ORIGINAL ARTICLE

Trend of Work-related Injuries in the Philippines from 2010-2020

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ABSTRACT

Introduction. Although Occupational Health and Safety (OSH) has been introduced as early as 1971, the protection of workers remained insufficient globally as 360 million occupational accidents occurred annually. In the Philippines, the incidence rate of occupational injury is 4.27 percent which indicates that there are around 4 cases of occupational injuries with workdays lost per 100 workers.

Objective. The study aims to determine the trend of work-related injuries using hospital data entries from 2010-2020, and factors that contribute to work-related injuries and worker fatalities in the Philippines.

Methods. The work-related data from the Department of Health's Online National Electronic Injury Surveillance System (ONEISS) from 2010 to 2020 was processed and analyzed in the study using exploratory data analysis presented as table and graphs, and logistic regression and phi-coefficient analysis for statistical inference. The relationships between patient fatality, type of injury sustained, and external factors for occupational injuries and fatalities were analyzed.

Results. A total of 72,897 (6.6%) work-related injuries and worker fatalities were analyzed in this study. The reports of occupational injuries and fatalities increased and peaked in 2019 and declined by 2020. Phi coefficient determined that all injuries sustained were significantly associated with work-related activities. Phi coefficient showed that all types of injuries were significantly associated with patient fatality. The external causes that were found to be significantly associated with patient fatality using phi coefficient were contact with sharp objects, exposure to forces of nature, fall, and transport and vehicular crash. Fall was significantly associated with patient fatality while also increasing its odds (OR=2.57, 95% CI: 1.76 – 3.75), and increased odds for multiple injuries (OR=2.30, 95% CI: 2.17 – 2.45), abrasion (OR=2.10, 95% CI: 1.97 – 2.24), and fracture (OR=9.66, 95% CI: 8.92 – 10.46). Transport/vehicular crash was significantly associated with increased patient fatality (OR=2.94, 95% CI: 2.22 – 3.88), multiple injuries (OR=6.77, 95% CI: 6.48 – 7.07), abrasion (OR=12.87, 95% CI: 12.34), and fracture (OR=4.12, 95% CI: 3.82 – 3.45).

Conclusion. The study determined the relationship between work-related injuries, patient fatalities, types of injuries, and external causes of injuries based on the ONEISS data from 2010 to 2020. It is recommended that the study results be used in evaluating work-related accidents and in conducting comprehensive health assessments.

Keywords: work-related fatalities and injuries, occupational safety and health, workers

INTRODUCTION

The International Labour Organization estimates that 360 million occupational accidents are reported annually, and occupational risk factors are responsible for 1.9 million deaths and 90 million disability-adjusted life years.[1] All workers in various occupations deserve the highest degree of physical, mental, and social well-being, and be protected against risky workplace conditions that may cause adverse health effects, injuries, and fatalities.[1]

In the Philippines, among the government agencies involved in the promotion and maintenance of occupational

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safety and health is the Department of Health (DOH). The DOH has a computer-based system that enables injury-related data to be stored electronically which is the Online National Electronic Injury Surveillance System (ONEISS). The ONEISS records injury-related data nationwide, including injuries that are work-related.[2]

The Department of Health's (DOH) Online National Electronic Injury Surveillance System (ONEISS) is a web-based system developed by DOH with facility to electronically capture injury-related data from health facilities, store data in a centralized and secure location, process, consolidate, and transform data into meaningful information. It establishes a common or standard set of injury-related data elements collected for surveillance and standards to facilitate collection, management, transmission, analysis, access, dissemination and sharing of data. ONEISS was initially implemented in 6 pilot hospitals in 2010, but today it has expanded to include more than 80% of all government and private hospitals and infirmaries in the Philippines. The ONEISS houses a vast variety of variables. Demographic variables include age, gender, and place of incidence. There are also data on Pre-Admission such as attendance in the ER and OPD, first aid management, place of injury (POI), time of injury (TOI), nature of injury (NOI), external cause of injury, and intent. ONEISS also keeps track of patient's severity, ER outcome, in-patient outcome, disposition, and transport details.

Health facilities with training on ONEISS are required to report injuries they managed to the system. The data are collated quarterly and reports are published in the ONEISS website. The average number of hospitals reporting to the ONEISS is 304 since 2015. On the average, there are 37 DOH hospitals, 98 government hospitals and 167 private hospitals reporting in the ONEISS. Although private hospitals are the most number reporting to ONEISS, majority of the data (52.4%) in ONEISS come from DOH Hospital. While 26.5% are from government hospital and 20.9% are from private hospitals (Table 1).

This study aims to give an epidemiology of work-related injuries for the past eleven years that are admitted to the various hospitals in the Philippines and reported in the ONEISS to determine trends and risk factors.

This study provides an insight into the epidemiology of work-related injuries pertaining to hospitalized cases. Most occupational health researches are industry-specific surveys. This study shows work-related injuries that are brought to the hospitals. Underreporting of work-related injuries is common due to lacking national surveillance systems. Hence, this study is envisioned to augment currently available information and statistics of work-related injuries in the Philippines.

Table 1. Distribution of Data in ONEISS Categorized per Hospital (n=1,105,442)

Type of Hospital	Frequency (%)	Percent (%)
DOH Hospital	579,587	52.4
Government Hospital	293,241	26.5
Private Hospital	231,075	20.9
Missing Data	1539	0.1
Total	1,105,442	100.0

METHODS

The study processed and analyzed the data from the Department of Health's Online National Electronic Injury Surveillance System (ONEISS) from 2010 to 2020. The ONEISS recorded the activity type of patient prior to injury, and injury type sustained. The activity types under the category "work-related" was investigated to determine whether a relationship exists between patient fatality, injury sustained, and external factors for work-related injuries. Exploratory data analysis was presented using tables and graphs, while logistic regression and phi-coefficient analysis were used for statistical inference.

This study is an exploratory data analysis of work-related injuries in the Online National Electronic Injury Surveillance System (ONEISS). To do this, work-related cases which are identified as an "Activity" in the ONEISS database are isolated and analyzed. Descriptive analysis using graphs and tables are used to see the trend of work-related injuries through the years. Statistical inference using phi-coefficient analysis and logistic regression was done to determine the relationship between work-related injuries, patient fatalities, types of injuries, and external causes of injuries. Pairwise exclusion is done to missing data for phi-coefficient analysis, while casewise exclusion is done for the logistic regression analysis. Significance is determined at a 95% confidence level.

There are ten injuries analyzed: multiple injuries, abrasion, avulsion, burn, concussion, contusion, closed and open fracture, open wound, and amputation. These injuries were analyzed of their relationship on 12 external causes, which were chemical/substance exposure, contact with sharp objects, drowning, exposure to forces of nature, fall, firecracker, sexual assault, gunshot wound, hanging/strangulation, mauling/assault, and transport/vehicular crash, and bites.

The researchers secured an approval from the Department of Health – Single Joint Research Ethics Board (DOH-SJREB) and UP Manila Research Ethics Board (UPMREB) before starting the data collection. This is to ensure that the researchers and all personnel involved in the study followed ethical practices in conducting the data collection and guarantees the preservation of confidentiality of patients whose data are included in the study.

RESULTS

Data from the Department of Health's Online National Electronic Injury Surveillance System (ONEISS) from 2010 to 2020 were processed and analyzed. ONEISS has data on the activity of the patient when injury was sustained. Cases

which were categorized as "Work-Related" on the "Activity" variable was investigated. There is a total of 72,897 work-related data, which comprised 6.6% of the whole injury ONEISS database from 2010 to 2020.

The majority (82.89%) of the admitted patients due to work-related injuries are males, while the rest are females.

Among the work-related injuries, 306 cases (0.47%) have a fatal outcome. The most common injuries suffered by the patients are open wounds (54.85%), followed by multiple injuries (25.06%) and abrasion (21.58%). The most common external causes of injury reported are contact with sharp objects (39.39%), transport/vehicular crash (21.2%), and fall (9.7%).

The National Capital Region (NCR) or Metro Manila region has the highest proportion (16.3%) of work-related injury cases, followed by CALABARZON (12.8%), and Central Visayas (11.3%) (Table 2).

The average age of work-related injured patients is 35.25 (±14.71) which indicates that victims of work-related injuries are those who are economically productive (Figure 1).

For the 10-year period, work-related injuries constantly increased since 2013 (2700, 3.78%) and peaked in 2019 (12191, 17.06%). A huge decline was observed from 2019 to 2020 (4864, 6.80%) (Figure 2).

Open wound was the major work-related injury type throughout the years, followed by multiple injuries and abrasions. Avulsion, fracture, and other injuries were the least reported injury types (Figure 3).

The external causes were categorized into contact with sharp object, transport/vehicular crash, fall, bites, mauling/assault, and others. Contact with sharp object was reported the highest external cause for work-related injuries, followed by road crash and fall (Figure 4).

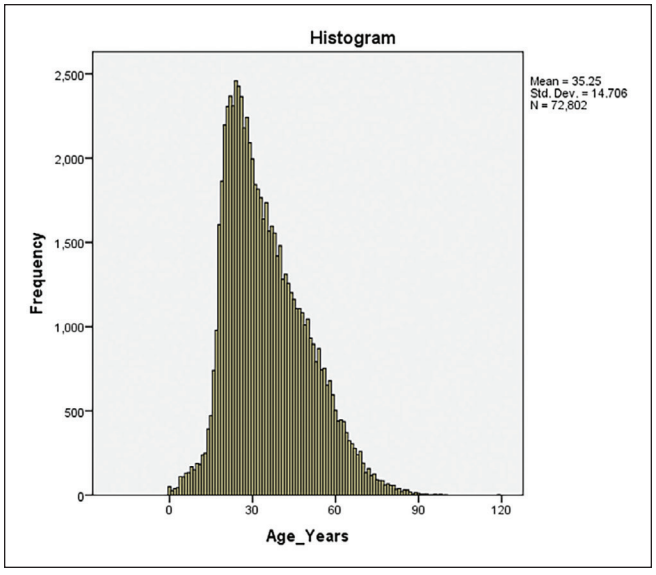


Figure 1. Age Distribution of Patients Admitted due to Work-related Injuries from 2010 to 2020 (N=72,807).

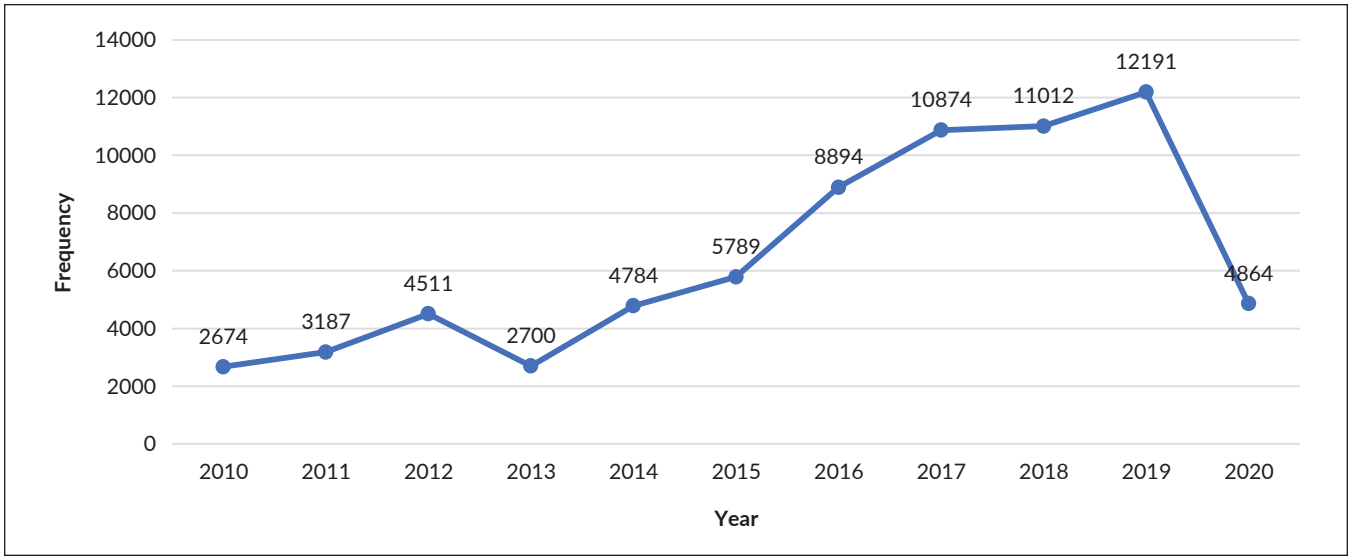
Table 2. Distribution of Sex of Patients Admitted, Injuries, External Causes, and Region of Incidence of Work-related Injuries from 2010 to 2020 (N=72,897)

Variable	Frequency	Valid Percent
Sex		
Female	11540	17.11
Male	55939	82.89
Missing	5418	
Patient Death	306	0.47
Injuries *(Multiple Response)*		
Multiple Injury	18268	25.06
Abrasion	15728	21.58
Avulsion	4864	6.67
Burn	2308	3.17
Concussion	1101	1.51
Contusion	6069	8.33
Closed Fracture	4087	5.61
Open Fracture	1574	2.16
Open Wound	39985	54.85
Amputation	923	1.27
External Causes		
Bites	3223	4.42
Chemical/Substance Exposure	450	0.62
Contact with Sharp Objects	28713	39.39
Drowning	26	0.04
Exposure to Forces of Nature	72	0.12
Fall	7069	9.70
Firecracker	11	0.02
Sexual Assault	13	0.02
Gunshot Wound	561	0.77
Hanging/Strangulation	16	0.02
Mauling/Assault	2182	3.00
Transport/Vehicular Crash	15451	21.20
Region		
Autonomous Region in Muslim Mindanao (ARMM)	1124	1.50
Cordillera Administrative Region (CAR)	3403	4.70
Region XIII (CARAGA)	1375	1.90
National Capital Region (NCR)	11899	16.30
Region I (Ilocos Region)	4058	5.60
Region X (Northern Mindanao)	5644	7.70
Region XI (Davao Region)	3461	4.70
Region XII (SOCCSKSARGEN)	2230	3.10
Region II (Cagayan Valley)	2281	3.10
Region III (Central Luzon)	5650	7.80
Region IV-A (CALABARZON)	9325	12.80
Region IV-B (MIMAROPA)	3569	4.90
Region V (Bicol Region)	1829	2.50
Region VI (Western Visayas)	5493	7.50
Region VII (Central Visayas)	8222	11.30
Region VIII (Eastern Visayas)	2321	3.20
Region IX (Zamboanga Peninsula)	1013	1.40
Total	72897	100.00

For patient fatality, the years 2011, 2016, 2019 had a series of peaks and declines. The highest number of reported patient fatalities occurred in 2019. The total deaths are 301 (Figure 5).

Phi Coefficient Analysis

Phi Coefficient Analysis was used to analyze the relationship between work-related injury and injuries sustained. Significant relationships were determined at a confidence level of 95%. All injury types were found to be



(Missing 1417 cases)

Figure 2. Distribution of Work-related Injuries from 2010 to 2020 (n=71,480).

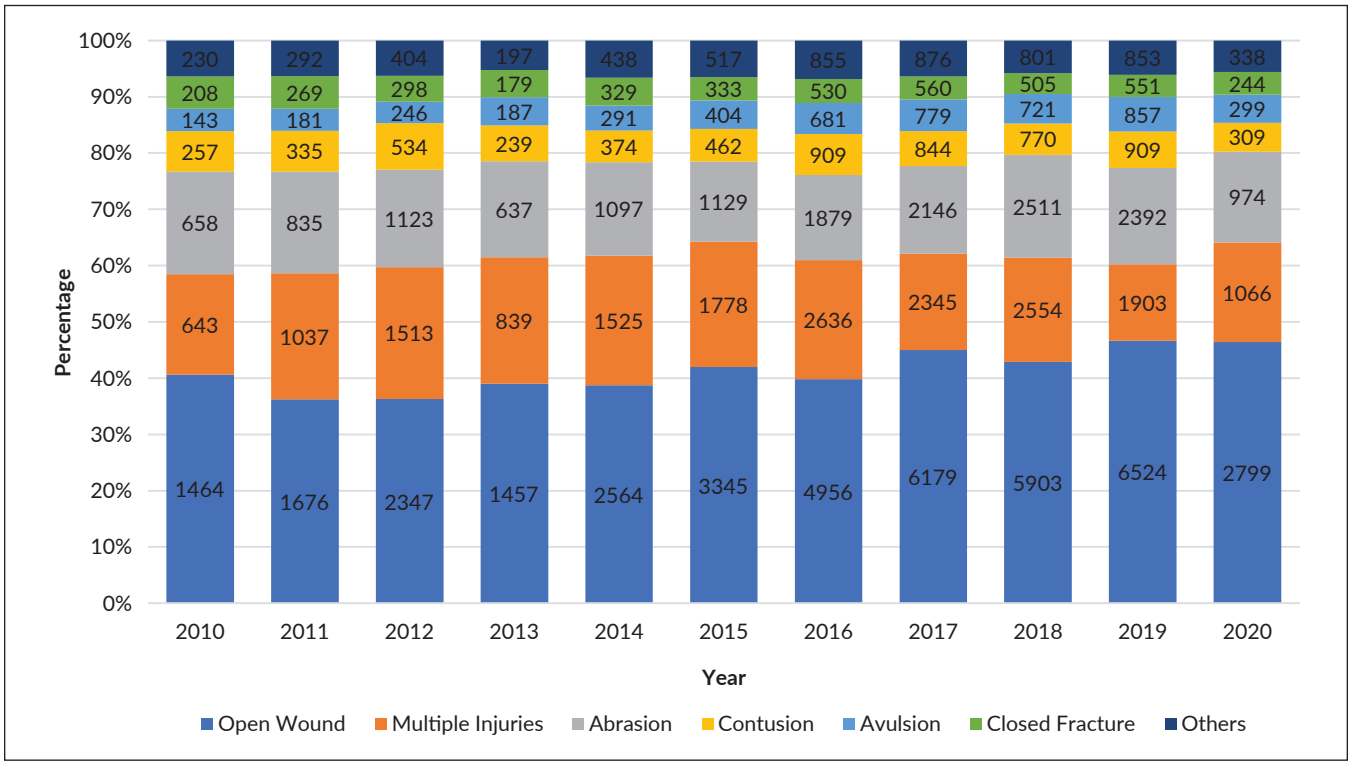


Figure 3. Proportional Distribution of Work-related Injuries Sustained by Victims from 2010 to 2020.

significantly associated with work-related injury, and the phi coefficient suggested a weak relationship. However, this was influenced by the very large sample size. Analysis of relationship shows that avulsion, burns, open fracture, open wound, and amputation were positively associated with work-related injury. The relationship between work-related injuries and external causes were explored in the whole ONEISS 2010-2020 database. Results showed that all external causes

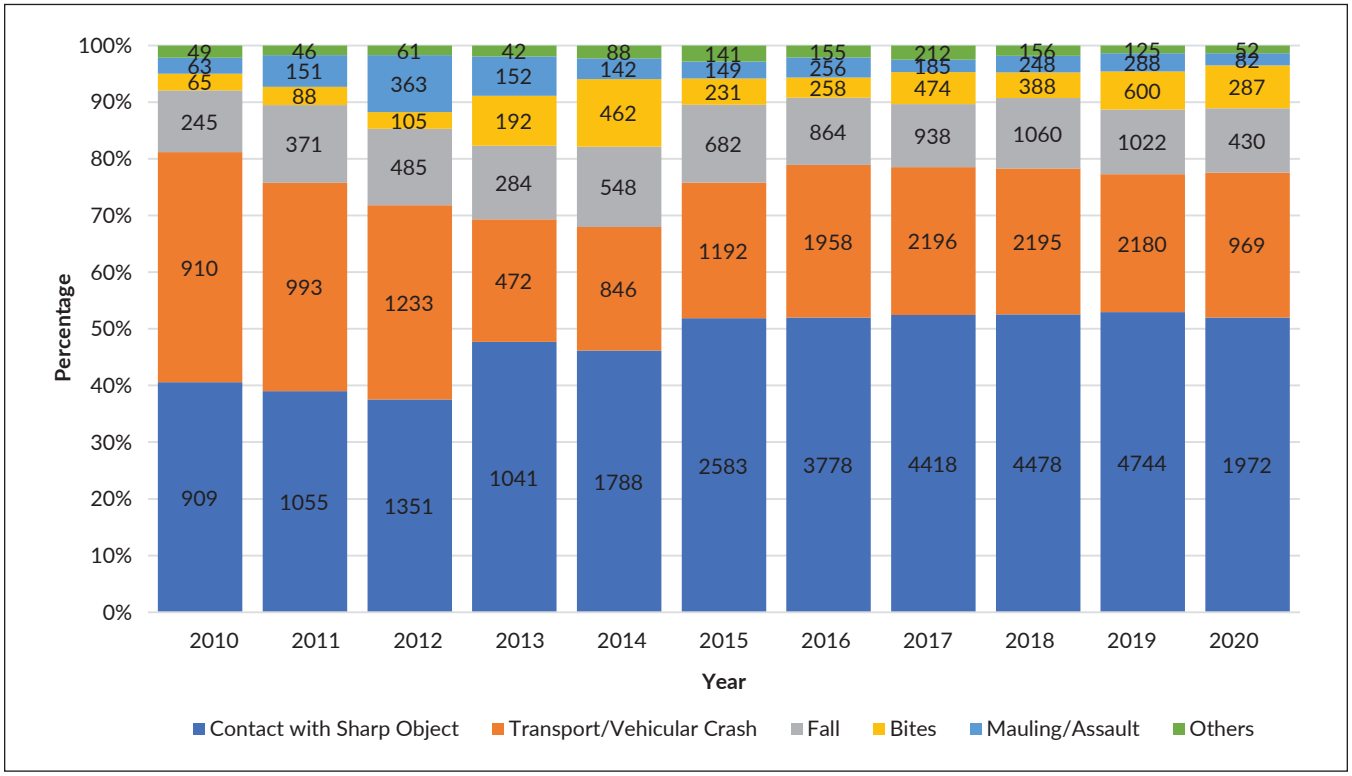


Figure 4. Proportional Distribution of External Causes of Work-related Injuries from 2010 to 2020.

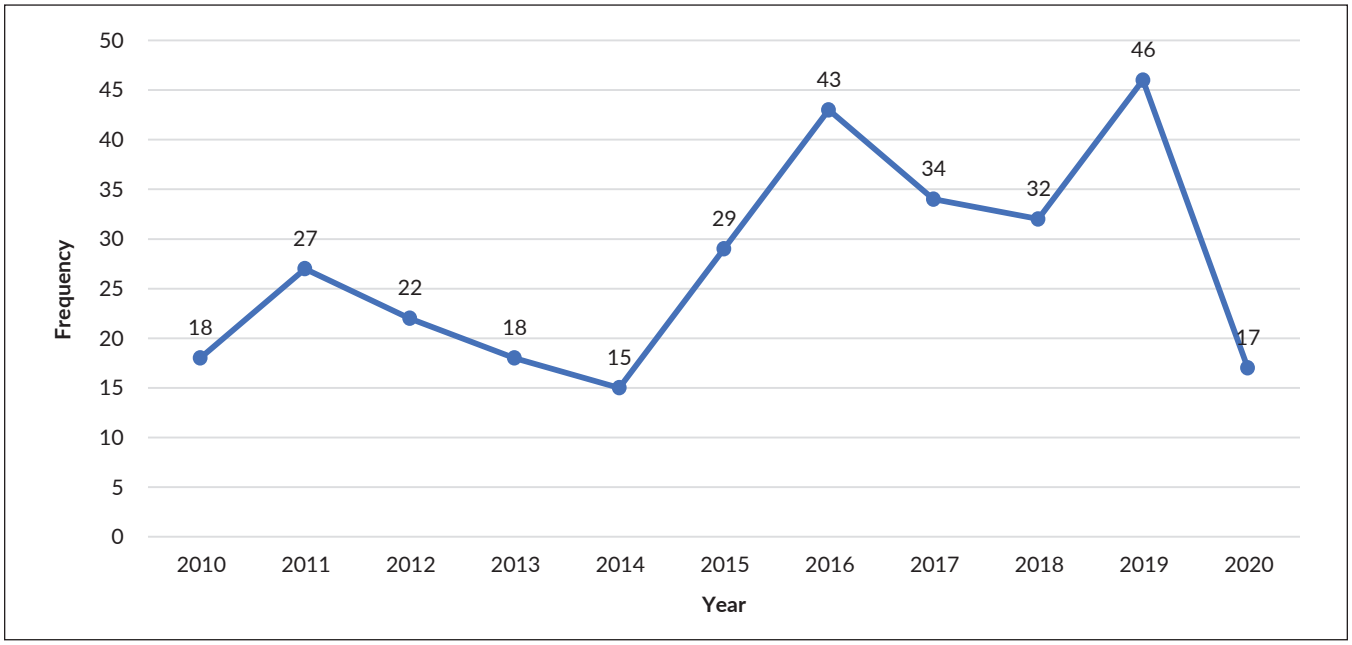


Figure 5. Patient Deaths from 2010 to 2020 due to Work-related Injuries.

Table 3. Phi-Coefficient Analysis of Work-related Injury against Injuries Sustained and External Cause

Variable	Phi Coefficient	p-value	N
Injury			
Avulsion	0.065	<.0001	419,820
Burn	0.045	<.0001	418,578
Open Fracture	0.034	<.0001	419,821
Open Wound	0.065	<.0001	419,821
Amputation	0.066	<.0001	419,819
External Cause			
Chemical/Substance Exposure	0.035	<.0001	419,820
Contact with Sharp Objects	0.254	<.0001	419,821
Exposure to Forces of Nature	0.016	<.0001	361,442

were significantly associated with Work-Related Injury. The Phi Coefficients in general suggested weak relationship, except for the relationship between work-related injury and contact with sharp objects which was moderately strong. Analysis of the relationship revealed that chemical/substance exposure, contact with sharp objects, and exposure to forces of nature were significantly positively associated with work-related injury (Table 3).

Logistic Regression Analysis

Logistic regression was used to determine the relationship between external causes as the independent variable, and patient fatality and work-related injuries as the dependent variables. In each of the model, the variables entered were selected through Forward Selection with a criterion for entry set at .05. Significant relationships were determined at a confidence level of 95%.

Patient Fatality

A total of 55,787 cases are considered in this model. Nagelkerke R-square suggests that the model explains up to 2.8% of the variance in the dependent variable. Results show that exposure to forces of nature (OR = 31.25), fall (OR = 2.57), and transport/vehicular crash (OR = 2.94) significantly increases the odds ratio of patient death among work-related injuries (Table 4).

Multiple Injuries

A total of 62,039 cases are considered in this model. Nagelkerke R-square suggests that the model explains up to 17% of the variance in the dependent variable. Results show that exposure to forces of nature (OR = 1.85), fall (OR = 2.30), and transport/vehicular crash (OR = 6.77) significantly increases the odds ratio of suffering multiple injury among work-related injuries (Table 4).

Abrasion

A total of 72,896 cases are considered in this model. Nagelkerke R-square suggests that the model explains up to 28.7% of the variance in the dependent variable. Results show that fall (OR=2.1) and transport/vehicular crash (OR=12.88) significantly increases the odds ratio of suffering abrasion among work-related injuries (Table 4).

Table 4. Logistic Regression Analysis on Patient Death, Multiple Injuries, Abrasion, and Closed Fracture among Work-related Injuries

External Causes	Parameter Estimate	Standard Error	p-value	Odds Ratio	95% CI for OR	
					Lower	Upper
Patient Death						
Exposure to Forces of Nature	3.442	0.478	<.0001	31.251	12.250	79.724
Fall	0.943	0.194	<.0001	2.568	1.757	3.753
Transport/Vehicular Crash	1.078	0.142	<.0001	2.938	2.224	3.881
Constant	-5.869	0.092	<.0001	0.003		
Multiple Injuries						
Exposure to Forces of Nature	0.615	0.273	0.024	1.850	1.083	3.161
Fall	0.835	0.032	<.0001	2.304	2.166	2.451
Transport/Vehicular Crash	1.912	0.023	<.0001	6.768	6.476	7.074
Constant	-1.738	0.013	<.0001	0.176		
Abrasion						
Fall	0.741	0.033	<.0001	2.098	1.965	2.239
Transport/Vehicular Crash	2.556	0.022	<.0001	12.879	12.337	13.445
Constant	-2.171	0.015	<.0001	0.114		
Closed Fracture						
Fall	2.268	0.041	<.0001	9.661	8.920	10.464
Transport/Vehicular Crash	1.417	0.039	<.0001	4.124	3.820	4.452
Constant	-3.686	0.028	<.0001	0.025		

Closed Fracture

A total of 72,897 cases are considered in this model. Nagelkerke R-square suggests that the model explains up to 12.7% of the variance in the dependent variable. Results show that fall (OR=9.66) and transport/vehicular crash (OR=4.12) significantly increases the odds ratio of suffering closed fracture among work-related injuries (Table 4).

DISCUSSION

The results showed that work-related road crashes increased since 2013, peaked in 2019, and declined by 2020, and dipped significantly from 2019 to 2020 (4,864, 6.80%) which may be due to the pandemic. Likewise, the highest number of reported patient fatalities occurred in 2019, which was the year before the COVID-19.

The huge decline of work-related injuries may also be due to work from home arrangements that reduced exposure of workers to environment risks at work. As early as March 23, 2020, banning of non-essential travel and work-from-home set-up were implemented to reduce the spread of the COVID-19.[3] This has also been documented in other countries. In the United Kingdom, a 28% reduction in burn cases, including work-related injuries, was observed by 2020 compared to the previous years before the pandemic, but an increase in injuries reported at home from 60% in 2019 to 85% in 2020.[3] Health and safety factors were found to be the major advantages of working from home including more flexible work environment for workers.[4,5]

The average age of work-related injured patients is 35.25 (±14.71). This indicates that victims of work-related injuries are those who are economically productive, or those in their prime working age. The International Labor Organization estimates that the lost working time, workers' compensation, interruption of production, and medical expenses due to occupational injuries cost more than four per cent of the global GDP (roughly 2.8 trillion US dollars).[6] But beyond the economic impacts of work-related injuries, the ILO noted that the human costs shall never be tolerated for there is no economic scale that can morally balance that cost.

NCR and CALABARZON region are shown to be the regions where most of the reported work-related injuries have occurred. Data from the Philippine Statistics Authority's Labor Force Survey shows that as of 2020, most of the labor force in the Philippines are also from the CALABARZON Region with 11 million population above 15 years old with 58.3% labor force participation, and NCR with 9.9 million population above 15 years old with 54.2% labor force participation.[7]

The increasing cases of work-related injuries observed in the ONEISS database is a trend that is also observed in other surveillance system. The International Labor Organization's ILOSTAT revealed that total cases of fatal occupational injuries have increased from 156 in 2015 to 469 in 2017, while the total cases of non-fatal occupational injuries have increased from 17,703 in 2015 to 20,328 in 2017.[8] Paradoxically, data from the World Bank shows that the proportion of vulnerable employment have been on a decreasing trend, from 42% in 2010, monotonously decreasing to 35.4% in 2016.[9] This calls for new criteria for vulnerable work in the modern era since previous standards of safety seems to be inadequate to address occupational injuries. Mental health and lifestyle could be taken into consideration as limited research have shown that depression, diabetes, and heart disease increase the risk of severe occupational injury.[10]

Contact with sharp objects (n=28,117) is the most common cause of work-related injury. Lu[6] explored the trends of occupational injuries in the Philippine setting and showed that contact with sharp objects has been consistently one of the most common reasons in sustaining injuries in the workplace. Another study by Faller et al.[11] identified that sharp objects are occupational hazards among healthcare workers in the Philippines. In Saudi Arabia, the most affected healthcare workers who sustained sharp object injuries were nurses, doctors, and housekeeping, and majority of exposure to sharp objects occurred during operation, waste collection, cannulation, and giving of injection in tertiary hospitals.[8] Cut wounds (17.6%) and needle prick (79.4%) are the most common type of injuries.[12] Factors found to influence contact to sharp objects are the workplace environment, distress, work types and load.[8] In the same study, Filipinos (32.1%) had the highest exposure to sharp objects, followed by Saudi (23.7%) and Indians (19.8%) in Taif City, Kingdom of Saudi Arabia.

Bondoc et al.[13] found that contact with sharp objects may be caused by unsafe working conditions, improper use of PPE, improper use of tool or equipment, and unsafe acts. This just shows that training on Occupational Safety and Health (OSH) may be insufficient to prevent injuries due to sharp objects in the hospitals, as evidenced by a non-significant relationship of OSH Programs and Contact with Sharp Objects in one study in the Philippines.[9] In Africa, although majority (62.2%) received training on OSH and followed safety practices such as proper disposal of sharps (86.6%) and use of personal protective equipment (85.8%), the analysis of occupational injuries in a government hospital showed that needlestick and other sharp injuries are still the most common occupational injuries.[14] This shows how safer workplaces can be achieved not only by passing OSH policies and conducting OSH trainings but also for the employees to practice precautions in their respective workplaces.

In this study in the Philippines, majority (82.89%) of the injured workforce are males. This could be due to males dominating the workforce with 67.8% employed males in 2017.[15] Moreover, on a gender-based analysis, men are more exposed to physical hazards such as chemical exposure, vibration, falls, and asbestos than their female counterparts.[15]

The 2017/2018 Integrated Survey on Labor and Employment (ISLE) showed that Exposure to or Contact with Extreme Temperatures is the fourth common cause of injuries that resulted to workdays lost across all industries in

the Philippines.[16] On the other hand, this study showed that the the forces of nature were significantly associated with increased odds of patient fatality (OR=31.25). Although the ONEISS did not define the specific type of forces of nature experienced by workers, the WHO included the following in its medical classification list for exposure to forces of nature, which were exposure to excessive natural heat, natural cold, sunlight, earthquake, volcanic eruption, avalanche, landslide and other earth movements, cataclysmic storm, flood, and other forces of nature.[17]

Exposure to environmental hazards such as toxic substances and air pollution can exacerbate common diseases, hence a comprehensive health history of workers including information on previous jobs, and inquiries or concerns related to exposures should be performed to reduce or prevent exposure from these hazards.[18] Some of the diseases that can be exacerbated by occupational environmental hazards are asthma, dermatitis, hepatitis B, and cancer.[18] Once diagnosed with occupational illness, further evaluation and treatment should be prioritized to reduce or eliminate environmental hazards that may affect other workers.[18]

One of the most common environmental hazards was the exposure to heat while at work, which is worsened by climate change.[19] Occupational heat stress can lead to social and environmental impacts such as heat illnesses, injuries, fatalities, loss of productivity, and inadequate social well-being.[19] Occupational heat stress may lead to heat stroke, heat exhaustion, heat cramps, among others.[20] Industries with workers outdoors are mostly exposed to occupational heat stress such as those related to agriculture, farming, fishing, forestry, and firefighters.[21] Adequate knowledge and awareness of workers on occupational heat stress, policies, strategies that focused on the capacity of workers, and funding are needed to address occupational heat stress.[19]

A fall is defined as, "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level".[22] Considered as the second leading cause of unintentional injury fatalities globally, falls are responsible for approximately 684,000 fatalities worldwide with 80% of cases coming from the low- and middle-income countries.[22] The results of this study showed that fall was significantly associated with increased odds ratio of patient fatality (OR=2.57), and increased odds of sustaining multiple injuries (OR=2.30), abrasion (OR=2.10), and closed fracture (OR=9.66). According to CDC, the most common cause of traumatic brain injuries are falls.[23] For every 1 out of 5 falls, fractures and head injuries occurred, and more than 800,000 annually are hospitalized for head injury and hip fractures.[23] The people mostly at risk for falls include those working at elevated heights or other similar hazardous working conditions, worsened by existing medical conditions.[22]

The Labor Force Survey of the Philippine Statistics Authority (PSA) shows that the construction sub-sector has the largest proportion of employed workers (9.4%) among the industry sector.[24] Son et al.[25] identified the construction industry and those older workers aged 42 years old and above to have higher cases of fall injuries. Injuries due to falls are considered the most severe compared to other occupational injuries among construction workers.[25] Furthermore, the occupations related to mining reported the highest number of fatal and nonfatal fall injuries, followed by occupations related to installation, maintenance, and repair.[26] Among fatal cases, head injury was the most common cause, while the upper and lower limb injuries were mostly reported for non-fatal fall injuries.[26] The involvement of the head part may explain the increased fatality among fall injured patients, hence, Socias et al.[26] recommended emphasis in providing safe environment for workers through training of employees on ladder safety, reducing the need for ladders during work, and providing an alternative or safer equipment or accessories in the use of ladders.

The results of the study also showed that transport/vehicular crash was significantly associated with increased odds ratio of patient death (OR=2.94), and in sustaining injuries, specifically multiple injuries (OR=6.77), abrasion (OR=12.88), and fracture (OR=4.12). Putz et al.[27] identified that transport/vehicular crash is mainly responsible for occupational fatalities in the wholesale sector and second-leading cause for the retail sector. Motor vehicular accidents were found to be one of the most reported causes of occupational spinal cord injuries.[28] Blue-collar workers, specifically dispatch riders or postmen, were mostly involved in occupational road crashes, and motorcycle was the vehicle used during crash.[29] Those workers who preferred to use motorcycles as a cheaper alternative have higher risk of road crash involvement.[29] Hence, the safety practices that may be incorporated to reduce fatalities and injuries due to road crashes should be carried out such as addressing fatigue, providing training, enforcement against distracted driving or use of mobile phones, and enforcement of effective post-crash response.[27] Workers must be able to go to work and return to their home safely through efficient and safe public transport system. Employers must also ensure that employees that need to travel as part of work were safe through maintained vehicles and observance of road traffic laws and regulations.

The study deals with a national registry and database and presents limitations such as the specific factors of mode of injury, risk factors to the injuries, and other significant occupational factors. There was also unavailability of sociodemographic factors such as age and gender. Another limitation of the study was the missing data. Although the dataset is still large consisting of 72,897 cases. Nonetheless, it gives an understanding of the magnitude of occupational injury as reported by hospitals and health facilities. It is recommended that more variables be included in the database to capture the size and type of the work establishment, work shift, various hazard exposures, other factors associated with the injury, and detailed description of the mechanism of injury in order to craft more specific work recommendations to reduce work-related injuries.

The study is limited by missing data as this is mainly culled from a national database surveillance. As of now, the data for the professions of patients admitted is lacking in the ONEISS database, hence the researchers cannot explore the relationship between professions and work-related injuries.

Although the research had some limitations, the study is a valuable source for occupational injuries and fatalities in the country. The study also showed the relationship between work-related injuries, patient fatalities, types of injuries, and external causes of injuries based on the ONEISS data from 2010 to 2020.

CONCLUSION

The study has shown the magnitude of work-related injuries that are reported by hospitals and health facilities all over the Philippines from 2010-2020, covering an 11-year period. The data shows that there is a total of 72,897 work-related injuries reported in the ONEISS database, which has an increasing trend every year if the pandemic did not happen. The injured workers are in their prime working age, which means that these injuries are significant losses to the national productivity and must be addressed. The most common reported injuries are open wound followed by multiple injuries and abrasions. The study also showed that contact with sharp objects was reported the most correlated external cause for work-related injuries. Finally, falls, exposure to forces of nature, and transport/vehicular crash are shown to be significant factors influencing patient death and work-related injury.

The study suggests that further research include assessment of safety management issues, social and cultural context of safety management to guide creation of occupational programs and policies. Occupational safety and health should be given importance through further education and research addressing the social, economic, and political environment at the workplace. Risk management may be improved through addressing the limitations of this study and further research with more comprehensive and quality data. Through adequate investment, development of research, and implementation of policies, the capacity and resilience of workers can be promoted, and sustainable development in the workplace fostered. If the workplace management, and government programs and legislation are in line in prioritizing the health and safety of workers, then creating a hazard-free environment is possible.

Statement of Authorship

The author confirms sole responsibility for the conceptualization of work, acquisition and analysis of data, drafting and revising, and final approval of the version to be published.

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