

Self-Burning: a Common and Tragic Way of Suicide in Fars Province, Iran

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Abstract

Self-burning is the most devastating burn injury. It is a common social and medical problem in Iran. In a longitudinal prospective study, from April 2003 to March 2006, all burn patients admitted to Ghotb-eddin burn Hospital were enrolled in this study. Suicide attempts by burning accounted for 283 (21.9%) of all burn patients admitted to the hospital. Most (68.2%) of self-burning patients were female. Self-burn patients had significantly large burned body surface area ($64.8 \pm 29\%$). Suicidal burns occurred predominantly in the age group 15-24 years (44.6%). The mortality rate for suicidal burns was (60.4%).

Fars is a province composed of many different tribes and cultural minorities whereby major decisions are made by forums of clergymen. It is important to involve those clergymen in burn prevention programs to achieve a meaningful reduction in Self-burning prevalence.

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Keywords • Burn • mortality • prevention programs

Introduction

Self-inflicted burns are among the most devastating of all burn injuries. Both cultural and psychiatric factors are associated with deliberate self-burning.¹ Self-immolation is uncommon in Western cultures and accounts for only 1–2% of suicides.^{2,3} However, this type of suicide is relatively widespread in the Asian countries including Middle East countries and India.⁴⁻⁶ In various parts of Iran, 1.39–40.3% of all suicides and para-suicides have been reported as coming about through self-inflicted burns.⁷ In addition, self-inflicted burn injuries account for about 7.5-36.6% of burns admissions in Iran.^{4,8-11}

Despite integration of mental health programs into the PHC (primary health care) system by Iranian Ministry of Health and Medical Education in 1990, and improved preventive mental health indicators,¹² self-inflicted burns are still common in this region. This study was carried out to analyze the epidemiology, mortality, and current etiological factors of self burn patients admitted to Ghotb-eddin burn center in Fars province during April 2003-March 2006.

Materials and Methods

Fars province is located in the Southwest Iran. Its population is about 4.2 million. About 42% of the population reside in rural areas and the remaining are urban residents. Ghotb-eddin Shirazi burn Hospital is the only burn center in this area, which is affiliated to Shiraz University of Medical Sciences.

In a longitudinal prospective study from April 2003 to March 2006, all self-burn patients admitted to Ghotb-eddin burn Hospital

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were evaluated. The collected data included age, gender, employment, educational level, percentage of burn in terms of body surface, etiology, method, time of suicide, length of hospital stay, and the outcome of treatment. The burned body surface area (BSA) was estimated from body surface charts modified from Lund, Browder and Carvajal.

Self-inflicted burn was confirmed by the psychiatrist. Based on Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV-TR, semi-structured psychiatric interviews were conducted in the hospital on the first day of admission (if possible) and during the hospital stay. Additional interviews were carried out with parents, spouses, siblings, children, or friends who accompanied the patients and knew them for a long time or had frequent contacts with them to obtain the fullest accounts. Suicidal attempts were defined as purposeful acts that either resulted in or had the potential to cause injury accompanied by a wish to die.

Data analysis was performed by using SPSS software version 13 (SPSS Inc. Chicago, IL, USA). Data have been expressed as Mean±SD.

Results

Table 1 describes socio-demographic and burn related characteristics among the self burn patients. Suicidal burns occurred predominantly in the age group 15-24 years (44.6%). The mean burned BSA was 64.8±29%. The mean of burned BSA among those died was 68.4±8%, versus 27±5% for those survived ($p<0.0001$). The mean length of hospital stay for those survived was 17±6 days, and for patients who died was 7±4 days. The mortality rate in self-burn patients was 60.4%. The mortality rate for patients with burned BSA <40% was 10.7%, while in patients with burned BSA ≥40% was 62.3% ($P<0.000$). The most common mechanism of burn was with kerosene (93%).

Also, 182 (64.3%) of the victims were housekeepers, 38 (13.4%) were unemployed, and 14 (4.9%) had unidentified jobs. Most of the patients were married (51.9%). Burns requiring hospitalization were common during winter (30.2%), followed by autumn (25.5%), summer (23.1%), and spring (21.2%).

The major motive for suicide was marital conflict (38.4%). Other important causes were mental disorders (21.3%). The most common mental disorder leading to self-burning was depression, followed by anxiety.

Discussion

In the present study, burn victims were predominantly in the age group of 15-24 years.

Table 1: Socio-demographic characteristics and burn related variables in self inflicted burn patients.

Normal of Patents (suicidal/accidental, %)	283 (21.9%)
Mean age± SD (year)	20±6
Male/female	90/193
Burned BSA (%)	64.8±29
Hospital stay* (day)	16±13
Hospital Mortality	171 (60.4%)
Married Status	
Single	118 (41.6%)
Married	147 (51.9%)
Widowed or Divorced	18 (6.5%)
Location	
Urban	53 (18.7%)
Suburb or rural areas	212 (74.9%)
Referral	18 (6.4%)
Academic status	
Illiterate	43 (15.1%)
Primary school	81(28.6%)
Secondary school	118 (41.6%)
University	5 (1.7%)
Unknown	36 (12.7%)
Employment	
Housewife	182 (64.3%)
No employment	38 (13.4%)

*Length of hospital admission among surviving patients; SD: standard deviation; BSA: body surface area

Generally, burn patients in developing world are younger than the patients in western countries.¹³ There is a male predominance among people committing deliberate Self-burning in European countries and in far-east Asia. In contrast, a female predominance is noted in most Middle East countries and in the Indian sub-continent.^{4,7,13,14}

In a traditional rural life in Iran major changes and problems would be happened at young ages in females' life while there is no perspective solution for them. These problems including family conflicts, addiction of spouses, and the age difference between the women and their spouses. Such problems alongside with low family income, unemployment of the spouses, and illiteracy may lead to hopelessness and more suicidal attempts. Having considered that in most rural areas in Iran kerosene is the principal utilized fuel, it is widely available in most houses. So it can be concluded that Easy access to such agents can be the reason for the higher incidence rate of Self-burning among women.

The interpretation of self-burning as a method of suicide varies according to the country and the cultural, religious, and psychosocial differences. In this study, the most common reason for committing deliberate Self-burning was marital conflicts followed by mental disorders. At our burn unit, the case fatality rate among suicidal hospitalized patients was 60.4%. This rate is lower than the mortality rates reported in other provinces of Iran such as Mazandaran (79.2%),¹⁴ or Azarbayjan (79.6%).⁷ Worldwide, among self inflicted burn

patients, average mortality rate is reported to be 65%, ranging from 14% in the USA,¹⁵ to 90% in Solapur, India.¹⁶

Gender and geographical location influence methods of suicide. In Iran, most men who commit suicide hang themselves, while 83% of women who commit suicide set themselves ablaze.⁷ Also, it is well known that availability of substances to commit suicide has a major impact on actual suicidal burns in any region. Kerosene and petrol (gasoline) are the most frequently used substances and the resulted burns are usually extensive.¹³ The use of these accelerants points to a high level of intention of inflicting severe burns on oneself or dying.

In this study, the total burned body surface area was significantly large in the deliberate self-burn patients. This is unsurprising because deliberate self-burn patients may aim to inflict a large burn, whereas patients sustaining accidental burns would try to minimize the injury. Previous studies have also showed that self-inflicted burns tend to be larger than accidental burns.^{4,13,17-19}

As of now, the highest rates of deliberate self infliction as a cause of burn admission is reported from Mumbai, India (40%).¹⁷ In the present study, the contribution of self-harm to all burns patients admitted to Ghotb-eddin Shirazi Hospital (21.9%) was higher than the previous report of the same center (14%).⁹ This might reflect a shift in treatment from in-patient to out-patient settings considering our center's limited resources. In addition, a copycat phenomenon plays a role. In countries with high rates of deliberate Self-burning (India, Sri Lanka, Iran); as there are more cases, there are also more people hearing about it and possibly imitating the method.¹³

Comparing with previous studies, the proportion of males that attempted suicide with burn has increased.⁹ Similar to some other studies from Iran,^{7,9} most of victims of self-burning (68.2%) were female. Most cases were married, housekeepers and illiterate.

Burn prevention requires adequate knowledge of the epidemiological characteristics and associated risk factors. A National Committee for Injury and Burn Prevention and Control has been established in Iranian Ministry of Health and Medical Education in 2007 with the objective of coordinating burn prevention programs. However, visible preventive actions are yet to be taken to reduce burn injuries particularly among self-inflicted patients in Iran. Focusing on burn prevention in a developing country like Iran rather than treatment cannot be over-emphasized because of the lack of resources for secondary and tertiary prevention in these settings.

In general, methods of reducing burn injuries in different countries and communities may vary. The four main routes to prevent accidental burns are 1. Education, 2. Publicity, 3. Making home, work, or leisure safer, and 4. Law enforcement and legally banning dangerous activities, and equipments.¹⁸

At the moment, it is necessary to implement prevention programs and strategies known to be effective to reduce the incidence of suicide in this region. Factors likely to be associated with suicidal behaviors by burns include lower socioeconomic status and family problems.^{4,8} These factors should be investigated further to better elucidate the etiology of these events.

In our opinion, familial conflicts and social factors are the main drives leading to an unacceptably high rate of suicide by self-burning among women in Fars province. The problem is difficult to address and will depend precisely upon economic, educational, and social advancement for amelioration. Better protection of women's rights and economic development in the region could help tackle the problem. Access to a better education would make women of this area more aware of their rights and help them express their despair in other ways.

Also, the availability of family mental-health centers and psychological programs may reduce the rate of self-immolation in the region. Shelters for asylum seeking women should be built by the municipalities, charity organizations, and rehabilitation offices. Problem-solving strategies should be discussed in PHC health network in order to help women understand that there are alternatives to suicide. This health network, run by local staff, has been spread to the remotest parts of the country and has brought about immense changes in the promotion and maintenance of the community's health.¹² Knowledge and skill of health workers of PHC and other staff should be increased through workshops, seminars, and conferences. Educational manuals should be prepared and be available in "health homes". The number of health houses in which mental health is integrated should be increased. Through implementation of specific burn preventing programs in PHC, families, neighborhoods, communities, social networks, organizations, and extra-community policymakers will cooperate to promote health and prevent burn injuries.

The statistics of Self-burning might be communicated by means of broadcast flashes on television or the radio, showing risk situations and sentences to call attention to strategies to prevent them. Given the continued high rates of suicide among adolescents and young adults (15-24-year olds) in this region, 'Gatekeeper' training and screening programs are

necessary to be implemented in "health homes", schools, police departments, recreation clubs, as well as hospitals to identify young people at risk of suicide and refer them to mental health services. Also general suicide education programs that provide young people with facts about suicide, alert them to suicide warning signs, and provide information about how to seek help for themselves or for others should be incorporated into school textbooks and pre-marriage counseling sessions. Crisis Centers and Hotlines should be founded that among other services provide telephone counseling for suicidal people, offer a "drop-in" crisis center and referral to mental health services. In addition, as Fars is a province composed of many different tribes and cultural minorities, it is critical to base preventive campaigns on cultural values, norms and physical and environmental constraints of the target groups. Additionally, since major decisions in the rural tribal societies are made by forums of clergymen, it is crucial that involve them in burn prevention programs to achieve behavioral changes and a meaningful reduction in injury prevalence.

Conflict of Interest: None declared

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