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A case-control study of psychosocial risk and protective factors of self-immolation in Iran

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ABSTRACT

Self-immolation is the third leading cause of years of life lost (YLL) among women in Iran. The aim of this study is to investigate self-immolation-related risk and protective factors in the western region of Iran, a province with the highest prevalent of self-immolation in the country. Using a case-control design, we compared 151 cases of self-immolation attempters who were admitted to a burn center in Kermanshah with 302-matched control group from the same community/locality between March 21st, 2009, and March 20th, 2012. We conducted descriptive, bivariate, and multivariate analysis to examine the associations of self-immolation with demographic and familial risk factors, adverse life events, mental disorders, as well as potential protective factors. According to our findings, the highest percentage of self-immolation was in the 16–25 year-old age group (60%) and in females (76%). Of the potential risk factors in the study, major depression, adjustment disorders, individual history of suicide attempts and opium dependence, were statistically significant predictors of self-immolation. Suggestions for translating the local picture of self-immolation portrayed by our findings, into meaningful prevention strategies that have a good fit with the social and interpersonal context within which self-immolation takes place are discussed.

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1. Introduction

Every 40 s a person commits suicide, and every year about one million individuals die as a result of suicide [1]. Self-immolation (self-burning) is a rare form of suicide that is dramatic and violent [2,3]. It leaves extensive injuries, complications, and poor health outcomes for its victims [4–7]. It also significantly increases hospitalization and mortality rates [8,9]. Worldwide, the rate of suicide by self-immolation is low but the overall mortality risk is approximately 60% [8].

There is persistent disparity in the estimated rate of self-immolation in low-income countries compared to their high-income counterparts [6,10,11]. Of all suicides in high-income countries, 0.06–1% is carried out by self-immolation [12]. Of all burn patients in high-income countries; approximately 9% are victims of self-immolation [5]. In middle to low-income countries, up to 40% of all suicides involve self immolation [13]. In Iran, approximately 27% of all suicides are cases of self-immolation, placing Iran at the top of the chart among the low- to middle-income countries with a high level of self-immolation [2]. Indeed, the Western provinces in Iran (where this study was conducted) carry the greatest burden of morbidity and mortality from self-immolation by having the highest documented rates in the world (7–22.4 per 100,000 person-years) [14,15]. Self-immolation is prevalent in Iran and needs to be recognized as a prominent problem by public health experts in Iran, especially since Iran is among the countries with the lowest rate of suicide (5.8 per 100,000) worldwide [12].

Several socio-demographic characteristics psychological predispositions, adverse life events psychiatric disorders, as well as socio-cultural factors are among risk factors that have been identified for self-immolation [12,16].

While the male to female ration in self-immolation is higher in developed countries [17], in Eastern Mediterranean countries such as Iran, Afghanestan, India, Sir Lanka share self-immolation is highly prevalent among young adults [3,18–20], women [21,17,22,23], and population that experience economic adversity and poverty and low education [16,24–33].

However, the descriptive nature of the existing findings and the use of small samples in the majority of the observational studies have restricted the ability of investigators to demonstrate the independent effects of risk factors in their respective studies [2,3,9,15,34]. Understanding the local epidemiology of self-immolation can facilitate the design of preventive intervention strategies that are relevant to local culture [15]. In the present study, we aim to delineate the risk and protective factors that are independently associated with self-immolation by comparing the characteristics of self-immolation patients, who were admitted to a regional burn center in Iran, with their healthy matched counterparts from the same community/locality.

2. Methods

2.1. Study design, setting and participants

In a case-control study conducted between 2009 and 2012, we enrolled 151 consecutive cases of deliberated self-inflicted burns who were admitted to the hospital-based burn center in Kermanshah Imam Khomaini hospital, in Iran. The hospital is one of the training sites for Kermanshah University of Medical Sciences (KUMS), and the burn center is the only major burn center in Kermanshah Province serving nearly 2 million residents [35]. Patients were eligible to participate in the study if they confessed to deliberate self-immolation or a reliable family member witnessed the suicide attempt, physically and mentally were stable, and consented to participation. Patients who were not in stable condition were approached later on when permitted by their physicians Patients who denied suicide attempt and we found no corroborating witnesses or information to support suicide intent, were excluded from the study. Also, patients who were not mentally stable, and those who refused to provide consent were excluded from the study.

We used matching strategy for the selection of participants in the control group to improve the study estimates of the effect of exposure/predictors [36]. Therefore, the control group included 302 consecutive individuals who were selected from the same neighborhood (locality) that the cases where selected and were matched by age, gender and calendar year. We used calendar year as the matching variable to provide a reference point for variables that were difficult to achieve comparability between cases and controls, and also to control for possible time trend [37,38]. The selection of matching variables was determined by their potential confounding role indicated in suicide and self-immolation literature [39].

2.2. Study instrument, measures and variables

The study's clinical psychologist initiated interviews with the self-immolation cases in the first 24 h after their admission, using a structured questionnaire. The study questionnaire took between 2 and 3 h to complete. Participants were given the opportunity to complete the questionnaire in two or three sessions. Patients with over 95% burn ($n = 16$) completed the interview with the help of a family member. The KUMS Research Ethic Committee approved the study protocol and informed consent was obtained from all participants. The outcome variable included cases of self-inflicted burns/self-immolation.

The study's potential predictor variables are outlined in (Fig. 1). Demographic variables included 11 items. They ranged from gender, age, education, living area, to age at marriage and number of children. Each item was coded as 1 = Yes, and 0 = No. The familial risk factors included 11 items, which are outlined in (Fig. 1).

The participants were also screened for the last 3-month clinical (Axis-I) and personality disorders (Axis-II) using DSM-IV-TR. Axis-1 includes 29 items and Axis-II includes 12 items.

The Adverse Life-Events index included 15 standard items asking participants if in the past 3 months they had experienced these risk factors (Fig. 1). Compared to previous studies, we assessed participants' experience with infertility and forced marriage since these two items play an important role in the Iranian socio-cultural milieu, but have not been included in previous suicide research. Response categories for these items include ''Yes = 1'', and ''No = 0''.