

# An ecological approach to explain suicide by self-immolation among women in rural Iran

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## ABSTRACT

يعد الانتحار عن طريق إحراق النفس حتى الموت من أكثر الطرق الشائعة للانتحار بين النساء في المناطق الريفية. ويعد فهم العوامل والأسباب الخفية التي يمكن أن تقود المرأة لإحراق نفسها حتى الموت ضرورياً من أجل الوصول إلى برامج الوقاية التجريبية. وحتى الآن لم يتم التطرق إلى الدراسات التكاملية التي من شأنها حل العوامل التي تزيد من خطر الانتحار عن طريق إحراق النفس حتى الموت بين النساء في المناطق الريفية. لقد قمنا في هذا المقال بمراجعة وتقييم العوامل التي تزيد من خطر الانتحار عن طريق إحراق النفس حتى الموت وذلك اعتماداً على النظرية البيئية في محاولة للوصول للحلول التكاملية التي من شأنها وقاية النساء في المناطق الريفية من خطر الانتحار عن طريق إحراق النفس حتى الموت. ولقد ختمنا المقال بوضع الحلول المتعددة الأوجه للوقاية من الانتحار عن طريق إحراق النفس حتى الموت.

Suicide by self-immolation, or lighting oneself on fire, is the most common method of suicide used among women in rural Iran. Understanding the underlying mechanisms that may lead women to commit suicide by self-immolation is necessary for the development of empirically-supported prevention programs. Currently, no integrative approach to the risk factors for self-immolation among women in rural areas, or the interactions between them, is available. Based in ecology theory, we review the risk factors for suicide by self-immolation and present them in terms of ecological theory in an attempt to offer an integrative approach for prevention of self-immolation among women in rural Iran. We conclude by recommending a multifaceted approach to prevention of self-immolation.

*Neurosciences 2012; Vol. 17 (4): 309-313*

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Self-immolation is a common form of suicidal injury in various parts of the world. Common especially in rural areas of the Middle East and South Asia, self-immolation involves pouring flammable liquids upon oneself and then lighting oneself on fire in a suicidal gesture. In rural Iran, the focus of this manuscript, self-immolation rates are among the highest in the world (2.3 per 100,000).<sup>1</sup> This is despite the fact that overall suicide rates in the region are rather low (6.2 per 100,000).<sup>1,2</sup> As we outline below, several unique contextual factors in the environment of rural Iran contribute to high self-immolation risk. In the prototypical case, self-immolation is carried out by impoverished, uneducated, rural women. Self-immolation, used by more than 70% of successfully completed suicides in Iran, leads to the death of hundreds of women (and small numbers of men) each year. Self-immolation is the third leading cause of years of life lost (YLL) among women in Iran.<sup>1-5</sup> A large body of epidemiological research examines risk factors associated with self-immolation in rural Iran. Among the most frequently identified risk factors are rural location, family quarrels, marital dissatisfaction, mental illness, unemployment, low educational status, and limited access to mental health services.<sup>2-15</sup> Most epidemiological work has been conducted, however, without a substantive theoretical basis. Several classic and contemporary models are available to explain risk for suicide.<sup>16,17</sup> However, none have been assessed as applicable to understanding self-immolation among women in rural Iran, and none consider why self-immolation may be more common among poorly educated women in rural Iran, but much less common among men, more educated women, or those living in urban areas of Iran. This review introduces ecological theory as a background toward understanding the multiple contextual risk factors identified as correlates

**Disclosure.** The authors declare no conflicting interests, support or funding from any drug company.

to risk for self-immolation, and ultimately as a background to multifaceted education and suicide prevention efforts.

**Ecological systems theory.** Introduced by Urie Bronfenbrenner, ecological systems theory conceptualizes several interactive layers that together influence social phenomenon.<sup>18</sup> These layers, labeled as the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem, are concentric and overlapping influences hypothesized to effect all phenomena occurring in a social context.<sup>18</sup> As in other social phenomena, suicide by self-immolation can be conceptualized to occur in these contextual environments. Below, we review each level of influence proposed by Bronfenbrenner's ecological theory,<sup>18</sup> and discuss how each has been demonstrated relevant in published research to consider why risk for suicide by self-immolation is so high among women living in rural Iran.

**Microsystem and mesosystem.** The microsystem is the closest layer to the person. It includes patterns of interpersonal relationships, social roles, and relations, and the interactions the person has with her family, neighbors, and peers. There is a bidirectional influence between person and microsystem, such that the person influences the microsystem and the microsystem influences the person.<sup>18-20</sup> The mesosystem connects microsystem structures. Thus, the mesosystem represents the connections between family members, peers, neighbors, and others close to the person.

For a rural Iranian woman who attempts suicide by self-immolation, there are several relevant microsystems, including family members, peers, and neighbors. Those microsystems, as well as the mesosystems that connect them, have emerged as relevant to self-immolation risk in previous work. In particular, conflictual marital relationships, poor relationships with other family members, and poor relationships with peers and neighbors are related to self-immolation risk.

The marital relationship microsystem is perhaps most important. In Iranian culture, and especially in rural Iranian culture (see below, in description of macrosystem factors), a traditional marriage in which the woman has little or no contribution in decision-making for the family is common. Wives are expected to behave in a deferential manner to their husbands. Traditional marriage expectations allow men to possess the primary role in family decision-making, and women's ideas and preferences are undervalued. This may lead some women to be dissatisfied in their marriages, and therefore to become depressed, angry, and suicidal. The empirical literature suggests that self-

immolation acts frequently follow family quarrels.<sup>5,15</sup> Complicating marital dissatisfaction among Iranian women in rural areas are macrosystem factors, detailed below, such as the facts that these women often marry at a young age, and without much education. Youth and lack of education may create a situation whereby the women have poor coping mechanisms, and are unable to resolve stress in their marital and family relationships. Also contributing in many cases is poverty. Without financial resources to satisfy their families, women may become depressed and hopeless.

Beyond spousal relationships, microsystem factors emerging from women's relations with their husbands' families (especially mother-in-laws) are relevant to risk for self-immolation. In Iranian culture, extended families tend to be close and to spend considerable time together. Married women are expected to spend much time with their husband's families. Family disagreements and quarrels prior to suicide attempts are common among self-immolation victims.<sup>3,5,15</sup>

The microsystem encompassing relationships with peers and neighbors may also be relevant to self-immolation risk. Preliminary data indicate that self-immolation may occur as an imitative act,<sup>5,21</sup> that is, some victims of self-immolation may attempt suicide after friends or neighbors do so. It is unclear whether close relationships result in copycat suicide attempts, or whether similar circumstances lead those at risk of self-immolation to befriend each other. Further research in this area is recommended.

We note one last issue with regards to microsystem influences. In many cases, women in rural Iran may be isolated within microsystems. They may have limited peer networks or external contacts with people, for example, and therefore are isolated within just the family microsystem. This could interplay with depression, and cause limited mesosystems that help improve mental health.

**Exosystem.** The exosystem surrounds the microsystems and mesosystems.<sup>19</sup> The individual person may not directly influence the exosystem, but changes in the exosystem may influence the individual. A few exosystem factors likely influence risk for self-immolation among rural women in Iran. One factor is their limited access to mental health care and delivery. Together, inadequate mental health resources and strong stigma against admitting someone for mental illness may prevent impaired women from receiving care to prevent suicides.

A second exosystem factor that influences risk of self-immolation in rural Iran is the comparatively easy access women in rural Iran have to petrol, kerosene, and

other flammable fuels. In one recent study comparing victims of suicide by self-immolation versus victims of suicide by poisoning, patients who attempted suicide by self-immolation had lesser seeking behavior with regard to killing devices than patients who attempted suicide by poisoning.<sup>21</sup> Obviously, this may be because self-immolation devices (flammable liquids, ignition tools) are so readily available to low-income rural women in Iran, where they are used for cooking activities.

Third, the fact that some women in rural Iran live in poverty is an exosystem factor likely to influence their risk of self-immolation. Poverty may influence risk via environmental factors (for example, access to flammable fuels), opportunity for mental health care, and other factors.<sup>22</sup>

**Macrosystem.** The macrosystem is the outermost layer of Bronfenbrenner's ecological model.<sup>18</sup> It includes cultural values, customs, and laws that influence the individual via all other layers. We believe the macrosystem is most directly responsible for the fact that self-immolation is common in rural Iran, but not in urban areas. Specifically, the rural environment may influence self-immolation risk for several reasons. First, in rural areas of Iran, it is extremely challenging for individuals to break with cultural customs and traditions. Thus, women tend to be poorly educated, marry young, be impoverished, and sometimes be placed into marriages where they are unhappy and have limited coping mechanisms. Second, women living in rural Iran are expected to serve their husbands deferentially. The traditional rural society dictates that women must assist in agricultural and animal husbandry tasks without pay, have very little personal leisure time, and have very little decision-making authority in the family. Such situations can be stressful and impact mental health substantially. They may lead to feelings of unworthiness, hopelessness, and depression that trigger suicide ideation and acts.

Third, Iranian culture boasts a rich set of customs, beliefs, and traditions that have been practiced for centuries. These cultural practices are particularly strong in rural areas. Many such traditions enrich the lives of Iranians in many ways; however, they may also contribute to self-immolation risk. Cultural practices such as traditional marriage, close relationships with extended family, male authority toward women, and negative attitudes toward divorce and mental illness all facilitate suicide by self-immolation among traditional women in rural Iran.<sup>21,23</sup> Also relevant are the traditional habits of women to receive little or no education, to have minimal financial resources, and to marry at a young age. Together, an interaction between multiple cultural factors creates a situation whereby young, poor,

married women become depressed, unhappy in their marital relationships, and suffer adjustment disorders. Self-immolation is an escape.

Finally, along with the macrosystem influences of culture on risk for self-immolation in rural Iran, there also are sociocultural and economic barriers to implementation of prevention programs. These factors include a cultural tendency to view mental illness as a stigma, a negative attitude toward mental health facilities and treatment, a lack of cultural force to devalue self-immolation, poor resources and infrastructure to improve mental health in the population, and in some cases, a cultural confirmation of self-immolation as an appropriate threat or action for women to fight for rights or advantages.<sup>24,25</sup>

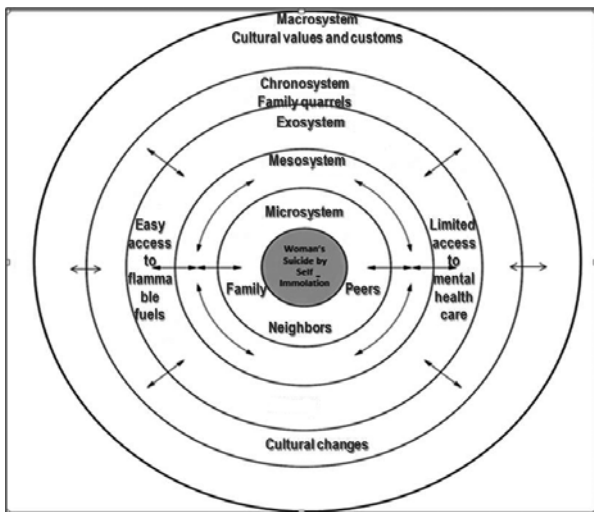
**Chronosystem.** The chronosystem, which was added in later versions of Bronfenbrenner's model,<sup>18</sup> encompasses the dimension of time related to social outcomes. Evidence suggests the chronosystem might influence self-immolation risk in the immediate sense, as risk peaks when young rural married women are actively quarrelling with their husbands.<sup>2-15</sup>

The passage of time also comes into play on a larger scale, especially in the context of developing prevention strategies. One strategy to reduce self-immolation risk over time will be to erode traditional cultural values and practices in rural Iran. This process must take place with sensitivity to tradition and culture, but it is likely to occur as rural Iranian society westernizes, modernizes, and improves public health.

**Figure 1** illustrates the multiple layers that influence women's suicide by self-immolation based on an ecological approach.

**Implications.** The risk for self-immolation among women in rural Iran is complex, likely caused by the multiple interacting contextual influences conceptualized in the ecological systems theory.<sup>22</sup> In other words, several different layers of context interact with potential self-immolation victims, and together they interact to create risk. Factors range from immediate microsystems (for example, the spousal relationship) to distal macrosystems (for example, rural Iranian culture). The influences are interacting, such that distal macrosystem influences in rural areas may directly impact other systems, including immediate microsystem activity, to create elevated risk. Those interactions are particularly salient in rural areas of Iran, given the strong influence of traditional cultural practices.

To conceptualize how ecological theory influences risk for self-immolation risk in rural Iran most fully, one needs to envision not just the influence of individual



**Figure 1** - Multiple layers of influence affecting women's suicide by self-immolation in Iran. Adapted by permission from BMJ Publishing Group Limited, *Journal of Epidemiology and Community Health*, Lindsay McLaren & Penelope Hawe, 59(1), pp. 6-14, 2005.

layers of context, but also the interaction between those layers. How do multiple factors work together to create risk, perhaps in a multiplicative rather than additive manner? As an example, microsystem factors (such as traditional marital relationships) are strongly and directly influenced by macrosystem factors (cultural expectations) of traditional rural Iran. Layering on top of those interactions are the chronosystem factors, whereby traditional activities and behaviors transfer readily to subsequent generations over time, causing long-term preservation of cultural values of the rural countryside. The combination of these multiple risk factors may create particularly elevated risk over single risk factors in isolation.

**Implications for prevention.** One important aspect of conceptualizing risk for self-immolation among rural Iranian women within ecology theory is its implications for intervention development. We believe the most successful interventions will be multifaceted, purposefully targeting all layers of influence on risk. At the microsystem and mesosystem layers, interventions should be implemented to improve marital satisfaction among vulnerable rural women in Iran. For example, psychotherapeutic programs targeting improved interpersonal/marital relationship skills could help women and men unhappy in their marriages.<sup>26</sup> Other lessons could target younger women, educating them about the process of choosing to marry and the pros and cons of marrying at a young age. Of course, such

education will have to occur in the context of traditional rural society (the macrosystem), and in doing so will require cultural sensitivity.

At more distal layers of ecological theory, accessible and affordable treatment for mental illness is needed, as are educational programs for rural women to understand the cultural implications of traditionally male-dominated societies. Primary health care professionals might be one option to implement such programs at the exosystem level. Such professionals are usually from the same rural area, and therefore have a better understanding and appreciation of rural traditions, but also are sensitive to the negative health outcomes that might emerge due to those traditions and are able to negotiate the sensitive line between advocating for positive change for individual health but respecting and retaining cultural traditions.

Finally, intervention programs should target the macrosystem. Altering macrosystem factors (the socio-cultural environment) of rural Iran is extremely complex, but may accomplish multiple positive outcomes, including reduction of suicide by self-immolation by causing the population to rethink the typical age of marriage, the typical gender roles, and the culture's response to mental illness and suicidality. It might also provide an economic infrastructure to increase mental health care capacity in rural areas.

We close by returning to a key point. Ecological theory emphasizes not just direct effects on individuals, but also the interactive effect of multiple contextual influences. In other words, multiple contextual risk factors may work together to elevate (or reduce) risk. By targeting the multiple layers of influence on self-immolation risk, intervention programs will change interactive effects. Macrosystem-level changes to rural Iran are complex, but can be accomplished slowly by educational programs targeting the microsystem or exosystem layers and by increasing financial infrastructure. In the end, such work will be complicated and expensive, but ultimately could help reduce one of the leading causes of death to young women in rural Iran.

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