

Suicidal Ideation Status and Its Related Factors Among Older Adults in Yazd, Iran

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Abstract

Objectives: To assess the prevalence of suicidal ideation and identify the factors associated with it among the elderly population in Yazd during the year 2021.

Design: A cross-sectional study.

Setting(s): Tabriz, the capital city of the East Azerbaijan province in northwestern Iran.

Participants: A total of 386 seniors aged 60 years and above, residing in Yazd, participated in this study. The sample consisted of 212 women and 174 men selected using the cluster random sampling method.

Outcome measures: Data were collected via the Beck Scale for Suicide Ideation (BSSI).

Results: Five percent of the participants have a high level of suicidal risk and readiness for suicide. Additionally, the mean score of suicidal ideation varied significantly based on demographic variables such as gender, occupation, education level, and income type ($P < 0.05$). Moreover, the risk of suicidal ideation was higher among women compared to men, particularly among housekeepers compared to other occupational groups ($P < 0.05$). Furthermore, elderly individuals who relied on support from their children and other supportive institutions as their source of income were more susceptible to suicidal ideation compared to others ($P < 0.05$). In terms of education, elderly individuals with no education or only primary education had a higher risk of suicidal ideation compared to those with a high school diploma or higher education ($P < 0.05$). In addition, individuals with a history of psychiatric disorders, musculoskeletal diseases, high blood pressure, comorbidity, and high cholesterol levels obtained significantly higher scores for suicidal ideation compared to elderly individuals without these conditions ($P < 0.05$).

Conclusions: The elderly individuals in Yazd exhibited a desirable level of suicidal ideation, with a low risk of suicide. However, the risk factors for suicidal ideation examined in this study highlight the need for increased attention by healthcare managers to the mental health of the elderly population.

Keywords: Older adults, Suicide, Suicidal ideation

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Introduction

Suicide is a devastating tragedy that affects not only the individuals but also their families, friends, and the wider community. While suicide can affect different countries and age groups, it is particularly prevalent among older individuals.¹ Various theories have been proposed regarding suicide and its risk factors in this age group. Risk factors such as female gender, loneliness, religious affiliation, low education level, physical illness, depression, anxiety, previous diagnosis of psychiatric disorders, frailty, low well-being, pain, decreased independence in

daily life activities, and recent bereavements have been identified among the elderly population.²⁻⁶

The total number of suicides worldwide increased by 7.6% during the 27-year study period, reaching 817 000 cases in 2016.⁷ According to the World Health Organization (WHO), the number of suicides among the elderly in 2016 was approximately 180 000. Accordingly, it can be claimed that around 22% of suicides in 2016 belonged to the elderly age group.⁸

Suicide was identified as the leading cause of years of life lost (YLL) in terms of standardized life expectancy in the



Asia-Pacific region burdened by high-income diseases. It ranked among the top 10 leading causes in Eastern Europe, Central Europe, Western Europe, Central Asia, Australia, and North-South America.⁷

A study conducted in Iran by Sourì et al on the prevalence of suicidal ideation among the elderly in Shiraz reported a low prevalence of suicidal ideation among the elderly population.⁹ Unfortunately, due to cultural issues, some suicides remain hidden and receive less attention and intervention. Given the importance of identifying the contributing factors to suicidal behavior as a gateway to preventive interventions for suicidal ideation and actions among the elderly, further research in this area is deemed necessary.

Considering the increasing number of seniors in Iran, the severity of suicidal ideation in humans, and the lack of research in this field, this study was conducted to determine the status of suicidal ideation and its related factors among the elderly in Yazd, Iran.

Since for every completed suicide, there are 4 suicide attempts,¹⁰ and suicidal ideation precedes both suicide attempts and completed suicides within the spectrum of the suicidal process, it can be inferred that suicidal ideation among the elderly population may be more prevalent than what the statistics indicate.

Considering the increasing elderly population in Iran and the severity of the issue of suicide among them, as well as the lack of studies in this area, this study extensively examined the risk factors for suicidal ideation and investigated more variables compared to other similar studies in Iran. It aimed to gain a better understanding of the risk factors associated with suicidal ideation to improve the management of this issue.

Methods

Study Setting

This study was conducted on a sample of 386 seniors aged 60 and above residing in Yazd, Iran, using the Beck Scale for Suicide Ideation (BSSI)¹¹ tool.

Study Population

The study population included all seniors aged ≥ 60 years who were living in Yazd.

Sample Size and Sampling Method

In brief, a community-based representative sample consisting of 386 older adults (174 males and 212 females) was selected in two stages using the cluster random sampling method. In the first stage, Yazd was divided into 14 clusters based on the population covered by the comprehensive health centers in Yazd. Then, one center or base within each cluster under the coverage of that center was randomly selected. Within each selected center or base, participants were randomly selected using a table of random numbers. The first participant on the list of seniors in each center was selected using a random number. Moreover, since the predetermined sample size was 386

individuals, and an equal number of 28 individuals was determined in each center, the total number of seniors in each center was divided by 28 to determine the sampling intervals. The remaining names were then selected from the first selected name at the specified interval.

Data Collection Tools

Data was collected by trained interviewers. To investigate socio-demographic variables, a structured questionnaire was used. Additionally, to collect the specific data of the study, standard scales were used (BSSI).

Procedure and Measurements

The inclusion criteria for this study were age 60 years or older, residing in Yazd, and the ability to respond to the questions. The exclusion criteria included dissatisfaction with completing the questionnaire, inability to respond to the interviewer's questions, death, or migration. After identifying the participants, they were contacted using the registered phone numbers in the healthcare system of Yazd and invited to collaborate in the study. During their visit, a comprehensive explanation of the study was provided, and written informed consent was obtained from them. The questionnaires of all participants were then completed by a member of the research team through a dedicated interview with each elderly.

Instruments

The questionnaires used in this study included the BSSI along with demographic and background information. The BSSI, developed by Aaron Beck, consists of 19 questions, each scored from zero to two, resulting in scores ranging from zero to 38. Scores from 0 to 5 indicate a low level of suicide risk and the presence of suicidal thoughts, scores from 6 to 19 indicate a high level of suicide risk and readiness for suicide, and scores from 20 to 38 suggest a very high level of suicide risk and intention to commit suicide. The Beck questionnaire has been validated in Iran by Anisi et al among soldiers.¹² The results indicated that the concurrent validity of the BSSI with the General Health Questionnaire is 0.76, and the reliability of the questionnaire, using the Cronbach's alpha method is 0.95.

The demographic and background information questionnaire comprised three sections. The first section consisted of general personal details such as age, gender, occupation, marital status, and education. The second section included questions related to individuals' economic status, and the third section included questions for assessing individuals' health status. This section included questions regarding individuals' diseases, history of psychiatric disorders, current psychiatric disorders, social relationship status, history of mourning, and experience of pain.

Statistical Analysis

Statistical analysis was performed to assess the normality of the data using the Kolmogorov-Smirnov test ($P > 0.05$).

Categorical and nominal variables were reported as frequencies (%), and continuous variables with non-normal distributions were reported using mean ranks. Group comparisons were conducted using independent samples t-tests, and the Mann-Whitney U test was used for continuous variables. All statistical analyses were performed using SPSS software version 24, and the significance level was determined at $P < 0.05$.

Results

The majority of participants in this study (99.5%) were at a low risk of suicide. Most of the participants were women (54.9% female and 45.1% male), with an average age of 69.1 years. In terms of marital status, the majority were married (79.3%), and regarding occupation, the highest percentages were housekeepers (50.5%) and retirees (36.8%), respectively.

As seen in Table 1, the mean rank of suicidal ideation in women (202.91) was at a higher level of suicide risk compared to men, with the mean rank of suicidal ideation in men to be 182.03, ($P < 0.001$).

Regarding individuals' occupation, the mean rank of suicidal ideation in housekeepers (205.08) was at a higher level of suicide risk compared to other occupational groups ($P < 0.08$).

Furthermore, comparing the mean rank of suicidal ideation in illiterate individuals (207.83) and those with primary education (201.52) with the mean rank of suicidal ideation in other educational groups showed that the level of suicide risk in illiterate individuals and those with primary education is higher compared to the diploma and higher education group ($P < 0.001$).

The relationship between the mean rank of suicidal ideation and the type of income among the participants in the study revealed that the level of suicide risk in older adults who were financially supported by their children and other institutions (221.88) was higher compared to older adults with financial independence (personal income) ($P < 0.001$).

Examining the association between a history of psychiatric disorders and suicidal ideation reveals that the mean rank of suicidal ideation in individuals with a history of psychiatric disorders (238.86) is higher than that in those without such a history (186.28), with a $P = 0.04$.

Furthermore, comparing the mean rank of suicidal ideation in elderly individuals with psychiatric disorders (254.44) to those without psychiatric disorders (178.69) revealed a higher level of suicide risk in elderly individuals with psychiatric disorders ($P < 0.001$) (Table 2).

To examine the relationship between physical illnesses and suicidal ideation, the mean ranks of elderly individuals with high blood pressure (202.12) were compared to those without high blood pressure (183.64), demonstrating a connection between this condition and the level of suicide risk. Likewise, elderly individuals with musculoskeletal disorders had a higher suicide risk,

Table 1. The Distribution of Mean Ranks of Suicidal Ideation in the Elderly Population of Yazd Based on Demographic Variables

Variables	Groups	Number	Mean Ranks	P value
Gender	Female	212	202.91	<0.001
	Male	174	182.03	
Age	Less than 65 years	138	194.06	0.89
	65-75 years	171	194.68	
	Over 75 years	77	189.88	
Occupation	Employed	41	171.02	0.08
	Retired	142	183.11	
	Jobless	8	210.88	
	Housekeeper	195	205.08	
Education	Illiterate	95	207.83	<0.001
	Primary school	156	201.52	
	High school	28	182.54	
	Diploma and higher	107	171.95	
Type of Income	Personal	98	184.28	0.04
	Pension	254	193.26	
	Supported by children and others	34	221.88	

with a mean rank of 212.64 compared to those without musculoskeletal disorders, with a mean rank of 20.183 ($P < 0.001$). Additionally, comparing the mean rank in elderly individuals with comorbidity (212.40) to those without multiple illnesses simultaneously (173.88) indicated a higher suicide risk in elderly individuals with comorbidity. Moreover, elderly individuals with high blood lipid levels exhibited a higher suicide risk, with a mean rank of 212.40, compared to those with normal blood lipid levels, with a mean rank of 184.66 ($P < 0.001$).

Comparing the mean ranks of suicidal ideation in elderly individuals with pain (232.89) to those without pain (182.71) indicated a relationship between pain and the level of suicide risk in the elderly. Additionally, the mean rank of suicidal ideation in elderly individuals with recent bereavement (222.43) was higher than those without recent bereavement (187.09), indicating a higher level of suicide risk in individuals with a history of recent bereavement compared to those without such a history ($P < 0.001$).

Moreover, comparing the mean rank of suicidal ideation in elderly individuals who had weekly social interactions (186.84) and monthly social interactions (190.43) to those who had social interactions less than once every 6 months (231.81) suggested a higher level of suicide risk in the elderly with social interactions less than once every 6 months compared to those with weekly and monthly social interactions ($P < 0.001$). Therefore, establishing social relationships in the elderly is effective in reducing the risk of suicide.

Discussion

The present study was conducted to investigate the status of suicidal ideation and related factors among the elderly

Table 2. Distribution of Mean Ranks of Suicidal Ideation in Elderly Individuals in Yazd Based on Diseases

Variables	Groups	Number	Mean Ranks	P Value
History of psychiatric disorder	Yes	53	238.86	<0.001
	No	333	186.28	
Current psychiatric disorder	Yes	70	254.44	<0.001
	No	316	178.69	
Hypertension	Yes	206	202.12	0.01
	No	180	183.64	
Diabetes	Yes	149	198.60	0.30
	No	237	190.30	
Cardiovascular diseases	Yes	79	205.23	0.12
	No	307	190.48	
Musculoskeletal diseases	Yes	135	212.64	<0.001
	No	251	183.20	
Cancer	Yes	4	156.50	0.33
	No	382	193.89	
History of Stroke	Yes	9	203.72	0.68
	No	377	193.26	
Other diseases	Yes	158	205.57	0.01
	No	228	185.13	
Comorbidity	Yes	244	204.92	<0.001
	No	142	173.88	
Hyperlipidemia	Yes	123	212.40	<0.001
	No	263	184.66	
Pain	Yes	83	232.89	<0.001
	No	303	182.71	
History of bereavement	Yes	70	222.43	<0.001
	No	316	187.09	
Social relationships	Per week	292	186.84	<0.001
	Per month	40	190.43	
	More than 6 months	54	231.81	

population in Yazd. The findings of the study indicated that elderly individuals in Yazd have a desirable level of suicidal ideation and a low level of suicide risk. This finding is consistent with the results of the Souri study conducted in Shiraz among the elderly population, suggesting a low prevalence of suicide and suicidal ideation among the elderly.¹⁰ This low prevalence may be attributed to cultural factors or the religious beliefs of the elderly who consider suicide as an unforgivable sin. In any case, these findings report a desirable outcome.

According to our results, the prevalence of suicidal ideation was higher in women compared to men, which is consistent with the findings of the Stolz and colleagues' study.³ This indicates a higher level of suicide risk and suicidal ideation in elderly women, highlighting the need for increased attention to the presence of suicidal ideation in this group during healthcare and medical care.

Unfortunately, no study has been found to specifically examine the relationship between occupation and suicide

among the elderly, thus more precise analysis of the results need not be conducted. However, considering that the occupational group of housekeepers consisted entirely of women, and as previously mentioned, the prevalence of suicidal ideation is higher in women than in men, it can be concluded that the higher prevalence of suicidal ideation in this occupational group may be attributed to this factor.

Furthermore, the correlation between suicide risk and education level was consistent with the Cecilia study, indicating a significant relationship between low education level and suicide risk in the elderly⁴. Given that many elderly individuals in Yazd have low levels of education, paying attention to their mental health and raising their awareness can be highly effective in reducing suicide risk among them.

According to the findings of the review study by de Souza Minayo et al, there is a correlation between low welfare and lack of access to social assistance and social security, which is consistent with the results of this research⁴. Therefore, it can be concluded that the suicide risk level is higher in the elderly with lower economic status and social welfare. Unfavorable economic conditions make individuals unable to meet their living expenses, and the unmet needs lead to psychological pressure and despair resulting from unfulfilled expectations. Consequently, individuals may resort to suicide as a means to escape these pressures. Therefore, paying attention to the material and welfare issues of the elderly and having financial independence play a significant role in preventing psychological problems among the elderly, including suicide and suicidal thoughts.

Another finding of the current study was the correlation between suicide risk level and psychiatric disorders, which was also confirmed by the results of the Stolz and colleagues,³ Wiktorsson et al,¹³ and Conwell et al¹⁴ studies. These studies demonstrated that suicidal thoughts and suicide attempts are related to psychiatric disorders such as depression, personality disorders, anxiety, hopelessness, post-depression recovery period, and a history of previous psychiatric illnesses. Therefore, by identifying elderly individuals with psychiatric disorders, providing appropriate treatment, and regularly monitoring their mental health status, it is possible to reduce the suicide risk level among the elderly.

The findings of the current study also lay support to the relationship between physical health, illness, as well as suicide and suicidal ideation. The results of the de Souza Minayo et al⁴ and Conwell et al¹⁴ studies also demonstrated that having a physical illness significantly influences the suicide risk level among the elderly, and elderly individuals with suicidal thoughts suffered from at least one physical illness. Therefore, by controlling the physical illnesses of the elderly and alleviating their suffering from these conditions, it is possible to reduce the presence of suicidal ideation among them.

In addition, the current study found an association

between pain and suicide risk. The study by Li and Conwell¹⁵ corroborates the results of this research by recognizing pain as a significant risk factor in late life, especially in men. Therefore, controlling the pain of elderly individuals should receive considerable attention in their medical care, and it should not be perceived as a normal and inevitable phenomenon of aging.

Grief during the elderly period is considered a strong source of stress for the elderly, and as observed, there is a significant relationship between recent bereavement and the presence of suicidal ideation in the elderly. The study by Shah and Meeks¹⁶ also demonstrated that grief reactions are associated with an increased risk of suicide attempts, suicidal ideation, and indirect suicidal behaviors (e.g., avoiding medical care or not eating). Therefore, grief can play a significant role in elderly suicide, and paying more attention to the elderly during the grieving period and providing appropriate support to help them navigate this turbulent phase can greatly contribute to reducing the level of suicidal ideation in this population.

Loneliness and social isolation are prevalent traits observed among individuals aged 60 and above who were involved in suicide attempts.¹⁷ The absence of social connections serves as a predictive factor for an elevated risk of suicide among the elderly.¹⁸ The findings of studies by Stolz and colleagues,³ Heisel,⁵ Vanderhorst and McLaren,¹⁹ Chang et al (meta-analysis),²⁰ and Huang & Wang²¹ also support the results of this study, indicating a significant association between loneliness, limited social relationships, and suicidal ideation. Paying attention to this issue and planning for a successful aging period, accompanied by appropriate social relationships and maintaining previous connections with friends, family, colleagues, and peer groups, can play a crucial role in reducing suicidal ideation in the elderly.

Conclusions

The suicide risk level in the elderly population of Yazd is low. However, this does not imply that the issue of suicide is of low importance in the healthcare and treatment of the elderly. Considering the risk factors mentioned in this study and similar studies, identifying elderly individuals who have these risk factors, particularly those in the early stages of the suicide spectrum, and clarifying the dimensions of the elderly suicide issue can pave the way towards providing practical solutions and a national strategy for suicide prevention, integrating it into the healthcare system. This highlights the need for greater attention from healthcare managers and the implementation of necessary policies and planning to promote the mental well-being of the elderly.

Study Limitations

One of the limitations of this study was the exclusion of elderly individuals living in rural areas and those residing

in elderly care homes. Additionally, no attention was paid to the issues of various religious and ethnic minorities in the community, as well as the personality traits of the elderly. Furthermore, other variables that could have an impact on suicidal ideation in the elderly such as sleep quality, ability to perform daily tasks, medication use and quantity, tobacco consumption, and physical activity levels were not considered. It is recommended that future studies take these limitations into account, implement the study's findings, and explore these factors in greater detail.

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Data availability statement

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Ethical approval

This study was approved by the Ethics Committee of the School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, with the ethics code IR.SSU.SPH.REC.1399.124. All questionnaires were completed after obtaining informed consent from the participants. The questionnaires were anonymous and did not contain any personal information of the individuals. The demographic information included in the questionnaire was general in nature, and during the interviews, efforts were made to ensure that the method of questioning did not distress the elderly. Due to the coronavirus disease 2019 (COVID-19) pandemic, health measures such as maintaining social distancing and wearing masks were strictly followed during the completion of the questionnaires. The elderly participants responded to the questions raised in the questionnaire, and guidance was provided to them for referral to health centers if necessary.

Consent for publication

Not applicable.

Conflict of interests

The authors express no conflict of interests.

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