

# DELIBERATE SELF-HARM AMONG PATIENTS PRESENTING TO TEACHING HOSPITAL – KARAPITIYA, SRI LANKA - A RETROSPECTIVE, DESCRIPTIVE STUDY -

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## ABSTRACT

**Introduction:** Deliberate self-harm is defined as an injury inflicted on oneself without suicidal intent. Relatively few studies have been carried out in Sri Lanka on this aspect; therefore, reliable statistics are lacking.

**Objective:** To identify epidemiological and socio-economic factors and medico-legal aspects of injuries of due to deliberate self-harm in patients presenting to the Teaching hospital, Karapitiya.

**Materials and Methods:** All medicolegal records of patients examined by the authors with deliberate self-harm admitted to the Teaching hospital, Karapitiya from 1<sup>st</sup> of January 2010 to 31<sup>st</sup> of December 2014, were retrospectively analyzed.

**Results:** There were 47 patients. Eighty two percent were male. Majority (60%) were between 16 – 25 years. Sixty-one percent of them were married and 51% were unemployed. Only 12% had studied beyond G.C.E. Ordinary level. Most cases were reported during the period April to June. Twenty-two (46%) males had consumed alcohol at the time of the incident. Sixty-four percent had committed the act to gain sympathy or recognition.

Superficial cuts and scratches were the most common type of injury (81%). The non-dominant upper extremities (75%) were the most common sites of injury. The commonest method used by males was cutting with sharp instruments whereas for females, it was pricking with needles and pins. Eighty-three percent had non grievous injuries. Sparing of clothes were present in 94%. Twenty-eight percent of patients had a history of similar previous attempts.

**Conclusions:** Injuries due to deliberate self-harm is a considerable public health problem which can cause significant harm especially among young males. Low level of education, unemployment and substance abuse were among the associated risk factors identified in this study. Young males were the most vulnerable group and they should be targeted when considering preventive measures.

## INTRODUCTION

The Penal Code of Sri Lanka defines an “injury” as any harm, whatever illegally caused to any person in body, mind, reputation or property.<sup>1</sup> According to the World Health Organization, an injury is the physical damage that results when a human body is suddenly or briefly subjected to intolerable levels of energy that exceed the threshold of physiological tolerance.<sup>2</sup>

Injuries can be categorized in a number of ways. By considering intention, injuries can be broadly divided as unintentional (accidental) and intentional (deliberate) injuries.<sup>2,3</sup> Unintentional injuries can be further divided based on causal mechanism and the place of injury whereas intentional injuries can be divided broadly in to the categories of self-inflicted injuries, interpersonal violence and collective violence.<sup>2,3</sup>

Causing self-harm is a practice dating back as far as the second century AD. This was known to occur among the members of the Roman army to avoid service in critical situations.<sup>4</sup> Self-inflicted injuries refer to a broad class of behaviours in which an individual directly and deliberately causes harm to herself or himself.<sup>5</sup>

Self-inflicted injuries can be divided in to two main categories; deliberate self-harm and attempted suicides. Deliberate self-harm is defined as an injury inflicted on oneself without suicidal intent, whereas attempted suicide is defined as a potentially self-injurious behavior associated with at least some intent to die.<sup>3,4,5</sup>

Self-inflicted injuries represent a serious public health issue. According to the literature, there is a significant rise in the reported self-inflicted injury incidences around the world.<sup>6,7,8,9</sup> Relatively few studies have been carried out in Sri Lanka in this aspect. Therefore, reliable statistics are lacking. Lack of epidemiological and medico-legal data on self-inflicted injuries has impeded the development and implementation of preventive and health promotive measures among the general public. This paper attempts to provide a descriptive overview of injuries due to deliberate self-harm and their medico-legal and epidemiological implications.

## OBJECTIVES

To identify epidemiological and socio-economic factors and medico-legal aspects of injuries of due to deliberate self-harm in patients presenting to the Teaching hospital, Karapitiya.

## MATERIALS AND METHODS

All patients presenting with deliberate self-harm to the Teaching Hospital, Karapitiya from 1<sup>st</sup> of January 2010 to 31<sup>st</sup> of December 2014, examined by the authors were considered. Information was gathered from the medico-legal examination forms (MLEF), bed head tickets and other relevant medical reports. The medico-legal records of 47 cases were evaluated. All attempted suicides were excluded. A pre-coded data collection form was developed and the routine data were analyzed to document epidemiological and socio-economic data and to describe the medico-legal aspects of injuries, by using Microsoft Excel and SPSS software.

## RESULTS

Of 3478 medico-legal referrals examined by the authors 56 (1.5%) had self-inflicted injuries. Of those with self-inflicted injuries, 47 (1.3%) were due to deliberate self-harm and the remaining 09 (0.2%) were due to attempted suicides. The attempted suicide cases were excluded from the study. Out of the patients presenting with deliberate self-harm, 39 (82%) were male and 08 (18%) were female. Majority (60%) were in the age range of 16 – 25 years with the highest incidence for both genders being in the 21 – 25 age group (**Table 01**). The youngest victim was a 14-year-old school boy and the eldest victim was a 43-year-old carpenter.

**Table 1: Distribution based on age and sex**

Age (years)	%	Male	Female
10 - 15	02	01	00
16 - 20	21	07	03
21 - 25	39	14	04
26 - 30	26	11	01
31 - 35	04	02	00
36 - 40	04	02	00
41 - 45	04	02	00

Out of the 39 males, 15 (38%) were unmarried and 24 (62%) were married. Out of the eight females, three (38%) were unmarried and five (62%) were married. Occupational status of victims showed that 51% were unemployed and 43% were working as unskilled (28%) or semiskilled (15%) labourers. Only 06% were skilled workers and none were professionals in the sample. When considering the level of education, only 12% had studied beyond ordinary level. None of them were degree holders. Most number of cases were reported during the period of April to June (47%) followed by October to December (27%) and January to March (14%). Lowest number of cases were reported during the July to September period (10%). Out of the males, 46% had consumed alcohol at the time of the incident followed by Marijuana (Ganja) (12%), and other substances of abuse (04%), whereas none of the females were found to have consumed any substance of abuse. Sixty-four percent (64%) had committed the act to gain sympathy or recognition. Psychiatric disorders were identified in 8% of cases after referrals (Table 2).

**Table 2: The identified reason**

Identified reason	%	Male	Female
To obtain sympathy/pity/attention	66	23	08
To gain recognition or admiration	06	03	00
Evasion of military services	13	06	00
Simulation of a crime / Fabricated injury	08	04	00
Psychiatric disorder	08	04	00

Superficial cuts and scratches were the common injury types (81%) (Table 3).

**Table 3: Type of injuries**

Type of injury	%	Male	Female
Superficial cuts	38	17	01
Scratches	43	14	06
Bruises	14	06	01
Deep cuts	04	02	00
Fractures	00	00	00

Upper extremities (75%) including forearms, wrists, and arms were the most commonly affected sites of injury (Table 4).

**Table 4: Site of injuries**

Site	%	Male	Female
Head	06	03	00
Face	00	00	00
Upper limb	75	28	07
Lower limb	06	02	01
Trunk	13	06	00

Majority of the male patients (n=31) had more than one injury whereas, majority of female patients (n=06) had only one injury. None of the females had more than 02 injuries whereas 04 males had more than five injuries. All female patients had characteristic features of injuries caused by deliberate self-harm (Table 5).

**Table 5: Characteristic features**

Characteristic feature	%	Male	Female
Injuries present on the non-dominant hand	89	34	08
Multiple, parallel and superficial injuries	82	31	08
Sparing of clothes	94	36	08
Excluding vital sites	89	34	08

Twenty-eight percent (28%) of patients had a history of similar previous attempts and out of that 11 were males and 02 were females. The commonest method used for self-harm by males was cutting with sharp instruments (n=17) and hitting against glass windows and doors (n = 11). For females the commonest method was pricking with needles and pins (n = 5) (Table 6).

**Table 6: Method used**

Method used	%	Male	Female
Cutting (blade, knife, broken bottle)	40	17	02
Hit against glass doors or windows	23	11	00
Pricking with needles and pins	10	00	05
Hitting with clubs	11	05	00
Hit against a wall	15	06	01

Eighty-three percent (83%) had non grievous injuries and none had injuries which were fatal in the ordinary course of nature. All females had only non-grievous injuries. Fifteen percent of males (n=6) had grievous injuries and 5% (n=2) had injuries which were endangering life.

## DISCUSSION

Deliberate self-harm or the non-suicidal self-injury is most commonly described as deliberate, direct destruction or alteration of body tissue without conscious suicidal intent.<sup>10,11</sup> Prevalence of deliberate self-harm differs from country to country.<sup>6,7,8,9</sup> In Germany, the prevalence is reported to be around 0.6% to 0.8%<sup>4</sup> where as in Teheran, Iran it was around 12.6%.<sup>5</sup> Higher prevalence rates were reported with college students (38%)<sup>11,12</sup>, incarcerated adolescents (10.4%)<sup>13</sup>, and adolescent psychiatric in-patients (60%-80%).<sup>14</sup> According to one study done at the National Hospital of Sri Lanka, the prevalence was 1.4%. A similar prevalence rate of 1.3% was observed in this study.

Many authors have reported a higher prevalence of self-injurious behaviors among female than male. According to a Swedish study, the prevalence among female was 1.4% whereas among male it was 0.7%.<sup>6</sup> According to another study, of the patients presenting with deliberate self-harm, 70% were female.<sup>16</sup> In another study conducted at Contra Costa county, 60.3% of the patients presenting with self-injuries were female.<sup>17</sup> Some studies suggest otherwise. According to one study conducted in Minnesota, prevalence among males was 72%.<sup>18</sup> In this study, 82% of the patients who presented with self-injurious behaviour were male. The low level of prevalence among females could be due to multiple reasons. Frequently, these female patients would present themselves to their family physicians for treatment, therefore the number of reported cases could be low. On the other hand, some of these self-inflicted injuries can be mistaken as accidental injuries. If the attending doctor is not careful enough in history taking and examination, some of these injuries could easily get misdiagnosed as accidental injuries, especially if the history given by the patient is intentionally fabricated. The male predominance may be attributable to their active participation in risk taking behaviours and their frequent involvement in substance abuse.

A significant prevalence was noted among adolescents in many studies. According to a study conducted in Canada, the highest rate for both male and female was seen in the 15 to 19 age group.<sup>19</sup> In another study conducted in Teheran, Iran, the mean age of male self-injured patients was 23.2 ± 10.7 years and the mean age of the female self-injured patients was 29.8 ± 9.2 years. According to another study, the highest prevalence was noted among 15 to 20 age group.<sup>16</sup> In a study conducted at Minnesota, the highest prevalence was among the age group of 15 to 18 followed by 10 to 14.<sup>18</sup> In another study conducted among patients hospitalized with self-inflicted injuries at Contra Costa County, 26.3% of patients were from the 15-24-year age group.<sup>17</sup>

In this study, for both genders, the highest percentage of cases were reported from the age group of 21 to 25 (39%) followed by the age group of 16 to 20 (21%). These findings are similar to the findings of other studies. WHO defines 'Adolescents' as individuals in the 10-19 years' age group while 'Young People' covers the age range 10-24 years.<sup>2</sup> The high prevalence of self-injurious behaviour among the adolescents and young adults is a known phenomenon.<sup>16,17,18,19</sup> In this study, 23% of the patients were from 10-20 age group and 62% from the age group of 10-25 age group. This further supports the similar prevalence rates of other studies.

Marital status is another important factor in the analysis of deliberate self-harm patients. The literature on this aspect is very limited. According to one study conducted in Teheran, Iran, out of the patients presenting with self-injuries, 58% were unmarried.<sup>5</sup> However, in this study, 62% of the patients presenting with deliberate self-harm were married. Similar percentages were observed for both the male and the female patients.

High rates among those who are married could be related to marital problems though further study in this area is needed for valid conclusions.

The motivations for self-injury can be exceedingly diverse and multifactorial. The identified reasons for such behavior can be broadly divided into three categories; psychological, judicial and material.<sup>4</sup> The described reasons under psychological category include, to obtain sympathy, to gain recognition or admiration, for pleasure and as a manifestation of mental disorder or disease. Under judicial category, simulation of a crime, defamation and defense against reproach (to justify illicit absences) are the leading causes. Insurance fraud and evasion of military service comes under the material category.<sup>4</sup> In this study, all three categories of psychological, judicial and material causes were observed as the given reasons among the patients. According to available literature, simulation of a

crime is one of the commonest motives to cause self-harm.<sup>4</sup> In a study done in Teheran, Iran, underlying motive was simulation of a crime in 71% of the patients presented with self-injury.<sup>4</sup> Simulation of an alleged assault was the most common cause of referral for men, whereas for females it was fictitious sexual offence.<sup>4</sup> However, in this study, the identified reason for all the female patients (100%) was "to obtain sympathy or attention". This was the most common reason among males as well (59%). It is a known fact that some individuals hurt themselves in order to relieve negative emotional states.<sup>20</sup> The individuals who lack emotional stability are therefore at increased risk of self-harming behaviors. According to literature, self-harm for the purpose of insurance fraud is again a common situation.

In one study, the reason for self-harm was insurance fraud among 27% of the patients presented with self-harm.<sup>4</sup> However, in this study, none of the patients have given insurance fraud as the motive behind their act. In comparison, evasion of military services was a significant reason among the males (13%). Presence of a psychiatric disorder is a well-known risk factor for causing self-harm. In one study, 30.9% of the patients were found to have some form of mental disorder.<sup>21</sup> However, in this study, only 8% of the patients had a history of psychiatric illness. The low percentages could easily be due to lack of proper psychiatric assessment among these admitted patients at the hospital level.

Level of education, employment states and the socio-economic states are all important aspects to consider among the deliberate self-harm patients. Self-injurious behaviour is known to occur more frequently among those who are belonging to lower socio-economic states with low level of education and unemployment.<sup>4,19,21</sup> According to one study, 56% of the population presented with self-injuries were unemployed.<sup>4</sup> In the same study, 40.7% of the population only studied up to elementary level.<sup>4</sup> In another study, 72.1% had only primary or no formal education and most of them (89.7%) were unemployed.<sup>21</sup>

Similar findings were observed in this study. Fifty-one percent of the study population were unemployed and only 12% had studied beyond ordinary level.

Several studies have reported seasonal trends associated with deliberate self-harm. According to available literature, rates are higher in late spring (May) or early summer (June) and lower from November to January.<sup>19,22,23,24</sup> In this study, the highest number of cases were reported during the period of April to June (47%) followed by the period of October to December (21%). The societal and cultural factors may be responsible for some of the temporal variations observed in this study. As the April and December are widely recognized as festive months with lot of cultural significance, these times of the year sometimes can be very challenging to cope with, both financially and psychologically.

Association of substance abuse and self-injurious behaviour is a well-known phenomenon all over the world.<sup>21,25</sup> The self-harm could well be a consequence of intoxication that resulted in impulsive decision making, poor judgement and aggressive behaviour.<sup>25</sup> Sometimes intoxication can lead to auditory hallucinations or paranoia which can precipitate self-harm.<sup>25</sup> Some others use substances to facilitate self-harm and there are others who use substances as a method of self-harm.<sup>25</sup> In this study, none of the females were found to have used any substance during these incidences. Alcohol was the commonly used substance among the males (46%) followed by Marijuana (Ganja) (04%). The exact association between the substance use and its consequences leading to self-injurious behavior could not be explored in this study.

A history of previous self-injuries is a key risk factor for repeated similar attempts. Previous history likely to use more lethal methods.<sup>21,28,29</sup> According to one study, self-ingestion of a poison was the commonest method (82%) followed by cutting with sharp instruments (13%), hanging (1%) and firearm injuries (1%).<sup>16</sup>

In another study done at Contra Costa county, poisoning (81%) was the commonest method followed by cutting with sharp instruments (11.8%).<sup>17</sup> Similar findings were observed in a study done in Tanzania with poisoning being the most common method (35%) followed by cutting with sharp instruments (23%), jumping from heights (20.6%), hanging (7.4%) and firearm injuries (4.4%).<sup>21</sup> However, in a study done among adolescents, cutting with sharp instrument (35%) was the commonest method followed by firearm injuries (25%), jumping from a height (15%), suffocation (10%) and poisoning (5%).<sup>18</sup> Similar findings were observed in another study conducted in Teheran, Iran, where the most common method used was sharp force trauma (82.7%) followed by blunt trauma (12.4%) and burns with hot objects (3.4%).<sup>5</sup> In this study, male patients had shown similar findings with majority presenting with sharp force injuries. However, none of the males presented with firearm injuries or poisoning. For females also, the commonest method was use of sharp force with none presenting with poisoning.

This study showed that the upper limb was the most frequent body region affected and distribution of lesions were more common on the anterior aspect than on the posterior aspect.

The non-dominant upper extremities including forearms, wrists, and arms were common areas for injury. Other easily accessible areas such as front of the torso, legs, and forehead were the other target sites of self-injury found in this study. Similar anatomical site distribution of the injury was reported by others.<sup>5</sup> Deliberate self-harm is commonly associated with sharp force injuries with superficial cuts and scratches being the commonest type.<sup>5</sup> Bruises, deep cuts and fractures are also known to occur though with much less frequency.<sup>5</sup> Similar findings were observed in this study with 81% presenting with superficial cuts and scratches. Only 2% had deep cuts whereas none had fractures.

According to literature, a majority of the patients with self-injuries presented were with a single injury (58.8%).<sup>5</sup>

However, in this study, a majority of the patients presented were with multiple injuries (71%). Injuries with mild to moderate (80.4%) severity were the commonest while the severe injuries (19.6%) were relatively rare among patients with self-injuries.<sup>5</sup> This is in accordance with this study as well, where 83% of the patients had non-grievous injuries and only 17% had grievous and endangering life type of injuries. All the female patients had only non-grievous injuries. The typical injury pattern of self-injury (multiple, parallel, superficial injuries, excluding vital sites and sparing of clothes)<sup>4</sup> was seen among majority of the patients in this study. Out of that, all the female patients had shown all the typical characteristics of self-injury. Previous history of self-harm was reported in several studies carried out in various parts of the world.<sup>21,26,27</sup>

According to one study, previous self-harm was reported in 2.9% of the patients presented with deliberate self-harm.<sup>21</sup> In this study, 28% of the patients had a history of a similar attempt in the past which was supported by the presence of scarring. This further confirms that individuals with a history of self-injury are more prone for repeated self-injurious behaviours.

According to literature, methods used for deliberate self-harm differs according to gender. Self-poisoning accounts for the majority of self-inflicted injuries in females, whereas males are more likely to use more lethal methods.

## CONCLUSIONS

Injuries due to deliberate self-harm is a considerable public health problem which can cause a significant harm especially among the young males. Low level of education, unemployment, substance abuse and presence of a psychiatric illness were among the identified risk factors. The motivations for self-

injury are exceedingly diverse and often multifactorial. The types of injuries are diverse as well, ranging from superficial scratches to deep internal injuries. Distinguishing the injuries caused by deliberate self-harm from alleged assaults and accidents can sometimes be difficult and the forensic practitioners should be mindful of this. Most of the findings in this study are in keeping with studies done in other countries. Young males were the most vulnerable group for this type of act and they should be the target group when considering preventive measures.

## LIMITATIONS OF THE STUDY

In this study, the analyzed group of patients were selected from a single tertiary care hospital. Therefore, results may not represent the actual situation in other parts of the country. The history of psychiatric illness and use of substance abuse was based on self-reporting from either the patient or relatives and may not be reliable. As this study was a retrospective study, an in-depth analysis in to some of the aspects could not be carried out. However, despite these limitations, findings of this study will help prevention and intervention efforts for those most at risk of deliberate self-harm in this region.

## ETHICAL ISSUES

Informed written consent of all patients were obtained during the clinical examination for use of information for scientific communications without divulging the identity of individuals. This study was carried out within the ethical standards set up by the Department of Forensic Medicine, Faculty of Medicine, University of Ruhuna.

## CONFLICTS OF INTEREST

There are no conflicts of interest.

## AUTHOR CONTRIBUTIONS

**RHAIR:** Conception or design of the work; the acquisition, analysis, and interpretation of data for the work; drafting the work and revising it critically for important intellectual content; and final approval of the version to be published.

**EGUNG:** Conception or design of the work; the acquisition, analysis, and interpretation of data for the work; drafting the work and revising it critically for important intellectual content; and final approval of the version to be published.

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