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Research Article

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Prevalence of Physical Injuries Among Pediatric Patients Who Consulted at the Emergency Room of a Secondary Government Hospital in Parañaque from October 2015 – March 2016

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Abstract

Objective: *To determine the prevalence of physical injuries among pediatric patients who consulted at the emergency room of a secondary government hospital in Parañaque from October 2015 – March 2016*

Design: *Prospective, observational, descriptive study*

Setting: *Emergency Room at a secondary hospital in Parañaque City*

Participants: *Pediatric patients, ages 0-18 years old, who consulted the emergency room of a secondary hospital in Parañaque City from October 2015 to March 2016 because of physical injury acquired from accidents*

Methods: *Data were gathered from the patients and/or patient's companion which were recorded in their charts, Data gathered and compared were: 1. Age, 2. Sex, 3. Time of injury, 4. Place of injury, 5. Cause of injury, 6. Physical findings, 7. Disposition*

Statistical Analysis: *Univariate analysis - frequency distribution were used.*

Results: *Injuries are majority in aged 5-9 and 10-14 years old. There is a male predominance. Most common causes are fall, sharp objects, violence, vehicular accident, heat related, animal bite, foreign body ingestion, poisoning and near-drowning. Injuries reported were abrasion, laceration, hematoma, contusion and punctured wound. Majority were discharged home.*

Conclusion: *Top three cause of injuries were fall, sharp objects and violence both in second place and vehicular accident in third. Injuries are better prevented than treated. Being aware of the causes involved, we could be able to prevent its occurrence and their consequences. Proper supervision for younger children and discipline for older children are key to prevention.*

Keywords: Injury, accident, fall, vehicular accident, burn

I. Introduction

A. Background of the Study

The global prevalence of injuries among the pediatric population has increased in the past years.

Unintentional injuries are the leading cause of morbidity and mortality among children in the United States. Annually, 12,000 children die from unintentional injuries and more than 9.2 million are treated in emergency rooms for non-fatal injuries [1].

Philippine Statistics (2010) ranks injuries 5th among the 10 leading cause of mortality in the general population. For children, accidental drowning and submersion ranked 6th among 1-4 years old and 3rd among 5-9 years old. For ages 10-14 years old, drowning and accidental submersion ranked 2nd while transport accidents ranked 4th [2].

Based from the National Statistics Office data in 2014, there were 34,825 reported physical injuries in 2012. Traffic injury consisted of 8,865 and fire injury was 8,798. Assault was the 8th leading cause of death in 2010 [3].

B. Statement of the Problem

What is the prevalence of physical injuries among Pediatric patients who consulted at the emergency room of a secondary hospital in Parañaque from October 2015 – March 2016?

C. Objectives

1. General Objective

To determine the prevalence or frequency of physical injuries among Pediatric patients who consulted at the emergency room of a secondary hospital in Parañaque from October 2015 – March 2016

2. Specific Objectives

a. To give the breakdown of injury statistics based on demographic variables
b. To enumerate the causes of the injuries
c. To compare the causes of injury based on the age and gender of the patient and the time of the injury and place where injury occurred
d. To determine the injuries acquired
e. To determine the disposition of patients after consult at the emergency room

D. Significance of the Study

Children have different cognitive, perceptual, motor and language competencies which provide a better understanding of the child's contributions to occurrence of injuries. Impact of childhood injuries is enormous in terms of disability, medical costs and morbidity. Injuries does not occur by chance, they are not random event since not every child has the same probability of being injured [4].

Injury is important because it requires urgent attention. Injuries are not inevitable because they can be prevented [5].

Hence by knowing the different factors which contribute to injuries, prevention can be done. This study will raise the awareness among leaders and can promulgate comprehensive, multi-disciplinary and multi-agency approach for prevention.

E. Scope and Limitation

Participants were pediatric patients, ages 0-18 years old who consulted from October 2015 up to March 2016 at the emergency room of a secondary hospital in Parañaque. Patients who consulted the Out Patient Department were not included.

II. Review of Literature

According to the United Nations Convention on Right of the Child, A child is every human being below the age of 18y/o [5].

An injury is not an accident. WHO defines accident as an event which is independent of human willpower cause by an external force, acts rapidly and results in bodily or mental damage. Accident is the event which causes the injuries as its consequences. Injury as any damage caused by a transfer of energy (chemical, mechanical, thermal, electrical or radiation) from a hazardous agent to a susceptible host in a conducive environment (physical and social) [4].

Injury is the physical damage that results when a human body is suddenly objected to energy in amounts that exceed the threshold of physiological tolerance, or else the result of a lack of one or more vital elements [5].

Leading causes of injuries are vehicular accidents, submersion injury or drowning and near drowning, falls, burns and poisoning. Most injuries occur at home and in school. Predominance of males over females among injured children. Most injuries occur at 7am-6pm. Most injuries at home and school were fall and burns resulting to laceration, contusion and abrasion [4].

Injuries due to transportation were leading cause of death for children worldwide [6]. Children accounted for 21% of all road traffic injury related deaths. Vehicle occupants of motor vehicles had highest death rates, 50% of all childhood deaths in high income countries. Number of children injured from road traffic crashes is estimated to be 10 million/ year worldwide [5]. Children are most likely to be injured or killed as pedestrians. Children aged 5-14 y/o are most at risk [5]. Injury rate related to motor vehicles was highest for 15-19 y/o due to increasing exposure and differences in the way they use the road. (3) Motorcycles are the leading cause of deaths among teenagers. Child cyclist or motorcyclist consist of 3-15% of injured children account for 2-8% of all child road traffic deaths [5].In the Philippines, traffic accidents are 2nd leading cause of death for young people. Pedestrians and motorcyclists have the highest risk [4]. Nonfatal injuries include head injury and fractured limbs consisting 10-20% of vehicular accidents [5].Low income and middle income countries account for 93% of child road traffic deaths.

Injuries secondary to fall were the leading cause of nonfatal injury. Children aged 1-4 y/o had the highest rate for fall and poisoning [1]. Accidental drowning had a mortality rate of 3.4 per 100,000 among 10-14 y/o and 2.7 per 100,000 among 15-19 y/o [7].

Burn is defined as an injury to the skin or other human tissue caused by heat. It occurs when some or all of the cells in the skin or other tissue are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries from radiation, electricity, friction or contact with chemical are also regarded as burn. Burns are the only type of unintentional injury where females have a higher rate of injury than males [5]. Scald and contact burns are important cause in overall morbidity and cause a significant disability. 75% of burns in young children are from hot liquids, hot water or steam. Infants under 1 y/o are at significant risk from burns. Mortality and morbidity from burn are associated with poverty, higher incidence among children in low income and middle income countries and poorer families in high income countries. Fireworks pose a significant risk for children, especially adolescent boys [5].

Violence is common among youth. According to 2003-2004 Global School Based Student Health Survey, 50% of high school students had engaged in a physical fight. Among high school students, 31.1% experienced an injury, 78% were accidental. Thirty five percent were bullied on one or more days. Injuries were more common in males [7].

Rabies is a significant health concern worldwide. In the United States, dog bites account for 76-94% of bites injuries and mostly were children, mid to late childhood. Philippines is one of the top 10 countries with rabies problem. In 2011, 202 deaths were reported and 328,459 were bitten by animals. Mostly are school children. Cases of bites were mostly caused by dogs [8].

Most common foreign body ingested are coins and mostly involves ages 1-3 years old. They are the most susceptible because they curiously tend to explore the environment and play with objects in their mouth and causes accidental swallowing. Thirty three percent involve 5-6 years old. Male were 58% while females were 42% [4].

In a study in Cebu about poisoning, 61% were less than 5 years old. Female to male predominance of 1.8:1. 97% occur at home and 72% were accidental in nature. Kerosene is the leading agent reported [9].

Most injuries occurred at 7am-6pm, when children are most active and play either at home, in school or on the streets [4].

III. Methodology

The prospective, observational, descriptive study was conducted from October 2015 to March 2016 at a secondary hospital at Parañaque among pediatric patients, ages 0 to 18 years old, who consulted the emergency room because of injury acquired.

The following data were gathered from the patients and/or patient's companion which were recorded in their charts.

1. Age
2. Gender
3. Cause of the injury
4. Time the injury occurred
5. Place where injury occurred
6. Physical injury acquired
7. Disposition of patient
8. Factors involving the injury (vehicle involved, object ingested, substance ingested)

Univariate analysis - frequency distribution were used.

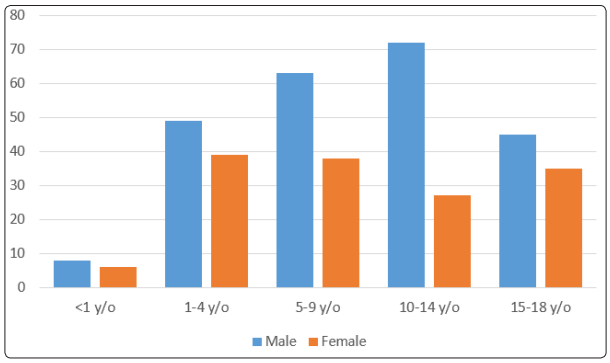

Figure 1: Distribution of Patients Based on Age and Gender

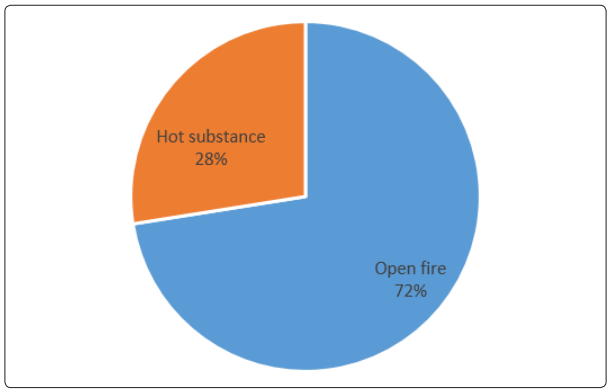

Figure 2: Causes of Heat Related Injury

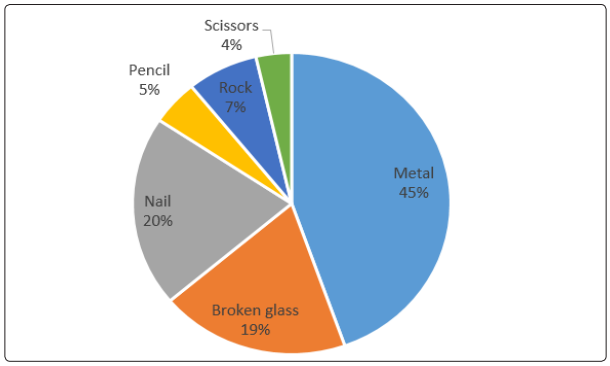

Figure 3: Causes of Sharp Object Related Injury

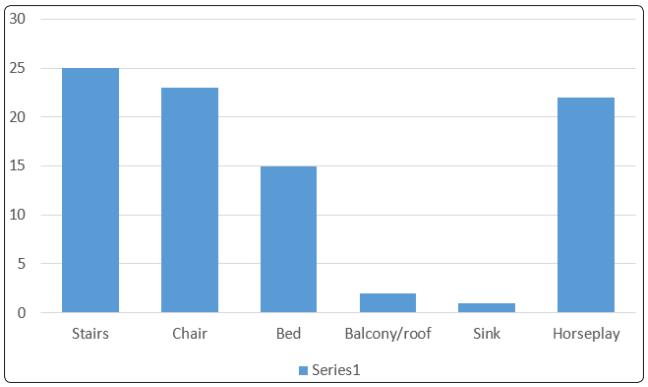

Figure 4: Location of Fall Injury

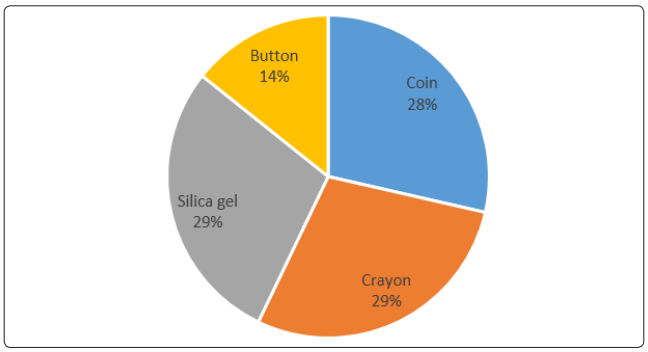

Figure 5: Objects Reported in Ingestion of Foreign Body Ingestion

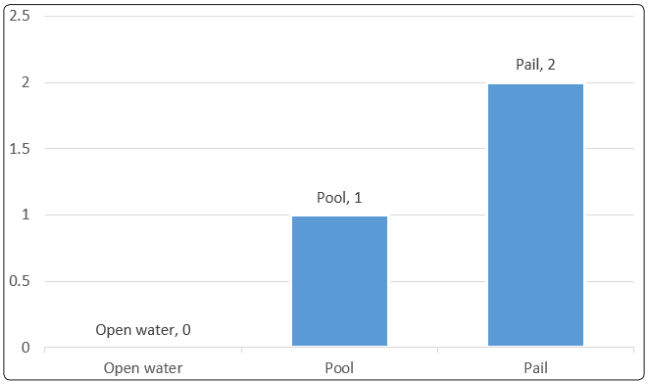

Figure 6: Location of Near Drowning

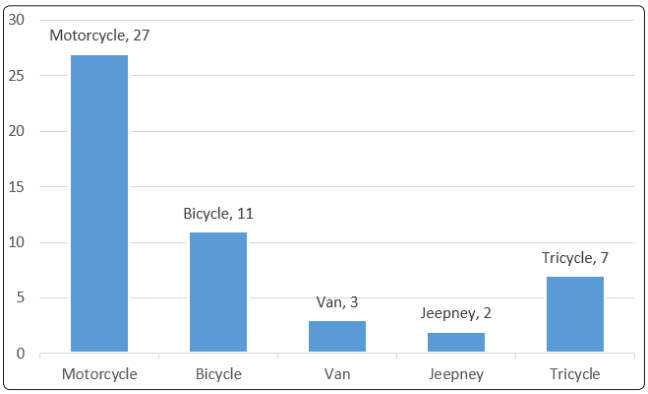

Figure 7: Vehicles involved in Vehicular Accidents

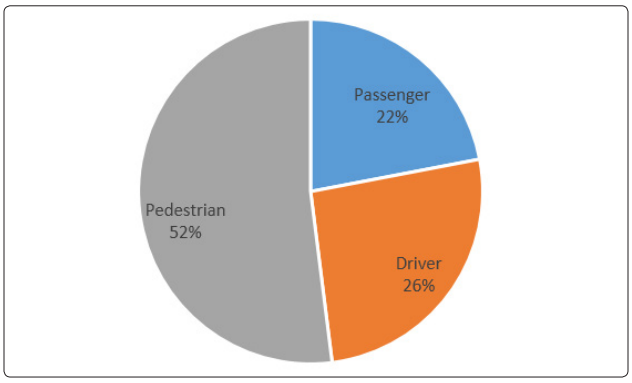

Figure 8: Role of Patients in Vehicular Accidents

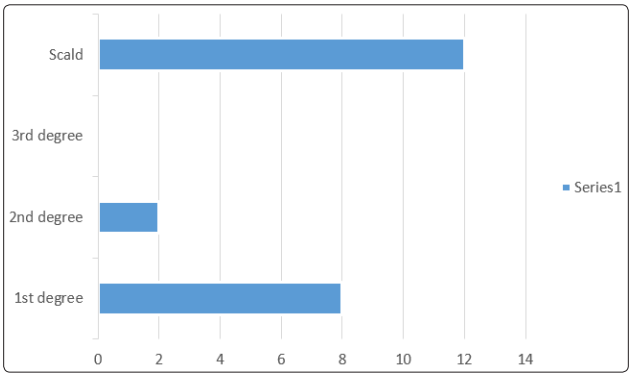

Figure 9: Burn Reported

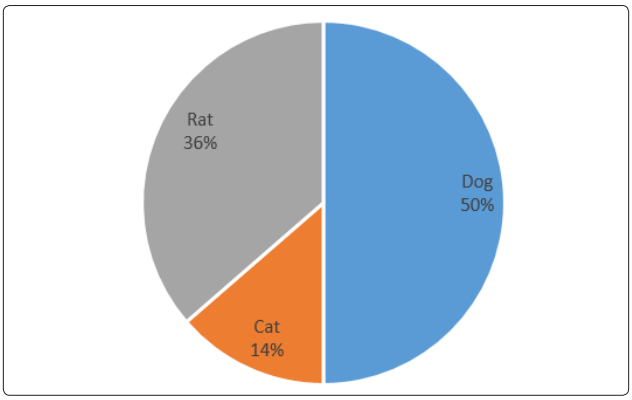

Figure 10: Animal Bite

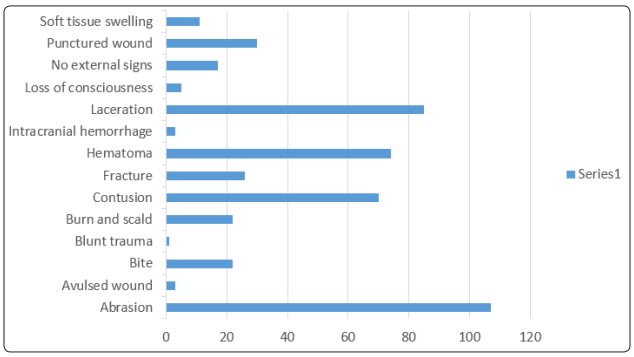

Figure 11: Injuries Reported

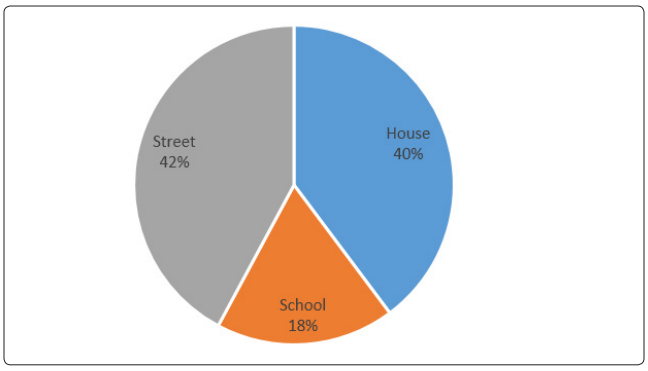

Figure 12: Place Where Injury Was acquired

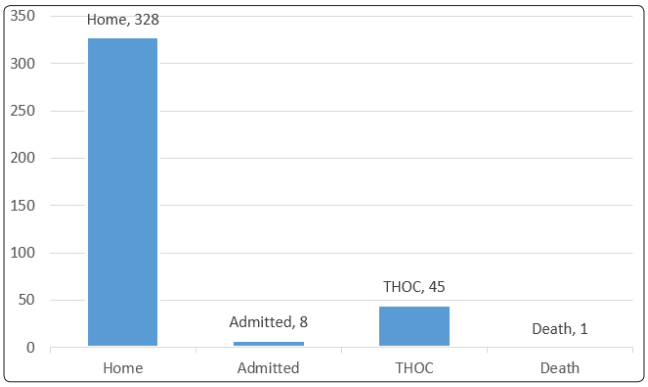

Figure 13: Disposition of Patient

IV. Results and Discussion

Sixty two percent were male and 38% were female. In all age groups, male predominate the female.

Most injuries, 26% involved children aged 5-9 years old and closely followed by aged 10-14 years old with 25%.

Majority of injuries occur at the streets 42%, followed by home 40% and 18% at school. Younger children get injured at home while older children get injured outside the home, school or on the way to school.

Based on the results, leading causes of injuries are fall 24%, sharp objects and violence related both 22% each, vehicular accident 13%, heat related 10%, animal bite 10%, foreign body ingestion 6%, and poisoning and near-drowning both 0.8% each.

Leading location of fall include 28% which occur at the stairs, 26% in a chair and 25% secondary to horseplay. 36% were 5-9years old while 32% were 1-4 years old. Time of incidence were 8pm-12mn, 24% and 4-8pm comprising 22%. Stairs is the leading location since children usually go up and down the stairs unguarded by the guardians or parents who are usually busy doing home chores. While children also try to climb a chair and loses balance hence they fall. Horseplay is fall secondary to pushing during games or play. Other children fell from the balcony, bed and sink. Fall from the the bed usually occur in children left to sleep and suddenly wakes up alone and falls from the bed. Incident that occur in the balcony occurred because the house was under renovation while the child who fell on the sink slipped of the hands of the parent during bath.

For injuries caused by sharp objects, majority, 45% were due to metals ("bakal"), wherein children accidentally hit it hence injury. 19% due to broken glass (drinking glass, window, television screen). 20% were injured by nail ("pako"), accidentally stepping on nails during play. 5% were due to pencils pointed by classmates or schoolmates. 7% were due to rocks, thrown at kids and misuse of scissors were 4%. 36% involve children aged 10-14 years old. They usually occur at 12nn-4pm 35%, 8am-12nn, 30 % and 4pm-8pm 25%.

Injuries secondary to violence which occur at school or on the streets account for 22%, majority among 10-14 years old comprising 47%. While 38% are aged 15-18 years old. These are street fights among "barkadas" or family fights. These usually occur at 8pm-12mn, 36% and 31% occur at 4-8pm.

Majority of vehicular accidents, involve motorcycles 54%, bicycles 22% and tricycle 14%. Most victims were pedestrian 52%, followed by drivers 26% and passengers 22%. Both 1-4 years old and 15-18 years old age group account for 30% each. 42% occur at 12-4pm while 34% occur at 8pm-12mn. This could be explained by the poor habit of Filipinos of not following traffic rules, crossing the streets in non designated areas and early driving involvement of adolescents even without license. The affordability of motorcycles also attribute to a huge number of motorcycles in the streets. Road traffic injury is associated with poverty irrespective of income level because the road is a shared space for playing, working, walking, cycling and driving. Other risk factors are riding and walking in mixed traffic, cycling in pavements, not wearing effective clothing, poor supervision, volume of traffic and excessive speed.

Seventy two percent of heat related injuries were secondary open fire. Open fire incidents include children playing with matchstick, fire used for cooking ("nagsisiga") and firecrackers. While 28 % were caused by hot substances such as hot water, coffee, noodles and rice. This is because parents/guardians fail to supervise children. Majority involve 1-4 years old and 10-14 years old, both 27% each. Common time of occurrence is at 12nn-4pm which is 30% and 8am-12nn which is 25%.

Half of the animal bites reported seen were dog bites. Followed by rat bites with 36% and cat bites with 14%. Majority were aged 5-9 years old accounting for 50%. These usually occur at 4-8pm, 36% and 8pm-12mn which is 32%. Animal bites are common among children playing with pets or agitating animals around them. There are also many stray animals in the streets. While rats, which are considered pests are common among homes of the indigent.

Ingested objects reported were coins, crayon, silica gel and button. All were accidental. All belong to the 1-4 years old age group. 57% happened at 4-8pm.

Poisoning reported were accidental ingestion of alcohol, tiner and kerosene. All aged 1-4 years old and happened at 8am-12nn. These agents were placed in locations which are accessible to children and in bottles or containers of beverages.

Near drowning incidents were children taking a bath in pails and playing in portable swimming pools. They were all within 1-4 years old and occurred at 4-8pm. Parents or guardians are unable to watch their children hence the occurrence of near drowning. There was no report of drowning in open water.

Injuries reported were abrasion 22%, laceration 18%, hematoma 16%, contusion 15% and punctured wound 6%. Fractures common in the forearm 35% and arm 11%. Patients considered to have fractures were 46%.

Patients seen at the hospital, 86% were discharged home, 12% were advised to transfer to hospital of choice for further evaluation and management, 2% admitted and 1 child was reported dead on arrival secondary to vehicular accident.

Table 1: Distribution of Injuries Based on Age

	<1 y/o	1-4 y/o	5-9 y/o	10-14 y/o	15-18 y/o	Total
Heat related	3	11	10	11	5	40
Fall	9	29	33	7	13	91
Sharp related	0	14	27	30	12	83
Poisoning	0	3	0	0	0	3
Ingestion of foreign body	0	7	0	0	0	7
Near drowning	0	3	0	0	0	3
Vehicular accident	0	15	11	9	15	50
Violence related	0	3	9	39	32	83
Animal bite	2	3	11	3	3	22
Total	14	88	101	99	80	382

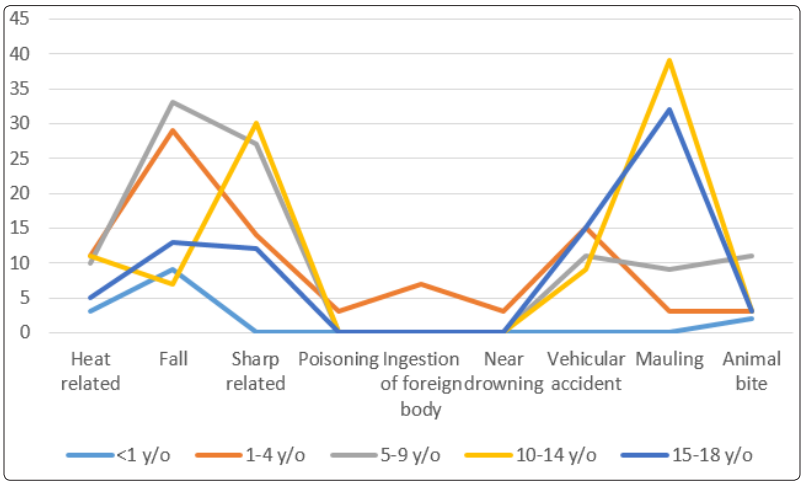

Table 2: Distribution of Injuries Based on Time of Occurrence

	12-4am	4-8am	8-12nn	12-4pm	4-8pm	8-12mn	Total
Heat related	7	4	10	7	6	6	40
Fall	3	5	13	27	21	22	91
Sharp related	0	0	8	29	21	25	83
Poisoning	0	0	3	0	0	0	3
Ingestion of foreign body	0	0	1	1	4	1	7
Near drowning	0	0	0	1	2	0	3
Vehicular accident	3	0	2	21	7	17	50
Violence related	0	6	8	13	26	30	83
Animal bite	0	0	7	4	8	3	22
Total	13	15	52	103	95	104	382

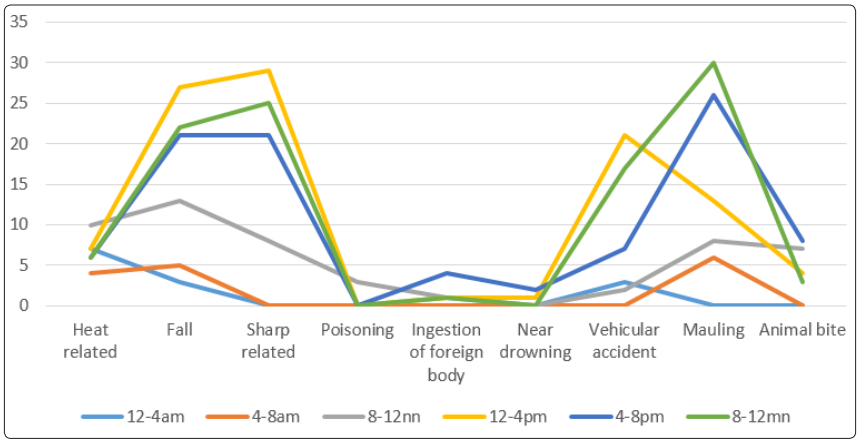

Table 3: Substance involved in Poisoning

Alcohol	1
Tiner	1
Kerosene	1
Total	3

Table 4: Fractures Reported

Arm	3
Forearm	9
Parietal	1
Rib	1
T/c fracture	12
Total	26

APPENDIX 1

Patient #	Age	Gender	Nature of injury	Place of injury	Time of injury	Injury	Disposition

V. Conclusion

In summary, most injuries involve male children. Majority belong to the 5-9 years old and 10-14 years old age bracket. Injuries usually occur at the streets and home. Younger children get injured at home while older children get injured at the streets or at school. Top three cause of injuries were fall, sharp objects and violence both in second place and vehicular accident in third. Other causes of injuries were heat related, animal bite, foreign body ingestion, poisoning and near-drowning. Injuries reported were abrasion, laceration, hematoma, contusion and punctured wound. Majority were discharged home.

Injuries are better prevented than treated. Being aware of the causes involved, we could be able to prevent its occurrence and their consequences. Proper supervision for younger children and discipline for older children are key to prevention. Keeping of sharp objects and hot substances beyond children's reach is a must. Obeying traffic rules must be observed.

VI. Recommendation

The author proposes that the study may be done in private hospitals to compare the injuries between government and private patients. The study may also be done simultaneously on rural and urban areas to compare the two populations.

VII. Acknowledgement

This study was made possible through the cooperation of the parent/guardians and patients of Ospital ng Parañaque, medical records staff for lending us the charts for review.

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