants that had no military service and participants that have prior military service. The veterans took two surveys, the Civilian Survey and Military Survey, to see if underreporting has increased or decreased since leaving the military. By doing this research, the researcher hopes to learn if U.S. veterans or U.S. civilians have a higher rate of underreporting of injuries and illnesses. The same group of veterans took the Military Survey and the Civilian Survey. Nonetheless, their responses were vastly different between the two surveys. The following paragraphs will discuss some of the information that was obtained from the surveys. The three survey groups are During Military, After Military, and Civilians. The data responses to question 17 and 18 were condensed down so that they would be more natural to talk about. The data responses named "Never" or "Rarely" were combined into one data response called "Never or Rarely." The "Sometimes" data response remained the same. The data responses named "Often" or "Always" were combined into one data response called "Often or Always." After the

data responses were condensed down from five to three, it made the information easier to compare and contrast.

3.3 Chi-square Test of Independence

Chi-square test of independence was used to examine if a relationship existed between the categorical variables. The data was reviewed to make sure that it met all the requirements that were needed for the chi-square test of independence. The data in the Military Survey and data in the Civilian Survey from the civilians were examined to see if a relationship existed between the two groups. The data from the two groups were checked to make sure that they met all the requirements. The data requirements were that there had to be two categorical variables, independence of observation, the variables had two or more categories, and a large sample size (Levine, Stephan & Szabat, 2017).

The data was analyzed using SPSS. A p-value of less than 0.05 was selected to indicate that a relationship existed between the categorical variables. The Chi-square p-value represents the probability that a result occurred by chance alone. A small p-value of less than 0.05 indicates that there is a statistically significant difference between the two variables being compared. A p-value of 0.05 indicates that the data could go either way, so for this paper, the variables will not be statistically significant. Finally, a p-value of greater than 0.05 will indicate that there is not an association between the variables (Laerd Statistics, 2016).

3.4 McNemar's Test

The Chi-square Test of Independence could not be used on the data from the Military Survey and the data from the Civilian Survey done by prior military participants because the subjects were related to each other, making them dependent variables. However, there is a chi-square test that can be used to compare dependent variables, which is called the McNemar's Test. McNemar's test was designed to analyze the pretest and posttest study groups. It is commonly used to analyze nominal data of match pairs to see if an association existed between the variables. The test was used to compare the data in the Military Survey and data in the Civilian Survey done by prior military participants to see if a relationship existed between the two groups (Laerd Statistics, 2016).

The data was analyzed using SPSS. A p-value of less than 0.05 was selected to indicate that a relationship existed between the categorical variables. The same criteria used to determine the p-value in the Chi-square Test of Independence was used again to evaluate the findings in the McNemar's Test because both tests used the same criteria to evaluate the test results.

CHAPTER 4: RESULTS

4.1 Descriptive Results

4.1.1 Civilian Survey (Civilians) Descriptive Results

The Civilian Survey (Civilians) data showed that 54% of the participants were females, and 46% were male. The participants were sorted into three different age groups for later comparisons. The first age group contained 69% of the participants and was between the ages of 18-32. The second group had 8% and was between the ages of 33-45. The final group had 23% and was between the ages of 46-77. All the participants had one year in the workforce and were older than 18. Next, the number of years in the workforce was separated into three groups. It was broken into three groups so that it could be compared against the veterans that took the survey. The first group had participants that were in the workforce from 1 to 7 years and had the most significant percent, which was 54%. The second group had 17% and contained people that had been in the workforce between 8 to 15 years. The final group had 29% and included people that had been in the workforce between 16 to 50 years.

Next, the participants were asked questions based on if an injury or illness occurred at work that affected them. The participants revealed that 23 out of 100 were hurt at work, and 11 out of the 23 sought medical treatment. Also, 13 out of the 23 participants reported the injury/illness when it happened at work, which suggests that underreporting is occurring at the rate of 43% or 10 out of the 23 participants didn't report an accident when it occurred. They also reported that 16 out of the 23 fully recovered; however, 7 out of the participants said they continued to work while they have a work-related injury, work-related illness, or occupational disease. The number of participants who continue to work was slightly higher than expected because many people

have more than one disability. This information was obtained from the participants during the surveys.

The last set of questions on the survey was directed to those who didn't report injuries/illnesses at work. The first question asked if they had ever seen a worker not report an injury when it happened. A total of 21 out of the 100 participants responded, saying that they had seen someone not report an injury a total of 290 times, which indicates that 21% of the participants have seen underreporting while at work. The main reason why the participants did not report injuries because they had to get the job done and did not want to cause problems. The last question on the survey asked, "Does safety have a high priority at jobs," 57% said often or always.

4.1.2 Civilian Survey (After Military) Descriptive Results

The Civilian Survey (After Military) data showed that 22% of the participants were females, and 78% were male. The participants were sorted into three different age groups for later comparisons. The first age group contained 46% of the participants and was between the ages of 18-32. The second group had 21% and was between the ages of 33-45. The final group had 33% and was between the ages of 46-77. All the participants had one year in the workforce and were older than 18. Next, the number of years in the workforce was separated into three groups. It was broken into three groups so that it could be compared against the veterans that took the survey. The first group had participants that were in the workforce from 1 to 7 years and had the most significant percent, which was 47%. The second group had 23% and contained people that had been in the workforce between 8 to 15 years. The final group had 30% and included people that had been in the workforce between 16 to 50 years.

Next, the participants were asked questions based on if an injury or illness occurred at work that affected them. The participants revealed that 7 out of 100 were hurt at work, and 6 out of the 7 sought medical treatment. Also, 4 out of the 7 participants reported the injury/illness when it happened it work, which suggests that underreporting is occurring at the rate of 43% or 3 out of the 7 participants didn't report an accident when it occurred. They also reported that 5 out of the 7 fully recovered; however, one participant said that they continue to work while they have a work-related injury, work-related illness, or occupational disease, and one participant did not respond. Another participant did not select a response on the survey.

The last set of questions on the survey asked about workers who didn't report injuries/illnesses at work. The first questions asked if they have ever seen a worker not report an injury when it happened. A total of 22 out of 100 of the participants responded, saying that they had seen someone not report an injury 327 times, which indicates that 22% of the participants have seen underreporting while at work. The two main reasons why the participants did not report injuries were because they wanted to go home on time. When asked, "In general, does safety have a high priority at jobs," 75% said often or always.

4.1.3 Military Survey (During Military) Descriptive Results

The Military Survey (During Military) data showed that 22% of the participants were females, and 78% were male. The participants were sorted into three different age groups for later comparisons. The first age group contained 46% of the participants and was between the ages of 18-32. The second group had 21% and was between the ages of 33-45. The final group had 33% and was between the ages of 46-77. Each military member was asked which branch of the military that they served in, and the results were U.S. Air Force 12%, U.S. Army 31%, U.S. Coast Guard 5%, U.S. Marine Corps 31%, U.S. Navy 21%. All the participants had one year in

the workforce and were older than 18. Next, the number of years in the workforce was separated into three groups. The first group had participants that were in the workforce from 1 to 7 years and had the most significant percent, which was 54%. The second group had 30% and contained people that had been in the workforce between 8 to 15 years. The final group had 16% and included people that had been in the workforce between 16 to 50 years.

Next, the participants were asked questions based on if an injury or illness occurred at work that affected them. The participants revealed that 71 out of 100 were hurt at work, and 58 out of the 71 sought medical treatment. Also, 48 out of the 71 participants reported the injury/illness when it happened it work, which suggests that underreporting is occurring at the rate of 32% or 23 out of the 71 participants didn't report an accident when it occurred. They also reported that 33 out of the 71 fully recovered; however, 52 participants said that they continue to work while they have a work-related injury, work-related illness, or occupational disease. The number of participants who continue to work was slightly higher than expected because many people have more than one disability. This information was obtained from the participants during the surveys.

The last set of questions on the survey asked about workers who didn't report injuries/illnesses at work. The first questions asked if they have ever seen a worker not report an injury when it happened. A total of 80 out of 100 of the participants responded saying that they had seen someone not report an injury 2,612 times total. The number would have been larger but the ten responses that said in the 100s were rounded down to 100 since an accurate number was not given. The number indicates that 80% of the military has seen underreporting while at work. Most of the responses that said in the 100s came from infantry personnel from various military branches. The main reason why the participants did not report injuries is that they had to get the

job done. When asked, “In general, does safety have a high priority at jobs,” 42% said sometimes and 39% often or always.

The two surveys, military and civilian, were completed by 200 participants in total. The civilians with no prior military only took the Civilian Survey. The two surveys had identical questions except for questions three through five on both surveys. The Civilian Survey also had an additional question, question 19, which every participant was asked to answer. The following three questions were only on the Civilian Survey. Question three on the Civilian Survey asked, “Have you had a job for more than one year in your life?” Question four on the Civilian Survey asked, “What type of work do you perform?” Question five on the Civilian Survey asked, “How many years have you been in the workforce?” The information was needed so that the surveys could be compared against each other.

The military participants completed both the civilian survey and the military survey. Questions three through five on the military survey were slightly different than the Civilian Survey so that additional information could be obtained. Question three asked, “What branch of the United States military did you serve in the primary?” Question four asked, “What was your military job equivalent to in the private sector?” Question five asked, “How many years did you serve in the military?” The different questions were needed so that detailed information could be developed on the individuals taking the surveys and to ensure that everybody had some work experience.

4.2 Chi-square Test of Independence Results and Alternative Hypotheses: Military Survey (During Military) and the Civilian Survey (Civilians)

The survey questions were used to develop several hypotheses. The hypotheses came from questions 6, 13, 15, 17 (a-k), and 18, which can be seen in the military survey or the civilian

survey in Appendix C and D. The data will be compared by using the Chi-square test of independence. The hypothesis for each question and the results of the chi-square test will be seen in the results section of this paper.

4.2.1 Hypothesis C1 (HC1)

HC1: Work-related injury frequency will be different between military work and civilian work.

A chi-square test of independence was conducted to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(1) = 46.246$, $p < .001$ (Laerd Statistics, 2019).

The results showed that military workers were more likely to become injured compared to civilian workers.

Table 6: Chi-square Results from HC1

Crosstab

			HC1: Have you ever been injured at work?		
			Yes	No	Total
During Military or Civilian Work	During Military Service	Count	71	29	100
		Expected Count	47.0	53.0	100.0
	Civilian Work	Count	23	77	100
		Expected Count	47.0	53.0	100.0
Total		Count	94	106	200
		Expected Count	94.0	106.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	46.246[a]	1	.000		
Continuity Correction[b]	44.340	1	.000		
Likelihood Ratio	48.253	1	.000		
Linear-by-Linear Association	46.015	1	.000		
N of Valid Cases	200				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.00.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.2 Hypothesis C2 (HC2)

HC2: Underreporting at work will be different between military work and civilian work.

A chi-square test of independence was performed to compare the number of injuries that went underreported. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(1) = 69.627$, $p < .001$ (Laerd Statistics, 2019).

The results showed that it was more common for military workers to see workers not report injuries when compared to civilians.

Table 7: Chi-square Results from HC2

Crosstab

			HC2: Are you aware of a worker getting hurt or becoming ill from work and not reporting the injury to a supervisor?		
			Yes	No	Total
During Military or Civilian Work	During Military Service	Count	80	20	100
		Expected Count	50.5	49.5	100.0
	Civilian Work	Count	21	79	100
		Expected Count	50.5	49.5	100.0
Total		Count	101	99	200
		Expected Count	101.0	99.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	69.627[a]	1	.000		
Continuity Correction[b]	67.287	1	.000		
Likelihood Ratio	74.367	1	.000		
Linear-by-Linear Association	69.279	1	.000		
N of Valid Cases	200				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 49.50.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.3 Hypothesis C3 (HC3)

HC3: Injured workers will be treated differently between military work and civilian work.

A chi-square test of independence was done to see how injured workers were treated in different groups. All expected cell frequencies were greater than five. There was no statistically

significant difference in how injured workers are treated between the two groups, $\chi^2(1) = .36$, $p = .849$ (Laerd Statistics, 2019).

Table 8: Chi-square Results from HC3

Crosstab

			HC3: Are injured workers treated the same after an illness/injury?		
			Yes	No	Total
During Military or Civilian Work	During Military Service	Count	45	37	82
		Expected Count	44.5	37.5	82.0
	Civilian Work	Count	18	16	34
		Expected Count	18.5	15.5	34.0
Total		Count	63	53	116
		Expected Count	63.0	53.0	116.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.036[a]	1	.849		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.036	1	.849		
Linear-by-Linear Association	.036	1	.849		
N of Valid Cases	116				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.53.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.4 Hypothesis C4 (HC4)

HC4: Fear of losing a group incentive will be viewed differently between military work and civilian work.

A chi-square test of independence was performed to compare how group incentives might affect injuries not getting reported. All expected cell frequencies were greater than five. There was no statistically significant difference between the two groups on group incentives, $\chi^2(2) = 4.80$, $p = .091$ (Laerd Statistics, 2019).

Table 9: Chi-square Results from HC4

Crosstab

			HC4: Fear that a group incentive would be lost			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	64	18	18	100
		Expected Count	64.0	22.5	13.5	100.0
	Civilian Work	Count	64	27	9	100
		Expected Count	64.0	22.5	13.5	100.0
Total		Count	128	45	27	200
		Expected Count	128.0	45.0	27.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.800[a]	2	.091
Likelihood Ratio	4.870	2	.088
Linear-by-Linear Association	.775	1	.379
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.5 Hypothesis C5 (HC5)

HC5: Fear of losing an individual incentive at work can affect how often military workers and civilian workers report injuries.

A chi-square test of independence was conducted to compare how individual incentives might affect injuries not getting reported. All expected cell frequencies were greater than five. There was no statistically significant difference between the two groups on group incentives, $\chi^2(2) = 3.25$, $p = .850$ (Laerd Statistics, 2019).

Table 10: Chi-square Results from HC5

Crosstab

			HC5: Fear that an individual incentive would be lost			
			Never or Rarely	Some times	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	61	23	16	100
		Expected Count	60.5	24.5	15.0	100.0
	Civilian Work	Count	60	26	14	100
		Expected Count	60.5	24.5	15.0	100.0
Total		Count	121	49	30	200
		Expected Count	121.0	49.0	30.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.325[a]	2	.850
Likelihood Ratio	.325	2	.850
Linear-by-Linear Association	.009	1	.924
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.6 Hypothesis C6 (HC6)

HC6: How the participants viewed the severity of an injury will be different between military work and civilian work.

A chi-square test of independence was done to see if injuries were not reported because they were not severe enough. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 28.999$, $p < .001$ (Laerd Statistics, 2019).

The data revealed that military workers are more likely not to seek medical treatment because they do not think the injury was severe enough.

Table 11: Chi-square Results from HC6

Crosstab

			HC6: Felt the injury was not severe enough			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	20	33	47	100
		Expected Count	38.5	26.0	35.5	100.0
	Civilian Work	Count	57	19	24	100
		Expected Count	38.5	26.0	35.5	100.0
Total		Count	77	52	71	200
		Expected Count	77.0	52.0	71.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.999[a]	2	.000
Likelihood Ratio	29.939	2	.000
Linear-by-Linear Association	24.232	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.7 Hypothesis C7 (HC7)

HC7: Leaving work on time will determine the frequency of injuries being reported at the end of the day, which will differ between military work and civilian work.

A chi-square test of independence was conducted to see if going home on time was a factor why participants did not report an injury at the end of the day. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 6.035$, $p < .049$ (Laerd Statistics, 2019).

The results reported that not reporting an injury at the end of the day was more common in military work than in civilian work.

Table 12: Chi-square Results from HC7

Crosstab

			HC7: Wanted to go home on time			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	47	29	24	100
		Expected Count	55.5	23.5	21.0	100.0
	Civilian Work	Count	64	18	18	100
		Expected Count	55.5	23.5	21.0	100.0
Total		Count	111	47	42	200
		Expected Count	111.0	47.0	42.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.035[a]	2	.049
Likelihood Ratio	6.072	2	.048
Linear-by-Linear Association	4.074	1	.044
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.8 Hypothesis C8 (HC8)

HC8: Finishing a job on time for military workers and civilian workers will affect if workers will report injuries at work.

A chi-square test of independence was performed to compare the two groups to see if getting the job done was an important factor in not reporting an injury. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 30.156$, $p < .001$ (Laerd Statistics, 2019).

The military workers were more likely not to report an injury if the job had to get done in a specific time limit.

Table 13: Chi-square Results from HC8

Crosstab

			HC8: Had to get the job done			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	18	23	59	100
		Expected Count	35.5	22.0	42.5	100.0
	Civilian Work	Count	53	21	26	100
		Expected Count	35.5	22.0	42.5	100.0
Total		Count	71	44	85	200
		Expected Count	71.0	44.0	85.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.156[a]	2	.000
Likelihood Ratio	31.276	2	.000
Linear-by-Linear Association	29.679	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.9 Hypothesis C9 (HC9)

HC9: Injury reporting frequency will be different between military work and civilian work, depending on if they are afraid of their boss.

A chi-square test of independence was done to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 19.703$, $p < .001$ (Laerd Statistics, 2019).

The military workers were more likely not to report an injury if they were afraid of their boss's reaction.

Table 14: Chi-square Results from HC9

Crosstab

			HC9: Afraid of boss reaction			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	30	26	44	100
		Expected Count	44.5	24.0	31.5	100.0
	Civilian Work	Count	59	22	19	100
		Expected Count	44.5	24.0	31.5	100.0
Total		Count	89	48	63	200
		Expected Count	89.0	48.0	63.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.703[a]	2	.000
Likelihood Ratio	20.157	2	.000
Linear-by-Linear Association	19.522	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.10 Hypothesis C10 (HC10)

HC10: Injury reporting frequency will be different between military work and civilian work depending on coworkers' remarks.

A chi-square test of independence was conducted to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 16.841$, $p < .001$ (Laerd Statistics, 2019).

The military workers were slightly more concerned that their coworkers would get mad at them for reporting an injury.

Table 15: Chi-square Results from HC10

Crosstab

			HC10: Felt their coworkers would get mad at them			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	34	38	28	100
		Expected Count	48.5	29.5	22.0	100.0
	Civilian Work	Count	63	21	16	100
		Expected Count	48.5	29.5	22.0	100.0
Total		Count	97	59	44	200
		Expected Count	97.0	59.0	44.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.841[a]	2	.000
Likelihood Ratio	17.087	2	.000
Linear-by-Linear Association	13.175	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.11 Hypothesis C11 (HC11)

HC11: Injury reporting frequency will be different between military work and civilian work, depending on if the workers are afraid of losing their job.

A chi-square test of independence was conducted to see if fear of losing a job was a reason why the participants would not report an injury. All expected cell frequencies were greater than five. There was no statistically significant difference between the two groups on group incentives, $\chi^2(2) = 13.23$, $p = .516$ (Laerd Statistics, 2019).

Table 16: Chi-square Results from HC11

Crosstab

			HC11: Fear of losing their job			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	51	26	23	100
		Expected Count	55.0	23.5	21.5	100.0
	Civilian Work	Count	59	21	20	100
		Expected Count	55.0	23.5	21.5	100.0
Total		Count	110	47	43	200
		Expected Count	110.0	47.0	43.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.323[a]	2	.516
Likelihood Ratio	1.325	2	.516
Linear-by-Linear Association	.922	1	.337
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.12 Hypothesis C12 (HC12)

HC12: Injury reporting frequency will be different between military work and civilian work, depending on if paperwork on injuries is completed.

A chi-square test of independence was performed to see if participants did not want to fill out paperwork if they got injured. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 13.108$, $p < .001$ (Laerd Statistics, 2019).

The military workers were more likely not to fill out the paperwork for injuries than the civilian workers.

Table 17: Chi-square Results from HC12

Crosstab

			HC12: Did not want to fill out the paperwork			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	33	40	27	100
		Expected Count	45.5	34.0	20.5	100.0
	Civilian Work	Count	58	28	14	100
		Expected Count	45.5	34.0	20.5	100.0
Total		Count	91	68	41	200
		Expected Count	91.0	68.0	41.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.108[a]	2	.001
Likelihood Ratio	13.280	2	.001
Linear-by-Linear Association	12.023	1	.001
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.13 Hypothesis C13 (HC13)

HC13: Injury reporting frequency will be different between military work and civilian work if the participant felt it was their mistake that caused the injury.

A chi-square test of independence was done to compare the two groups. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 19.447$, $p < .001$ (Laerd Statistics, 2019).

The military workers were more likely not to report an injury if they thought it was their mistake when compared to civilian workers.

Table 18: Chi-square Results from HC13

Crosstab

			HC13: Felt it was their mistake			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	31	36	33	100
		Expected Count	46.0	30.5	23.5	100.0
	Civilian Work	Count	61	25	14	100
		Expected Count	46.0	30.5	23.5	100.0
Total		Count	92	61	47	200
		Expected Count	92.0	61.0	47.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.447[a]	2	.000
Likelihood Ratio	19.863	2	.000
Linear-by-Linear Association	18.537	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.14 Hypothesis C14 (HC14)

HC14: Injury reporting frequency will be different between military work and civilian work because the participants did not want to cause problems at work.

A chi-square test of independence was conducted to compare the number of injuries in the two groups. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 24.306$, $p < .001$ (Laerd Statistics, 2019).

The military workers were more likely not to report an injury if they thought it was going to cause problems at work when compared to civilian workers.

Table 19: Chi-square Results from HC14

Crosstab

			HC14: Did not want to cause problems			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	18	35	47	100
		Expected Count	34.5	29.0	36.5	100.0
	Civilian Work	Count	51	23	26	100
		Expected Count	34.5	29.0	36.5	100.0
Total		Count	69	58	73	200
		Expected Count	69.0	58.0	73.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.306[a]	2	.000
Likelihood Ratio	25.075	2	.000
Linear-by-Linear Association	20.444	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 29.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.2.15 Hypothesis C15 (HC15)

HC15: The responses will be different between military workers and civilians because everyone sees safety differently.

A chi-square test of independence was done to analyze how the two groups felt about safety at work. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 7.248$, $p < .027$ (Laerd Statistics, 2019).

The military workers results were lower than the civilians when asked if safety had a high priority at most jobs.

Table 20: Chi-square Results from HC15

Crosstab

			HC15: Does safety have a high priority at jobs?			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or Civilian Work	During Military Service	Count	19	42	39	100
		Expected Count	14.5	37.5	48.0	100.0
	Civilian Work	Count	10	33	57	100
		Expected Count	14.5	37.5	48.0	100.0
Total		Count	29	75	96	200
		Expected Count	29.0	75.0	96.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.248[a]	2	.027
Likelihood Ratio	7.317	2	.026
Linear-by-Linear Association	7.073	1	.008
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, chi-square Test of Independence," by Laerd Statistics, 2019.

4.3 McNemar's Test Results and Alternative Hypotheses: Military Survey (During Military) and Civilian Survey (After Military)

The surveys were used to develop several hypotheses based on the information that was asked to the military participants during military work and after during civilian work. The hypotheses came from questions 6, 13, 15, 17 (a-k), and 18, which can be seen in the military survey or the civilian survey in Appendix C and D. Some of the question responses would have to be downsized so that each question would only have two responses per variable. The data responses to question 15 were condensed down so that the data would be easier for McNemar's test to process the data. The data responses named "No" and "N/A" were combined into one data response called "No or N/A" for question 15. The same method had to be applied to data responses in question 17 (a-k), and 18. The data responses named "Never or Rarely" and "Sometimes" were combined into one data response called "Never, Rarely, or Sometimes" for question 17 (a-k), and 18. The data will be compared by using McNemar's test. The hypothesis for each question and the results of the McNemar's test will be seen in the results section of this paper.

4.3.1 Hypothesis M1 (HM1)

HM1: Work-related injury frequency will be different between veterans during the military and after the military.

McNemar's test was conducted to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(1) = 86.087$, $p < .001$ (Laerd Statistics, 2019).

The results showed that veterans were more likely to become injured during the military when compared to after the military.

Table 21: McNemar Results from HM1

Crosstab

			HM1: Have you ever been injured at work?		
			Yes	No	Total
During Military or After Military	During Military Service	Count	71	29	100
		Expected Count	39.0	61.0	100.0
	After Military Service - Civilian Work	Count	7	93	100
		Expected Count	39.0	61.0	100.0
Total		Count	78	122	200
		Expected Count	78.0	122.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	86.087[a]	1	.000		
Continuity Correction [b]	83.417	1	.000		
Likelihood Ratio	96.341	1	.000		
Linear-by-Linear Association	85.656	1	.000		
N of Valid Cases	200				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.00.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.2 Hypothesis M2 (HM2)

HM2: Underreporting at work will be different between veterans during the military and after the military.

McNemar's test was performed to compare the number of injuries that went underreported. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(1) = 67.307$, $p < .001$ (Laerd Statistics, 2019).

The results showed that it was more common for veterans during the military to see workers not report injuries when compared to after the military.

Table 22: McNemar Results from HM2

Crosstab

			HM2: Are you aware of a worker getting hurt or becoming ill from work and not reporting the injury to a supervisor?		
			Yes	No	Total
During Military or After Military	During Military Service	Count	80	20	100
		Expected Count	51.0	49.0	100.0
	After Military Service - Civilian Work	Count	22	78	100
		Expected Count	51.0	49.0	100.0
Total		Count	102	98	200
		Expected Count	102.0	98.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	67.307[a]	1	.000		
Continuity Correction [b]	65.006	1	.000		
Likelihood Ratio	71.717	1	.000		
Linear-by-Linear Association	66.970	1	.000		
N of Valid Cases	200				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 49.00.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.3 Hypothesis M3 (HM3)

HM3: Injured veterans will be treated differently during the military and after the military.

McNemar's test was done to see how injured workers were treated in different groups. All expected cell frequencies were greater than five. There was a statistically significant difference between the groups on how injured workers are treated, $\chi^2(1) = 5.071$, $p < .024$ (Laerd Statistics, 2019).

The results revealed that veterans are treated differently more often during the military when they are injured compared to after the military.

Table 23: McNemar Results from HM3

Crosstab

			HM3: Are injured workers treated the same after an illness/injury?		
			Yes	No	Total
During Military or After Military	During Military Service	Count	45	37	82
		Expected Count	49.8	32.2	82.0
	After Military Service - Civilian Work	Count	20	5	25
		Expected Count	15.2	9.8	25.0
Total		Count	65	42	107
		Expected Count	65.0	42.0	107.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.071[a]	1	.024		
Continuity Correction [b]	4.072	1	.044		
Likelihood Ratio	5.436	1	.020		
Linear-by-Linear Association	5.023	1	.025		
N of Valid Cases	107				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.81.

b. Computed only for a 2x2 table

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.4 Hypothesis M4 (HM4)

HM4: Fear of losing a group incentive will be viewed differently during the military and after the military by veterans.

McNemar's test was performed to compare how group incentives might affect injuries not getting reported. All expected cell frequencies were greater than five. There was a statistically significant difference between the groups on group incentives, $\chi^2(2) = 8.403$, $p < .015$ (Laerd Statistics, 2019).

The responses from the veterans during and after the military showed that group incentives are not a significant factor when not reporting an injury.

Table 24: McNemar Results from HM4

Crosstab

			HM4: Fear that a group incentive would be lost			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	64	18	18	100
		Expected Count	70.0	18.5	11.5	100.0
	After Military Service - Civilian Work	Count	76	19	5	100
		Expected Count	70.0	18.5	11.5	100.0
Total		Count	140	37	23	200
		Expected Count	140.0	37.0	23.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.403[a]	2	.015
Likelihood Ratio	8.857	2	.012
Linear-by-Linear Association	6.577	1	.010
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.5 Hypothesis M5 (HM5)

HM5: Fear of losing an individual incentive at work can affect how often veterans report injuries during and after the military.

McNemar's test was conducted to compare how individual incentives might affect injuries not getting reported. All expected cell frequencies were greater than five. There was no statistically significant difference between the groups on group incentives, $\chi^2(2) = 4.140$, $p = .126$ (Laerd Statistics, 2019).

Table 25: McNemar Results from HM5

Crosstab

			HM5: Fear that an individual incentive would be lost			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	61	23	16	100
		Expected Count	65.5	23.0	11.5	100.0
	After Military Service - Civilian Work	Count	70	23	7	100
		Expected Count	65.5	23.0	11.5	100.0
Total		Count	131	46	23	200
		Expected Count	131.0	46.0	23.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.140[a]	2	.126
Likelihood Ratio	4.236	2	.120
Linear-by-Linear Association	3.369	1	.066
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.6 Hypothesis M6 (HM6)

HM6: How veterans view the severity of an injury will be different during the military and after the military.

McNemar's test was done to see if injuries were not reported because they were not severe enough. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 49.950$, $p < .001$ (Laerd Statistics, 2019).

The data revealed that veterans are more likely not to seek medical treatment during the military because they did not think the injury was severe enough.

Table 26: McNemar Results from HM6

Crosstab

			HM6: Felt the injury was not severe enough			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	20	33	47	100
		Expected Count	44.5	25.0	30.5	100.0
	After Military Service - Civilian Work	Count	69	17	14	100
		Expected Count	44.5	25.0	30.5	100.0
Total		Count	89	50	61	200
		Expected Count	89.0	50.0	61.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	49.950[a]	2	.000
Likelihood Ratio	52.595	2	.000
Linear-by-Linear Association	45.799	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.7 Hypothesis M7 (HM7)

HM7: Leaving work on time will determine the frequency of injuries being reported at the end of the day, which will differ for veterans during the military and after the military.

McNemar's test was conducted to see if going home on time was a factor why participants did not report an injury at the end of the day. All expected cell frequencies were greater than five. There was not a statistically significant difference between the two variables, $\chi^2(2) = 19.441$, $p = .001$ (Laerd Statistics, 2019).

The veterans wanted to go home on time more often during the military than they did after the military.

Table 27: McNemar Results from HM7

Crosstab

			HM7: Wanted to go home on time			
			Never or Rarely	Sometimes	Often or Always	Total
During Military After Military	During Military Service	Count	47	29	24	100
		Expected Count	61.5	19.0	19.5	100.0
	After Military Service - Civilian Work	Count	76	9	15	100
		Expected Count	61.5	19.0	19.5	100.0
Total		Count	123	38	39	200
		Expected Count	123.0	38.0	39.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.441[a]	2	.000
Likelihood Ratio	20.074	2	.000
Linear-by-Linear Association	11.338	1	.001
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.8 Hypothesis M8 (HM8)

HM8: Finishing a job on time will affect if veterans report injuries at work during the military and after the military.

McNemar's test was performed to compare the two groups to see if getting the job done was an important factor in not reporting an injury. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 66.740$, $p < .001$ (Laerd Statistics, 2019).

The veterans during the military were more likely not to report an injury if the job had to get done in a specific time limit when compared to after the military.

Table 28: McNemar Results from HM8

Crosstab

			HM8: Had to get the job done			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	18	23	59	100
		Expected Count	44.5	21.0	34.5	100.0
	After Military Service - Civilian Work	Count	71	19	10	100
		Expected Count	44.5	21.0	34.5	100.0
Total		Count	89	42	69	200
		Expected Count	89.0	42.0	69.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	66.740[a]	2	.000
Likelihood Ratio	72.687	2	.000
Linear-by-Linear Association	66.359	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.9 Hypothesis M9 (HM9)

HM9: Injury reporting frequency will be different for veterans during the military and after the military, depending on if they are afraid of their boss.

McNemar's test was done to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 51.284$, $p < .001$ (Laerd Statistics, 2019).

The veterans were more likely not to report an injury during the military if they were afraid of their boss's reaction when compared to after the military.

Table 29: McNemar Results from HM9

Crosstab

			HM9: Afraid of boss reaction			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	30	26	44	100
		Expected Count	54.5	19.5	26.0	100.0
	After Military Service - Civilian Work	Count	79	13	8	100
		Expected Count	54.5	19.5	26.0	100.0
Total		Count	109	39	52	200
		Expected Count	109.0	39.0	52.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.284[a]	2	.000
Likelihood Ratio	54.692	2	.000
Linear-by-Linear Association	49.662	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.10 Hypothesis M10 (HM10)

HM10: Injury reporting frequency will be different for veterans during the military and after the military, depending on coworkers' remarks.

McNemar's test was conducted to compare the number of responses in each group. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 43.939$, $p < .001$ (Laerd Statistics, 2019).

The veterans were more concerned that their coworkers would get mad at them for reporting an injury during the military than after the military.

Table 30: McNemar Results from HM10

Crosstab

			HM10: Felt their coworkers would get mad at them			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	34	38	28	100
		Expected Count	56.5	27.5	16.0	100.0
	After Military Service - Civilian Work	Count	79	17	4	100
		Expected Count	56.5	27.5	16.0	100.0
Total		Count	113	55	32	200
		Expected Count	113.0	55.0	32.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.939[a]	2	.000
Likelihood Ratio	46.900	2	.000
Linear-by-Linear Association	42.223	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.11 Hypothesis M11 (HM11)

HM11: Injury reporting frequency will be different for veterans during the military and after the military, depending on if the workers are afraid of losing their job.

McNemar's test was conducted to see if fear of losing a job was a reason why the participants would not report an injury. There was a statistically significant difference between the two groups on group incentives, $\chi^2(2) = 17.134$, $p < .001$ (Laerd Statistics, 2019).

The veterans during the military were more worried about losing their job if they reported an injury at work when compared to after the military.

Table 31: McNemar Results from HM11

Crosstab

			HM11: Fear of losing their job			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	51	26	23	100
		Expected Count	65.0	19.0	16.0	100.0
	After Military Service - Civilian Work	Count	79	12	9	100
		Expected Count	65.0	19.0	16.0	100.0
Total		Count	130	38	32	200
		Expected Count	130.0	38.0	32.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.314[a]	2	.000
Likelihood Ratio	17.697	2	.000
Linear-by-Linear Association	15.399	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.12 Hypothesis M12 (HM12)

HM12: Injury reporting frequency will be different for veterans during the military and after the military, depending on if paperwork is done.

McNemar's test was performed to see if participants did not want to fill out paperwork if they got injured. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 27.769$, $p < .001$ (Laerd Statistics, 2019).

The veterans during the military were more worried about losing their job if they filled out paperwork for an injury than after the military.

Table 32: McNemar Results from HM12

Crosstab

			HM12: Did not want to fill out the paperwork			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	33	40	27	100
		Expected Count	51.5	30.0	18.5	100.0
	After Military Service - Civilian Work	Count	70	20	10	100
		Expected Count	51.5	30.0	18.5	100.0
Total		Count	103	60	37	200
		Expected Count	103.0	60.0	37.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.769[a]	2	.000
Likelihood Ratio	28.501	2	.000
Linear-by-Linear Association	24.543	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.13 Hypothesis M13 (HM13)

HM13: Injury reporting frequency will be different for veterans during the military and after the military if they feel it was their mistake that caused the injury.

McNemar's test of independence was done to compare the two groups. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 46.226$, $p < .001$ (Laerd Statistics, 2019).

The veterans during the military were more likely not to report an injury if they thought it was their mistake when compared to after the military.

Table 33: McNemar Results from HM13

Crosstab

			HM13: Felt it was their mistake			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	31	36	33	100
		Expected Count	53.5	28.0	18.5	100.0
	After Military Service - Civilian Work	Count	76	20	4	100
		Expected Count	53.5	28.0	18.5	100.0
Total		Count	107	56	37	200
		Expected Count	107.0	56.0	37.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	46.226[a]	2	.000
Likelihood Ratio	50.107	2	.000
Linear-by-Linear Association	45.595	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.14 Hypothesis M14 (HM14)

HM14: Injury reporting frequency will be different for veterans during the military and after the military because veterans did not want to cause problems at work.

McNemar's test was conducted to compare the number of injuries in the two groups. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 61.577$, $p < .001$ (Laerd Statistics, 2019).

The veterans during the military were more likely not to report an injury if they thought it was going to cause problems at work when compared to after the military.

Table 34: McNemar Results from HM14

Crosstab

			HM14: Did not want to cause problems			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	18	35	47	100
		Expected Count	43.5	29.5	27.0	100.0
	After Military Service - Civilian Work	Count	69	24	7	100
		Expected Count	43.5	29.5	27.0	100.0
Total		Count	87	59	54	200
		Expected Count	87.0	59.0	54.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61.577[a]	2	.000
Likelihood Ratio	67.169	2	.000
Linear-by-Linear Association	60.784	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.00.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.3.15 Hypothesis M15 (HM15)

HM15: The responses will be different for veterans during the military and after the military because everyone sees safety differently.

McNemar's test was done to analyze how the two groups felt about safety at work. All expected cell frequencies were greater than five. There was a statistically significant difference between the two variables, $\chi^2(2) = 26.801$, $p < .001$ (Laerd Statistics, 2019).

The responses from the veterans showed that they felt that safety has a high priority at most jobs after the military when compared to during the military.

Table 35: McNemar Results from HM15

Crosstab

			HM15: Does safety have a high priority at jobs?			
			Never or Rarely	Sometimes	Often or Always	Total
During Military or After Military	During Military Service	Count	19	42	39	100
		Expected Count	12.5	30.5	57.0	100.0
	After Military Service - Civilian Work	Count	6	19	75	100
		Expected Count	12.5	30.5	57.0	100.0
Total		Count	25	61	114	200
		Expected Count	25.0	61.0	114.0	200.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.801[a]	2	.000
Likelihood Ratio	27.559	2	.000
Linear-by-Linear Association	24.035	1	.000
N of Valid Cases	200		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.50.

Note. Reprinted from "IBM's Statistics Product and Service Solutions version 22, McNemar Test," by Laerd Statistics, 2019.

4.4 Qualitative Results

To obtain qualitative data from the participants, they were asked questions 16 and 19. The qualitative data was needed so that the participants could describe the two events in their own words. The data cannot be computed or compared against other values but is used to give more detailed information on certain events that were vital to the research. The questions were designed to show how differently the participants were treated depending on if they were in the military or the civilian workforce. Question 16 asked, "If no, how are injured workers treated? (can you provide an example)" and question 19 asked, "Can you tell me a time that you have not reported an injury/illness or seen someone else not report an injury/illness? (omit other people's names)." Question 16 received 34 total responses, and question 19 received 32 total responses from the two surveys. Identical answers were not reported twice.

4.4.1 Military Survey Qualitative Results

The Military Survey generated 30 responses for questions 16 and 14 responses for question 19. For question 16, participants said that while in the military that injured workers are treated: "A medical board was convened, and the member was processed out of the military. The member was able to have a medical retirement. He was over the ten-year mark. Time was hard for the member for a few years after," "badly," "eliminated pass to leave the base," "expendable," "faking it," "given extra work," "it depends on the person," "lazy," "liability," "misfit," "not the same until they can work again," "outcast," "poorly," "singled out," "stay at the same rank until they recover," "swept under the rug," "they are given ibuprofen for an injury until it goes away," "they are medically retired or forced out," "they try to push out the injured Marines out of the Marine Corps like they are less than a "good" service member," "try to get rid of them," "useless," "weak," "worthless." Some of the responses from the participants from question 19, that asked about injuries having been underreported were: "dropped a heavy gun on their foot and kept on working," "during an exercise, I broke my ribs that impaired me during the exercise while in the military. For fear of being pulled out of the field, I didn't say anything," "in the Marine Corps, many Marines hurt their backs when lifting objects. The injuries are never reported," "mental illness," "they try to push the injured Marine out of the Marines," "training injury not recorded," "when I rolled my ankle while at work. I just tightened my shoelaces and kept on walking," "when they slipped and fell on the floor."

4.4.2 Civilian Survey Qualitative Results

The Civilian Survey generated 4 responses for questions 16 and 18 responses for question 19. For question 16, the civilian participants said that injured workers are treated how in the workforce: “If they like the person, they are treated the same. If they do not like the person, they try to fire them,” “Like they are going to create a compensation case,” “let go,” “Workers are threatened with dismissal should they have an accident or injury, depending on who they know. If they are in with management, they are okay. If they are impartial, management tended to single out and make examples of people.” The following were civilian responses from question 19: “A teacher slipped on a crayon that a student threw at her. She fell and hit her head on the back of a cabinet. She did not report it because they would think she was a lousy teacher if the students were throwing crayons,” “A warehouse worker ran over a coworker’s foot with a pallet jack. After a heated discussion, both workers continued to work,” “An employee cut their hand with a knife when opening a box. Used duct tape to stop the bleeding. Got stitches after work with his own insurance,” “Back problems,” “Breathe in chemical daily,” “Chemical burn,” “Consumed acetone on accident,” “Fell from a ladder temporally dazed but felt fine after a while,” “Hurt my back while working at the gym. I put Icy Hot on it and rested,” “My brother severely burned his arm as an Assistant Manager at a restaurant. Severe burn, probably 2nd degree or worse. He and the manager did not report the accident so as not to jeopardize their safety bonus. He also used his own insurance instead of workers' compensation,” “Powder from work gets in the eyes and nose,” “Smashed fingers and then bandaged them up and kept working,” “This person was carrying too much weight from several trays of mail. They could not see where they were stepping and tripped over a tray on the floor. Management was not aware, and the worker’s ankle swelled to an alarming size very quickly. This worker was allowed to work before they punched in, so they did not want to report it because they were

afraid, they would be dismissed or at least written up in some fashion. They did not report the injury," "Twenty years working in veterinary Clinic. Bites are common in this type of work. If we all sought medical attention every time that we got bit or scratched, we would not have a job, and they would have to close the doors," "Watched a guy have a forklift lower a pallet full of transmission on his foot. He limped in silence for a month," "Yes, a lot of fingers get stapled or slammed in draws," "Yes, I slipped and fell at a part-time job in high school. I landed on my lower back; however, I did not report it," "Yes, the employee fell and hit their head in the parking lot. The workplace refused to let the employee go to the Emergency room."

The qualitative data described above was obtained added valuable information because it described how people are sometimes treated at work when they develop an illness or injury. Many times, when people become injured or develop an illness at work, they remain silent for many years after the fact, which can cause the injury or illness to become more severe. The qualitative responses that were given in the surveys show, to some extent, why people remain silent. A separate article done on U.S. Army soldiers revealed that the most common reasons selected for underreporting injuries were fear of the future impact on one's career and avoidance of a duty-limiting profile, which was similar to the responses that were given in the military survey (Smith et al., 2016). Many of the participants were hesitant in giving qualitative responses during the surveys. Some participants would only give short answers, while others said it was none of the interviewer's business.

4.5 Limitations

The first limitation was that the data collection was completed around a college campus, which could have limited the data because the pool of people would be limited to college

professors and students instead of a variety of different people. Time constraints were also a limiting factor because it limited the number of people that could be surveyed. Another limiting factor was that military participants could have been biased because they took both surveys. There was also limited research on military underreporting; however, research on underreporting had enough material available. Finally, the researcher's number of years of experience as a safety professional could have limited the scope of the research.

CHAPTER 5: CONCLUSIONS

5.1 Descriptive Analysis

The descriptive results showed how common it was to get hurt at work, which was higher than the results that were provided in Figure 1 (United States Department of Labor, Bureau of Labor Statistics, 2018). The results from the surveys showed that when participants are injured at work do not report the injury. Both veterans and civilians did not report injuries at work about 43% of the time; however, the military participants did not report injuries at work 71% of the time while in the military. The underreporting in all of the groups was higher than expected, which clearly shows that underreporting is happening at an alarming rate. The underreporting from the military group was significantly higher when compared against the case studies from the U.S. Army, Slovenian Armed Forces, and the carpenters from Washington State (Lipscomb et al., 2013; Smith et al., 2016; Kovcan et al., 2019). The underreporting did not stop there. The participants from all three groups reported that, on average, 21% of them have seen someone else not report an injury. The information shows how widespread underreporting is in the military and within the civilian workforce in the U.S.

The surveys revealed another factor, which was how many people are going to work injured or not fully recovered. During the military group said that 52% of participants said that they continued to work while they were injured in the military; however, only one person from the after the military group said that they continued to work while they were injured. This might indicate that the military could have changed how they view injuries before and after the military because people who did not serve in the military went to work injured 7% which was slightly higher than the veteran. When the groups were asked, does safety have a high priority while at

work the responses were that 57% of civilians and 75% of veterans said always or often. However, 42% of the participants from the During Military group said sometimes. The numbers show that the participants are aware of the lack of safety measures and the underreporting that is going on. The above information shows what happens when moral disengagement becomes part of the work culture because no one is concerned about other individuals as long as they remain safe at work. Workers are blamed for most accidents because it is easier to stand on the sidelines and watch.

5.2 Chi-Square of Independence Test Analysis

5.2.1 Statistically Significant

The Chi-Square Test of Independence was used to analyze the military participants against the civilian participants. It revealed that several of the alternative hypothesis were correct, which made them statistically significant. During the military, 71% of the military participants reported that they were injured at work and only 23% of the civilian participants were injured at work. The information suggests that military workers were more likely to become injured when compared to their civilian counterparts. The military workers were more likely not to seek medical treatment for injuries that occurred at work. It was more common for military workers to see other military workers not report injuries when compared to civilians, which indicates that underreporting is very common in the military. Military workers did not seek medical treatment for injuries because they did not think the injury was severe enough or their mistake had cause it when compared to civilian workers. Injuries went underreported more often in the military than in the civilian workforce because they were afraid of their boss's reaction, the job had to get done in a specific time limit, worried about coworkers' reaction, didn't want to fill out

paperwork, and they did not want to cause problems. The underreporting responses from the military participants were similar to the responses that the U.S. Army soldiers gave (Smith et al., 2016).

5.3 McNemar's Test Analysis

5.3.1 Statistically Significant

McNemar's test was used to analyze the veteran's military time against their civilian time. It revealed that several of the alternative hypothesis were correct, which made them statistically significant. During the military, 71% of the participants reported that they were injured at work and only 7% of the civilian participants were injured at work. The information suggests that military workers were more likely to become injured when compared to civilian workers. When military workers are injured, they are treated differently more often than civilian workers. It was more common for military workers to see workers not report injuries when compared to civilians with military experience. The responses from the military and the civilian showed that group incentives are not a significant factor when not reporting an injury. The participants were not worried about losing their job if they reported an injury at work or if they filled out paperwork for an injury. The data revealed that military workers are more likely not to seek medical treatment because they did not think the injury was severe enough or if they thought it was their mistake that caused the injury. The military workers were slightly more concerned that their coworkers would get mad at them for reporting an injury; however, the findings were small for both groups. Injuries went underreported more often in the military than in the civilian workforce because they were afraid of their boss's reaction, the job had to get done in a specific time limit, and they did not want to cause problems. The underreporting responses from the

military participants were similar to the responses that the U.S. Army soldiers gave (Smith et al., 2016).

5.4 Summary of the Chi-Square Test of Independence and McNemar's Test

The chi-square test and the McNemar test help to show how serious the problem of underreporting is in the military. The written responses from the military participants in this paper support how injured military personnel are treated and shows why military personal would not report injuries. The written responses can be seen in section 4.4.1 Military Survey Qualitative Results. The information obtained should be used to address some of the underreporting problems that were found. The statistical test showed that both veterans and civilians have a tendency to underreport injuries and illnesses at work; however, another study is needed to fully evaluate the needs of the civilians. Some of the underreporting reasons can be seen when the civilians were compared to the military, but civilians should be compared to veterans to fully understand the reasons for underreporting.

5.5 Qualitative Analysis

The qualitative analysis from the Civilian Survey was that some of the responses such as fired or disciplined were the same as what was found in other case studies (House of Representatives, 2008; Lipscomb et al., 2013). The responses given in the survey described in more detail on how injured workers are treated at work. Some of the responses support why employees chose not to report illnesses and injuries.

The qualitative analysis from the military survey supported the evidence found in other case studies on how future promotability can be decreased if workers are injured (Fouts et al., 2015; Kovcan et al., 2019; Smith et al., 2016). The comments on the survey let people know how poorly injured workers are treated in the military, which suggests that further research is needed to help understand what is going on. The comments also explain to some degree why underreporting is so much higher in the military than in the civilian workforce.

5.6 Final Thoughts

The responses from the surveys have shown that underreporting is a severe problem in the United States military; however, underreporting is not solely limited to just the military. The problem can also be found in the U.S. workforce in civilians and civilians with prior military experience. Although the statistics are not as high as the military, they are still troublesome. The comparisons between the groups help to identify underreporting problems in each group. Most of the underreporting causes in the military did not match the civilian group or the civilian group with the prior military, which indicates the underreporting causes are unique to both the military culture and civilian culture. More research is needed to fully understand where the differences are between the two cultures.

To expand the body of knowledge future studies should be done that mirror this study in other parts of the United States. This would help to prove or disprove the findings in this paper. Next, the participants' size should be broadened so that the study can leave the academic setting and venture out into surrounding communities. This would allow many different types of participants to become involved with the research, which would expand the accuracies of the findings. The more research that is done on this topic would allow the subject matter to grow

and help to reduce the underreporting that is occurring in the U.S. Once the underlying factors have been identified that cause underreporting, programs can be designed to counter some of them. No one fix can stop every facet of underreporting of illnesses and injuries. It will take many ideas of this nature to help reduce the underreporting of illnesses and injuries that are occurring throughout the U.S. workforce. Providing a safe and healthy workplace should not only be OSHA's goal, but it should be every Americans' goal because every person matters equally in the U.S.

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APPENDIX A: IRB Notification of Exempt Certification

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · **rede.ecu.edu/umcirb/**

Notification of Exempt Certification

From: Social/Behavioral IRB

To: Floyd O'Connell

CC:
Michael Behm

Date: 8/29/2019

UMCIRB 19-001337

Re: Evaluation of Underreporting of Work-Related Injuries and Illnesses in the United States Military

I am pleased to inform you that your research submission has been certified as exempt on 8/29/2019. This study is eligible for Exempt Certification under category #2A.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418

IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

APPENDIX B: Survey Research Consent Letter

Dear Participant,

I am a student at East Carolina University in the Department of Technology Systems. I am asking you to take part in my research study entitled, "**Evaluation of Underreporting of Work-Related Injuries and Illnesses in the United States Military**."

The purpose of this research is to evaluate the extent and magnitude that underreporting of injuries and illness is occurring in the U.S. military and to assess the underreporting after military service to see if the practice continued or diminished over time. The results from the survey after the military service will be compared against random participants that have no military service. By doing this research, I hope to learn if U.S. veterans or U.S. civilians have a higher rate of underreporting of injuries and illnesses. Your participation is completely voluntary.

You are being invited to take part in this research because are a U.S. veteran or U.S. civilian that is 18 years or older. The veterans will be taking the civilian and veteran surveys to see if underreporting has increased or decreased since leaving the military. Each survey should take approximately five minutes for the veteran to fill out the survey, which is a total time of ten minutes or until they are finished for each veteran. The civilians will only be filling out the civilian survey only to see if veterans or civilians have a higher underreporting while working a civilian job. The civilian survey should take approximately five minutes to fill out the survey. The total civilian time will be five minutes or until they are finished.

If you agree to take part in this survey, you will be asked questions that relate to your work history as a U.S. veteran or U.S. civilian. The survey will be used to see if you got hurt while at work and was it reported correctly.

This research is overseen by the University and Medical Center Institutional Review Board (UMCIRB) at ECU. Therefore, some of the UMCIRB members or the UMCIRB staff may need to review your research data. However, the information you provide will not be linked to you. Therefore, your responses cannot be traced back to you by anyone, including me.

If you have questions about your rights when taking part in this research, call the University and Medical Center Institutional Review Board (UMCIRB) at 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, call the Director of Human Research Protections, at 252-744-2914.

You do not have to take part in this research, and you can stop at any time. If you decide you are willing to take part in this study, continue with the survey below.

Thank you for taking the time to participate in my research.

Sincerely, Floyd O'Connell, Principal Investigator

APPENDIX C: Military Survey Civilian Survey

The purpose of this survey to study how often underreporting of injuries and illnesses are occurring in the workplace. Floyd O'Connell is a graduate student at East Carolina University in the Master of Occupational Safety program, and he will be conducting the research. Thank you in advance for participating in the survey. The research is about underreporting injuries and illnesses in the workplace, which will be used to compare U.S. Veterans against U.S. civilians to see if underreporting is higher in one group or the other. The survey was designed to take ten minutes to complete. The survey is entirely voluntary, and you may stop the survey at any time without the fear of repercussions. No personal information is needed because the survey is anonymous. However, the more information that is given, the more accurate the results will be. If additional information is required, you can reach the researcher at oconnellf16@students.ecu.edu.

Military Part 1: Background Information

1. What gender are you? ☐ Male ☐ Female

2. How old are you?

3. What branch of the United States military did you serve in the primary?

U.S. Air Force	U.S. Army	U.S. Coast Guard	U.S. Marine Corps	U.S. Navy	Other

4. What was your military job equivalent to in the private sector?

5. How many years did you serve in the military?

Military Part 2: Workforce experiences during military (An injury for this survey is an injury or illness that diminishes the performance of the worker, that requires medical attention or light duty for the worker to get better. The injury should have a disability rating from the U.S. Veterans Administration or affects the worker's performance daily. If there are any questions, feel free to ask the researcher).

6. Have you ever been injured in the military? ☐ Yes ☐ No (If No, skip to Part 3)

7. Did you seek medical treatment for the illness/injury? ☐ Yes ☐ No

8. Was the illness/injury reported when it happened? ☐ Yes ☐ No

9. Did your body fully recover from the illness/injury? ☐ Yes ☐ No

10. Do you currently have a work-related injury, work-related illness, or occupational disease from your military service but continue to work? ☐ Yes ☐ No

11. Has the work-related illness/injury caused you to miss work? ☐ Yes ☐ No

12. What kind of time was used when you missed work due to an illness/injury?

☐ Personal Time ☐ Sick Time ☐ Other

Military Part 3: Injured Military Co-Workers

13. Are you aware of a worker getting hurt or becoming ill from work and not reporting the injury to a supervisor?

☐ Yes ☐ No

14. If yes, how many instances are you aware of where a worker was injured or ill from work and did not report it?

15. Are injured workers treated the same after an illness/injury? ☐ Yes ☐ No ☐ N/A

16. If no, how are injured workers treated? (can you provide an example)

17. In your experience, how common are the following reasons that workers fail to report injuries at work?

	Never	Rarely	Sometimes	Often	Always
Fear that a group incentive would be lost					
Fear that an individual incentive would be lost					
Felt the injury was not severe enough					
Wanted to go home on time					
Had to get the job done					
Afraid of boss' reaction					
Felt their coworkers would get mad at them					
Fear of losing their job					
Did not want to fill out the paperwork					
Felt it was their mistake					
Did not want to cause problems					

18. General, does safety have a high priority at jobs?

Never	Rarely	Sometimes	Often	Always

APPENDIX D: Civilian Survey

The purpose of this survey to study how often underreporting of injuries and illnesses are occurring in the workplace. Floyd O'Connell is a graduate student at East Carolina University in the Master of Occupational Safety program, and he will be conducting the research. Thank you in advance for participating in the survey. The research is about underreporting injuries and illnesses in the workplace, which will be used to compare U.S. Veterans against U.S. civilians to see if underreporting is higher in one group or the other. The survey was designed to take ten minutes to complete. The survey is entirely voluntary, and you may stop the survey at any time without the fear of repercussions. No personal information is needed because the survey is anonymous. However, the more information that is given, the more accurate the results will be. If additional information is required, you can reach the researcher at oconnellf16@students.ecu.edu.

Civilian Part 1: Background Information

1. What gender are you? ☐ Male ☐ Female

2. How old are you?

3. Have you had a job for more than one year in your life? ☐ Yes ☐ No

4. What type of work do you perform?

5. How many years have you been in the workforce?

Civilian Part 2: Workforce experiences (An injury for this survey is an injury or illness that diminishes the performance of the worker, that requires medical attention or light duty for the worker to get better. The injury should have a disability rating from Workers Compensation or affects the worker's performance daily. If there are any questions, feel free to ask the researcher).

6. Have you ever been injured at work? ☐ Yes ☐ No (If No, skip to Part 3)

7. Did you seek medical treatment for the illness/injury? ☐ Yes ☐ No

8. Was the illness/injury reported when it happened? ☐ Yes ☐ No

9. Did your body fully recover from the illness/injury? ☐ Yes ☐ No

10. Do you currently have a work-related injury, work-related illness, or occupational disease but continue to work?

☐ Yes ☐ No

11. Has the work-related illness/injury caused you to miss work? ☐ Yes ☐ No

12. What kind of time was used when you missed work due to an illness/injury?

☐ Personal Time ☐ Sick Time ☐ Other

Civilian Part 3: Injured Co-Workers

13. Are you aware of a worker getting hurt or becoming ill from work and not reporting the injury to a supervisor?

☐ Yes ☐ No

14. If yes, how many instances are you aware of where a worker was injured or ill from work and did not report it?

15. Are injured workers treated the same after an illness/injury? ☐ Yes ☐ No ☐ N/A

16. If no, how are injured workers treated? (can you provide an example)

17. In your experience, how common are the following reasons that workers fail to report injuries at work?

	Never	Rarely	Sometimes	Often	Always
Fear that a group incentive would be lost					
Fear that an individual incentive would be lost					
Felt the injury was not severe enough					
Wanted to go home on time					
Had to get the job done					
Afraid of boss' reaction					
Felt their coworkers would get mad at them					
Fear of losing their job					
Did not want to fill out the paperwork					
Felt it was their mistake					
Did not want to cause problems					

18. In general, does safety have a high priority at jobs?

Never	Rarely	Sometimes	Often	Always

Civilian Part 4: Qualitative Question (you can give a response to the researcher or turn in your survey to the researcher)

19. Can you tell me a time that you have not reported an injury/illness or seen someone else not report an injury/illness? (omit other people's names)