A Survey of Self-Mutilation From Forensic Medicine Viewpoint

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Abstract

Objectives: Currently little research exists examining self-mutilation (SM) in samples of forensic referrals. The present study provides a comprehensive review on the frequency, etiology, and morphologic characteristics of self-inflicted injuries in a sample of outpatients' forensic referrals.

Methods: In a prospective cross-sectional study, during 3 years, we examined 9874 outpatients' forensic referrals and found 1248 SM cases in Ghouchan (an urban and suburban area of Iran).

Results: Based on forensic medical examinations, it was found that 12.6% of all outpatients' forensic referrals had engaged in SM behavior at sometime. Males had significantly higher rates of SM than females (76.9 vs. 23.1%, respectively). The mean age was found to be significantly lower in patients with SM (23.6 ± 8.5) than patients without SM (40.0 ± 10.5) (P < 0.001). Rate of being single and unemployed was higher in the SM group (58.2, 56.1%, respectively) than in the group without SM (19.1, 22.8%, respectively). Superficial cuts and scratches were found to be the most common type of SM (79.5%), followed by bruises (10.8%), burns (3.4%), deep cuts (3.2%), fractures (0.6%), and other miscellaneous injuries (2.5%). Upper extremities including forearms, wrists, and arms opposite the dominant hand were the most common areas of injury.
Conclusions: Nonsuicidal self-injury, the deliberate-direct destruction of body tissue without suicidal intent is a relatively common event in forensic referrals. It is very important to distinguish between this and other types from forensic point of view. Forensic practitioners must be expert and trained for this purpose.

Self-injurious behavior (SIB) refers to a broad class of behaviors in which an individual directly and deliberately causes harm to herself or himself. Such behavior can include nonsuicidal self-injury, which refers to direct, deliberate destruction of one's own body tissue in the absence of intent to die; or suicide attempts, which refer to direct efforts to intentionally end one's own life. Historically, harming oneself without the intention of dying is not a new phenomenon. Around 500 BC, Sophocles, the Greek dramatist, wrote the tale of Oedipus Rex, who gouged out his eyes after discovering he had slept with his mother. Vincent van Gogh engaged in self-mutilation in 1888 by severing the lower part of his left ear with a razor. A less well-known act of severe self-mutilation involved Boston Corbett, the man who shot John Wilkes Booth. He engaged in self-castration (several years before the shooting) after reading several chapters in the book of Matthew.¹

Favazza and Rosenthal (1993) identify pathologic self-mutilation as the deliberate alteration or destruction of body tissue without conscious suicidal intent. A common example of self-mutilating behavior is cutting the skin with a knife or razor until pain is felt or blood has been drawn. Burning the skin with an iron, or more commonly with the ignited end of a cigarette, is also a form of self-mutilation.

Self-mutilating behavior does exist within a variety of populations. For the purpose of accurate identification, 3 different types of self-mutilation have been identified:

1. Superficial or moderate self-mutilation is seen in individuals diagnosed with personality disorders (ie, borderline personality disorder).

2. Stereotypic self-mutilation is often associated with mentally delayed individuals.

3. Major self-mutilation, more rarely documented than the 2 previously mentioned categories, involves the amputation of the limbs or genitals. This category is most commonly associated with pathology.²³

Self-mutilation is a relatively common finding in psychiatric and forensic practice and has been defined as deliberate harm to the body without intending suicide. It includes a variety of different acts, such as burning and cutting, and has been reported in 4% of the adult population.⁴⁵ This behavior may result from serious underlying psychiatric illness or from attempts to secure some advantage by pretending that the injuries were inflicted by an assailant. In the latter situation, cases may present themselves in both civil and criminal jurisdictions and lead to requests for a medicolegal opinion as to the likelihood of self-mutilation. Self-induced injuries in forensic practice are also used to simulate criminal offenses and to fraudulently obtain insurance payments. In these cases, appropriate diagnosis is important from both a legal and psychiatric point of view. Excluding inflicted trauma may not be straightforward. It seems self-mutilation has a high prevalence in forensic practice within developing countries. We described 1284 cases involving self-mutilation in Legal Medicine Organization (LMO) of Ghouchan (north-east of Iran), during 3 years. Typical morphologic aspects and
combination of clinical signs in cases of self-mutilation are presented from forensic point of view to facilitate confirming the diagnosis.

MATERIALS AND METHODS

Study Design

A prospective cross-sectional study design was used to determine the frequency and morphologic characteristics of self-inflicted injuries in forensic referrals presenting to the LMO.

Setting and Population

The study was conducted in the LMO of Ghouchan, an urban and suburban community in the north-east of Iran. Ghouchan with about 186,000 residents (92,800 males and 93,200 females) is located in Khorasan Razavi Province. All outpatients' forensic referrals from Ghouchan city over a 3-year period (January 2003-January 2006) were examined by one of the authors (A.Y.) from forensic viewpoint. All patients with self-inflicted injuries were identified. Information was collected on the age and sex of the patient, the place and mechanism of injuries, the size, distribution of the injuries, and other demographic characteristics. These groups of patients as self-mutilators were referred directly to the teamwork's chief for evaluating and confirming the forensic diagnosis of deliberate self-injury and after approval of forensic diagnosis used by taking a forensic medical history; physical examination, and a structured interview were performed by forensic medicine specialists and psychiatrist (other authors) in cases of self-mutilation included in the study.

Data Collection

Recording of data were performed by a full-time experienced forensic practitioner who performed daily follow-up on all LMO referrals. Data collection were performed by using standardized study forms that included specific demographic and clinical information, including the patient's age, gender, marriage status, employment status, educational status, duration of education, diagnosis, etiology, and mechanism of injury.

Data Analysis

Descriptive statistics were analyzed using SPSS 13.0 for Windows (SPSS, Inc, Chicago, IL). Continuous variables are presented as means with ranges. Categorical data are presented as frequency percentage of occurrence with 95% confidence intervals (CI).
RESULTS

The study was conducted between January 2003 and January of 2006. During the study period, 9874 outpatients' forensic referrals were seen in the Ghouchan's LMO of which 1248 (12.6%) were diagnosed as self-mutilated (SM) patients, including 960 (76.9%) males and 288 (23.1%) females. The group without SM also was including 8826 forensic referrals comprising 6130 (71.1%) males and 2496 (28.9%) females. The male/female ratio in the SM group was 3.3:1 and in the group without SM was 2.5:1 and there was no significant difference between the 2 groups. The age range of self-mutilated patients in the study period was 11 to 48 years with an overall mean age of 23.6 ± 8.5 years. The mean age of male self-injured patients was 23.2 ± 10.7 years and mean age of the female self-injured patients were 29.8 ± 9.2 years. In comparison, the age range of the group without SM in the study period was 4 to 72 years with an overall mean age of 40.0 ± 10.5 years. The mean age of male patients without SM was 39.8 ± 11.8 years and mean age of the female patients without SM were 41.8 ± 10.2 years. The mean age was found to be significantly lower in patients with SM (23.6 ± 8.5) than patients without SM (40.0 ± 10.5) (z = −6.08, P < 0.001).

Rate of being single and unemployed was higher in the SM group (58.2, 56.1%, respectively) than in the group without SM (19.1, 22.8%, respectively) (χ² = 23.24, df = 2, P < 0.001 and χ² = 13.63, df = 3, P = 0.003, respectively). Education status (χ² = 4.96, df = 3, P = 0.18) and duration of education did not differ significantly between groups (z = −1.82, P = 0.07). Sociodemographic characteristics of outpatients' forensic referrals are showed in Table 1.

Table 1

Rate of the presence of previous scarification was higher in the SM group (n = 389, 31.2%) than in the group without SM (n = 336, 3.9%) (P < 0.001). Among the 1248 self-mutilators, 59 (4.7%) reported 3 or more episodes of self-mutilation. There were no demographic differences between infrequent mutilators and frequent mutilators. In 749 cases (60%) of SM group there was simultaneously non-self-induced traumatic injuries in other parts of their bodies.

Although seasonal variation did not vary significantly between groups, there was a higher seasonal variation in frequency of self-mutilation among forensic referrals. There was an increase in self-mutilation frequency in the spring (490 cases, 39.3%) and summer (404 cases, 32.4%). Two hundred sixty-one cases (20.9%) referred in fall and only 93 cases (7.4%) in winter.

Of all self-inflicted injuries, 992 (79.5%; 95% CI, 78.0–81.0) included superficial cuts and/or scratches. Bruises (n = 135; 10.8%) were the second most common lesions. Other self-inflicted injuries included burns (n = 42; 3.4%), deeper cuts that needed sutures (n = 40; 3.2%), fractures (n = 8; 0.6%) and other miscellaneous injuries (n = 31; 2.5%). Anatomic locations of self-inflicted injuries, included upper extremities (n
= 1008; 80.8%), trunk (n = 112; 9.0%), face (n = 59; 4.7%), lower extremities (n = 56; 4.5%), and skull (n = 13; 1.0%). Upper extremities were the most common site of self-inflicted injuries. Forearms, wrists, and arms opposite the dominant hand were common areas for injury. A breakdown of types and locations of self-inflicted injuries is presented in Table 2.

Table 2

Depending on the underlying motives, there were generally 3 main categories of self-inflicted injuries:

1. Simulated offenses (alleged assaults with a scuffle, fictitious sexual offenses, or feigned robbery). Underlying motive of 886 cases (71.0%) was to simulate offenses. Alleged assaults following scuffles were the most common cause of referrals, and most of those were males. The second most common group was young females and their motive was fictitious sexual offenses. Other miscellaneous motives in this category were rare.

2. Self-mutilation for the purpose of insurance fraud (n = 339; 27.2%). Most of these were male and there was a significant difference between males and females within this category ($P < 0.001$).

3. Self-inflicted bodily harm or self-mutilation among soldiers and prisoners (n = 23; 1.8%). All of them were male.

The morphologic characteristics of self-inflicted injuries in groups mentioned above will be discussed.

DISCUSSION

In the present study, 12.6% (13.5% for males, 10.3% for female) of 9874 forensic referral subjects were diagnosed as self-mutilation. This percentage is significantly higher than the incidence of SM among the general population, which has been reported in about 4% of the adult population in many studies.$^{4-11}$ This finding is consistent with the idea that the frequency of self-mutilation behavior can be higher in forensic samples than the general population. The explanation is that SIB may share an etiology originated from illegal gain in forensic referrals.

Although self-mutilation usually has a higher prevalence among females in the general population,$^{12-18}$ we found a higher prevalence of this behavior among males in forensic referrals. The explanation is that forensic referrals include a high proportion of the males in our community and also they may be taking a risk to achieve a goal more than females.
One of the important findings of the present study was that the mean age was found to be lower in patients with SM than in patients without SM and age was one of the predictors of SM in logistic regression model. In a general population survey, Briere and Gil (1998) found that one of the variables having a relationship with SM was younger age.

There were significant differences between groups in terms of marriage and employment conditions. To be single and also unemployed are conditions more common in the SM group than in patients without SM. These findings suggest that singles and unemployed patients might have more reasons to seek a gain through self-mutilation.

Rate of the presence of previous scarification was higher in the SM group and in the majority of cases there were simultaneously non-self-induced traumatic injuries in other parts of their bodies. These findings suggest that the SM group patients might have more experiences of previous self-injury and they may self-harm to exaggerate nonfatal offenses against them.

Although there was an increase in self-mutilation frequency in the spring and summer, seasonal variation did not differ significantly between groups. It seems that is partly due to a total increase in the frequency of forensic referrals in the first half-year (Persian's calendar) in Iran. According to annual report of Iran's LMO, there is an increase in total frequency of outpatients' forensic referrals in the spring and summer in Iran.

The means by which people harm themselves are diverse and personal. However, this study suggests that for men, as well as for women, cutting is the most prevalent form of self-injury among outpatients' forensic referrals. More than 80% of all the SM patients we examined had cut themselves, although the majority of them were superficial cuts. As the earlier studies were shown, among various forms of self-mutilation, self-cutting is the most convenient form used by adolescents. Despite this, there are also differences between the ways in which men and women self-harm. Men tend to injure themselves more severely than women and have less concern about bodily disfigurement. They are also more likely to engage in public and violent self-harm, such as punching themselves or a wall, breaking bones, or in dangerous behavior as a means of self-harm. In the present study, self-cutters were the predominant group among outpatients' forensic self-mutilators with a peak incidence from 16- to 25-year-old men and 26- to 35-year-old women. The way of cutting was usually light and superficial cutting without harming the arteries. Some self-mutilations and self-cuttings were repetitive behaviors.

Self-injury was most commonly associated with cutting, which had involved making cuts or scratches on the body. Cutting can be done with any sharp object, including knives, needles, razor blades, or even fingernails. Most frequently, forearms, wrists, and arms opposite the dominant hand were common areas for injury. Front of the torso, legs, and forehead were the other targets of self-injury because these areas can be easily reached but any area of the body may be subjected to self-injury.

People who injure themselves often try to keep their behavior secret. There is no one single or simple cause of self-injury, however, in forensic patients 'trying to access a
gain' is the major cause of these behaviors. The underlying motives in SM group of forensic referrals were in 1 of the 3 main categories as described below.

Simulation of Criminal Offenses

Depending on the motive, the group of simulated criminal offenses comprised several different categories of cases:

1. False allegation of an assault for the purpose of criminal suit.
2. Self-damage to divert attention from previous misconduct (eg, embezzlement).
3. Simulation of a sexual assault to divert attention from earlier unlawful love affair and to reach a mandatory matrimony.
4. Self-damage to simulate a situation of defense or to cover up an offense committed by themselves against another person.
5. Fictitious offense with self-inflicted injury to take revenge on persons or institutions.
6. Self-induced injuries to pretend that the informant was the victim of an offense with a robbery background.

In our country, punishment of rape is gallows (wooden frame from which a condemned person is executed by hanging). Differential diagnosis between rape and fictitious sexual offenses is essential and critically important. In fictitious sexual offenses, it is paramount to analyze the extragenital injuries with regard to their type, localization, and distribution. The wound pattern is often in obvious contrast to the dramatic story told about the course of events. Characteristic features are cuts or abrasions of minor intensity, usually with a multitude of individual lesions. Even curved body surfaces show skin lesions of equally shallow depth. The typically uniform, grouped, and often parallel arrangement is strangely contradictory to the dynamics of the alleged fight. Irregularities, as they are expected after a real assault, are often missing. Occasionally pattern-like and symbolic pictures are seen. The injuries usually heal without complications even when left untreated.

As instruments pointed or sharp objects (knives, razor blades, nail scissors, broken glass, etc) or the person's own fingernails are used. Easily reachable body regions (wrists, forearms, arms, forehead, cheeks, thoracic, and abdominal skin, neck and legs) are preferred; especially sensitive regions like eyes, lips, and nipples as well as the genital regions themselves are mostly omitted. Both sides of the body may be injured almost symmetrically, although sometimes the side opposite the dominant hand may be more affected. On the back, the injured parts are determined by the reach of the individual's hands. In rare cases, injuries may even be inflicted by a helper.

Discrepancies between the description of the offense and the objective findings can support the suspicion of self-infliction. Special attention should be paid to
inconsistencies between the damage on the clothing and the injuries. Occasionally, the informants inflict excoriations on themselves by rubbing their skin against rough surfaces or blunt objects. Self-inflicted hematomas as well as deep stab or cut wounds are also seen in rare cases.

Most women simulating a sexual assault are young. Possible motives for reporting a false offense may include conflicts with the lover, misleading in marriage as a goal programming, imminent separation from the partner, and problems with the parents. Multiple false reports by one and the same person are not uncommon. In cases of repeated self-infliction of injuries scars may point to former incidents.

Not only sexual offenses, but also attacks and assaults for other motives can be simulated. Sometimes the informants inflict cuts and stabs, rarely also injuries by blunt force, on themselves to support their fabricated story of the event. The phenomenon as such is not new. In 1910, already Strassmann reported on the “features of self-inflicted injuries affected to feign an assault by another party.” In the 1960, Holzer published a detailed article on the solution of cases involving fictitious assaults. In recent years, numerous case reports have been written on this subject.

A significant sign of self-infliction is the inconsistency between the damage on the clothing and the injury pattern on one hand and the story told about the incident on the other. The pattern of findings often resembles what is seen in fictitious sexual offenses, although untypical manifestations are not uncommon. Sometimes persons claiming to have been assaulted are found to be completely unharmed, even though they pretend to have been severely traumatized and to have been unconscious for a prolonged period. In members of medical professions, the application of medical knowledge and special skills must be kept in mind. In the group of feigned assaults (without sexual motivation) males are also frequently represented as alleged victims.

Self-Mutilation for the Purpose of Insurance Fraud

The medicolegal differentiation between injuries due to accidents and intentionally self-inflicted harm is very important. Some of the forensic referrals are the fraudulent persons who wish to have insurance compensation by simulating self-inflicted harms as injuries due to accidents. The common feature of these cases is an accident that is simulated to fraudulently obtain insurance benefits.

The criteria suggesting intentional self-infliction was defined by Taylor cited by Lochte Superficial character and harmlessness of the wounds as well as localization on body sites where the effect can be safely predicted, localization of the injuries on the side opposite the dominant hand, and presence of a multitude of individual lesions are the criteria that suggest intentional self-infliction. Mostly the self-damage consists of mutilating a peripheral part of the body (finger or hand). This is usually done by using sharp instruments such as axes, choppers, cutters, or motor saws. In rare cases objects causing blunt traumatization are also used.
Intentionally inflicted injuries from axe blows are often proximal amputations of a single finger being severed at a right angle to its longitudinal axis. In contrast, most real accidents involve concomitant injuries of the adjoining fingers as well. An oblique and distal course with incomplete severance is more indicative of an accident. Proximal, complete severance of the index finger without involvement of the neighboring fingers is highly suspect of self-mutilation; although this type of severance is also possible when the finger is placed in a so-called “execution position.” Finger amputation is also one of the legal punishments in Islamic Punishment Law. When investigating a questionable accident suspected of attempted insurance fraud, all available sources should be used (photographs, x-rays, operation report, physical examination, biologic traces). Moreover, the local circumstances at the scene, the properties of the instrument used for inflicting the injury, the distribution of the blood traces, and the whereabouts of the amputation should be taken into account.

Self-Inflicted Bodily Harm or Self-Mutilation Among Soldiers and Prisoners

During war, the number of self-inflicted injuries with firearms was naturally and disproportionately high, but amputation by cutting off fingers was also seen in soldiers and persons during the conscription. In some of these cases, several parallel strokes had to be performed before the finger was severed.

Autoaggressive behavior also is a common problem with detainees in police custody, in pretrial detention and in prison. Self-infliction of cuts (especially on the forearms) is particularly frequent by using sharp-edged objects such as knives, razor blades, pieces of metal or broken glass. Another method of self-damage consists of swallowing foreign (metal) bodies, which are sometimes not excreted naturally because of their size and shape and have to be removed by surgery. In a broader sense simulation; aggravation and prolongation of illnesses, are also forms of self-harm.

CONCLUSIONS

Differences in clinical features between self-inflicted, accidental, and intentional assault injuries in a forensic medicine center were studied using the forensic medical history, physical examination, and a structured interview, performed by forensic medicine specialists and a psychiatrist. Nonsuicidal self-injury the deliberate-direct destruction of body tissue without conscious suicidal intent is a relatively common occurrence in forensic referrals. Distinguishing between them is very important and forensic practitioners must be trained for this purpose. Legal Medicine Organization of Iran with about 1.5 million forensic referrals per year is an appropriate field for such research and training.

ACKNOWLEDGMENTS
The authors thank the Legal Medicine Organization's chief, their employees, and all participants who assisted with this survey.

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