

Self-Inflicted and Unintentional Firearm Injuries among Children and Adolescents: The Source of the Firearm

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Abstract

Suicide is the third leading cause of death and firearm injuries contribute 65% of those deaths. To determine the ownership and usual storage location of firearms used in intentional and unintentional self-inflicted firearms deaths. Retrospective case series was performed in Nishtar Medical College and Hospital, Multan. Youth age between 1 to 17 years of age recruited in the study, who visited medical trauma unit to seek treatment from January 2019 to January 2020. Medical examiner records, regional police investigative reports, medical records from a level I trauma center, and surveys of victims' families. 70 non-fatal injuries and 60 deaths had occurred during this period. Forty-five of these deaths were classified as intentionally self-inflicted (suicide), among these ten deaths were accidental and five were uncertain and undetermined. Of the 70 nonfatal injuries (20%) were classified as suicide attempt and 80% were unintentional. Majority of the guns involved in firearm injuries belongs to the victim's parents and found in victims home

INTRODUCTION

Suicide is the third leading cause of death among adolescents and firearms causes deaths in 65% of younger persons <19 years of age (Zavoski, Lapidus, Lerer, & Banco, 1995). It is reported that in 1995 unintentional firearm injuries lead to 440 deaths of children who were younger than 19 years of age (Control & Prevention, 1995). It is thought there are 5 times more firearm injuries unintentional compared to fatal injuries (Fowler, Dahlberg, Haileyesus, & Annest, 2015).

Access to firearms in the home has been demonstrated to be associated with an elevated risk of suicide in several studies, particularly among adolescents. Because gun owners frequently express opposition to removal of weapons from the home, alternative strategies, such as locking and unloading guns, may prove to be more practical, acceptable, and achievable. Although there are few specific guidelines available to define the proper storage of a firearm, currently available options include the use of a single device or a combination of a trigger lock, a locked gun safe, and/or a portable locked handgun box.

The effectiveness of secure firearm storage to prevent suicides and unintentional firearm injury has not been estimated; however, it seems plausible that such a strategy could lead to reduced access to firearms. If adults in residential settings are the source of these guns, then securely locking guns may prove effective. However, if guns are largely coming from peers, adult friends, or illicit sources, then secure storage of guns in the home may not be a plausible strategy for prevention. A recent evaluation of child gun access prevention laws in the United States showed a 23% lower rate of deaths among children younger than age 10 years in states that had passed such a law, compared with the baseline rate before the law. Smaller effects in the same direction were also seen with suicide and homicide, suggesting that combined efforts of education and enforcement regarding firearm storage may have an impact.

The purpose of this study was to determine the ownership and the usual storage site of firearms implicated in fatal and nonfatal suicide attempts and unintentional firearm injuries occurring among youth in a city.

MATERIALS AND METHODS

This was a retrospective case series conducted in Nishtar Medical College and Hospital, Multan. Subjects included individuals aged 19 years and younger who either received emergency department and/or acute inpatient care at Medical Center, Seattle, for a self-inflicted or unintentional firearm injury, or who were transported to the county medical examiner. Subjects were included if the injury occurred between January 2019- January 2020. The medical examiner classifies deaths as intentional, unintentional or of undetermined intent. Medical examiner death investigate the death record and this data include the police report usually both demographic data and information about the ownership and identify the location of firearm.

RESULTS:

A group of 130 patients include in the study after following the inclusion criteria and 70 nonfatal injuries and 60 deaths had occurred during this period. Forty five of these deaths were classified as intentionally self-inflicted (suicide), among these ten deaths were accidental and 5 were uncertain and undetermined. Of the 70 nonfatal injuries (20%) were classified as suicide attempt and 80% were unintentional.

Table 1; Classification of Deaths

	Deaths	Nonfatal injuries	Total
Suicide related	45	15	60
Unintentional	10	55	65
Undetermined	5	-	5
Total	60	70	130

Among the fatal and nonfatal suicide attempts, 80% of the patients were boys and only 20% were girls. The mean age for the suicide attempt was <17 years (range, 10-17 years). Among the unintentional deaths and injuries, 95% were boys and their mean age for unintentional events was 14 years (range, 5 – 19 years).

Incident location

Fatal and nonfatal suicide attempts (86%) occurred in patients home and 8% occurred in relatives or friend home. 45% accidental injuries and deaths also occurred in residency of victims and majority of these injuries occurred in personal residency rather than relative residency.

Table 2; Incident location

	Suicide Attempts (%)		Unintentional Injuries, (%)	
Location of incidence	Fatal (n = 45)	Nonfatal (n = 15)	Fatal (n = 10)	Nonfatal (n=55)
Victims home	34 (75)	10 (66)	5 (50)	18 (32)
Relative home	3 (6.6)	5 (33)	4 (40)	16 (29)
Village are	2 (4)	0 (0)	0 (0)	5 (9)
Street crime	1 (2)	0 (0)	0 (0)	4 (7)
Others	0 (0)	0 (0)	0 (0)	7 (12)
unknown	5 (11)	0 (0)	1 (10)	5 (9)

Over the half of the weapons used in self-inflicted deaths and injuries were handguns (n=35), about one third were rifles and 8 % were shotguns. Among the unintentional injury cases, 60% of the weapons were handguns, 22% were shotguns, 12 % were rifles and 3% were pellet guns.

Table 3; Gun Owner

Gun Owner	Fatal and nonfatal suicide Attempts (n = 50)%	Unintentional injuries and deaths (n = 40) %
Household member	30	10
Victim	10	10
Friends	5	15
Family members not in household	4	3
Stolen	1	2

It is observed in this study, among suicide attempts and deaths occurred due to suicides the parents was the most often the owner. 70% of the victims used their parents' gun to attempt suicide or the cause of the death.

DISCUSSION

The state of artifact in unintentional injuries was classified in 70% of all fatal and non-fatal cases and majority of cases reveals those victims were playing with the gun. Other states like transportation of guns and cleaning were performed. Half of the cases occurs in lack of supervision of parents. Data regarding fatal injuries were more complete and available than non-fatal data. Our results are similar to the results of Oregon showing that 78.8% of deaths are fatal and non-fatal injuries occurs in the house of victims (Control & Prevention, 1995). Another study showed that majority of deaths occur while children playing with guns at the age of 14 similar to our study where children age is 17 (Martin, Sklar, & McFeeley, 1991).

This study reveals that firearms incriminate suicides, suicides attempts and unintentional injuries related to firearm among children and adolescent. By inspecting all the cases of firearm injuries and suicides, firearm weapon most likely belongs to the owner of the household member. In both intentional and unintentional cases firearm weapons usually stored in the home. These findings have imply on policy makers our findings suggested that policies to improve firearm storage practices in home may have large impact on these types of incidents. In order to make it secure, parents should imply the secure firearm storage practices.

The potential limitation of this study is that we are unable to validate the information of ownership and location of the gun. It is being assumed that parents and caretakers might provide incorrect information in order to hide the crime and feeling of guilt. A second limitation is that police reports were unavailable for a huge number of cases, therefore misclassification may occur.

CONCLUSION

We concluded that firearms weapons used in self-inflicted and unintentional fatalities were most likely obtained in homes and most likely the property of victims. Our homes were the source of firearms in the cause of unintentional injuries and deaths.

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