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Review

Epidemiology and socio-demographic risk factors of self-immolation: A systematic review and meta-analysis

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ABSTRACT

Objective: Self-immolation or self-inflicted burn is the most tragic and violent method of suicide. The higher prevalence of this dramatic phenomenon in Iran is a serious social and health problem. In this study, we conducted a meta-analysis to combine the results from available studies to examine the epidemiology and socio-demographic characteristics of individuals who attempted self-immolation in Iran.

Method: Pertinent studies were identified by searching the electronic bibliographic databases including PubMed, Scopus, Science Direct, Iran Medex, Magiran, Medlib and Scientific Information Database (SID) (2000–October 2016). Meta-analysis was used to summarize the research results on socio-demographic risk factors of self-immolation in Iran. The STROBE checklist was used to assess quality of the study. The random effect model was employed in the meta-analysis to account for the observed heterogeneity among the selected studies.

Results: Twenty-nine studies (sample size=5717) were included in the meta-analysis. The estimated average age of individuals who attempted self-immolation was 27.31 (95% confidence interval [CI]: 25.81–28.81) years. Women account for 70% (95% CI: 64–77) of all self-immolation attempts in Iran. Thirty-nine (95% CI: 34–43) per cent of all self-immolation were among singles. Nineteen (95% CI: 16–22) per cent of self-immolators had mental disorder. Meta-regression model showed that the average age of individuals who attempted self-immolation increased significantly over the period between 2000 to 2016 (P-value=0.006).

Conclusions: Our study indicated that individuals who attempted self-immolation in Iran were mainly women, married and young adults.

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1. Introduction

Suicide, as a self-harming behavior, is an important cause of death around the world [1]. It was the 15th leading cause of death for all ages (1.4% of all deaths) worldwide in 2012, accounting for over 800,000 estimated deaths [2]. The age standardized rate of suicide was 11.4 per 100,000 and 80% of global suicide occurs in low- and middle-income countries (LMICs) [3]. There are several methods of committing suicide, including poisoning, hanging, drug or alcohol overdose, gun shot, exsanguination, jumping, suffocation and carbon monoxide inhalation. In some countries self-immolation (self-inflicted burn), as a violent and dramatic way of suicide, is a common form of suicide attempt [4]. In communities where self-immolation is common, it can spread as a copycat phenomenon, where it is difficult to prevent due to less noticeable indications of self-immolation compared to the other methods of suicide attempts [5-8]. In addition, failed self-immolation attempts result in painful burns that require long-term treatment along with social and emotional rehabilitations [9].

Although self-immolation is not a common method of attempted suicide (accounts for less than one per cent of suicides worldwide), this method of suicide is common in Iran, representing a quarter of all suicide cases [10-15]. In fact, in the western provinces of Iran (Kermanshah and Ilam), self-immolation is the most common method for suicide [16,17]. In addition to higher rate of self-immolation in Iran, there are several aspects of this phenomenon that makes the epidemiology of self-immolation in Iran different from the other countries. First, self-immolation is more common among women compared to men in Iran. For example, the female/male ratio of self-immolation attempters was 10 in Kurdistan [18]. Second, contrary to European countries, an inverse relationship was found between self-immolation attempt and being separated in Iran [16]. Third, unlike Iran, the majority of self-immolation attempters in European and North American countries (96%) suffer from mental illnesses such as depression and schizophrenia [19,20]. The higher incidence rate and differences in the socio-demographic characteristics of those who attempted self-immolation in

Iran compared to other countries warrant further studies to understand the epidemiology and socio-demographic characteristics of those who attempted self-immolation.

Although the current studies explained the epidemiology of self-immolation phenomenon across different regions in Iran, there is no precise and reliable information on this issue due to the lack of an accurate registration system. In this study, we aimed to fill the knowledge gap in the epidemiology of self-immolation cases in Iran. Further, using a meta-regression analysis of the current studies we investigated socio-demographic characteristics of self-immolators in Iran.

2. Methods

2.1. Literature search strategy

We used the MOOSE (meta-analysis of observational studies in epidemiology) guideline to conduct a systematic review and meta-analysis of the peer-reviewed literature on self-immolation data. The MOOSE guideline provides a checklist of items for reporting style for systematic reviews and meta-analyses of observational studies in health research and medicine [21]. The search was limited to studies conducted in Iranian population published in English or Persian languages between 2000 and October 2016. Relevant studies on self-immolation in Iran were identified by searching Iranian (Iran Medex, Magiran, Medlib and SID) and international (Scopus, Google Scholar, Embase, CINAHL, SUMSearch, Cochrane, PubMed/MEDLINE, Science Direct and the Cochrane Library [Issue 10 of 12]) bibliographic databases. A combination of medical subject heading (MeSH) terms and keywords used in research equations with 'OR' and 'AND' logical operators. Iranian scientific databases were searched using the two keywords of "self-immolation" and "self-burning"; separately; because Iranian databases do not distinguish synonyms and do not allow sensitive search using logical operators. To identify additional studies; a manual search of the reference lists of the relevant articles; reports and reviews were also performed. Attempts were made to contact the authors of all studies that met the inclusion criteria to request for their unpublished data and abstracts. The search process is summarized in Fig. 1.

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