

The Validity and Reliability of the Persian Version of Literacy of Suicide Scale (LOSS) in the Iranian Military Youth

Abstract

Aims: Suicide is one of the leading causes of death in the world. It is important to evaluate its prevalence through valid tools. Among various tools, the Literacy of Suicide Scale (LOSS) has not yet been validated for Persian speaking people. Therefore, the aim of this study was to translate, evaluate and validate Batterham PJ, Calear AL et al.'s 2012 Literacy of Suicide Scale (LOSS) in the young military community.

Materials & Methods: This was a cross-sectional study with a methodological approach. The sample was recruited from young military personnel who referred to counseling and psychology clinics that were chosen through convenience sampling. At first, the original version was obtained and translated into Persian by the Forward-Backward method. Then, in order to evaluate the content validity ten experts have examined the scale and content validity ratio (CVR) as well as the content validity index (CVI) of the questionnaire. Face validity was also assessed through a sample of 20 subjects from the study population. The test-retest with a two week interval along with Cronbach's alpha were utilized to examine the reliability. Finally, the questionnaire was distributed among 415 subjects to evaluate the construct and convergent validity.

Findings: The results showed that based on CVR, CVI and face validity, all questions of the LOSS were at acceptable levels. The Cronbach's alpha for the subscales were estimated to be between 0.71 and 0.76, and for the total scale was 0.75. Also, all components of LOSS had a significant relationship with the total score of this questionnaire ($r > 0.2$).

Conclusion: The Persian version of LOSS has acceptable validity and reliability for use among young military personnel. However, further studies among populations with different cultures or demographics are needed.

Keywords: Psychometrics, Questionnaire, Suicide, Suicide literacy.

Introduction

Suicide is a serious and common problem in the field of public health [1] and it is one of the leading causes of death worldwide [2]. Also, suicide is one of the ten main causes of death and lost years of life in many regions of the world [3]. The term suicide means death caused by injuring oneself with the intent to die [4].

The World Health Organization identified suicide as a public health priority and stated that suicide prevention is a necessity in all countries of the world. Some of the important underlying factors of suicide are predisposing physical diseases, mental disorders, demographic factors, economic factors, environmental factors, refuge and immigration, emotional-communication problems, prison and family problems [5, 6].

Around the world every year eight hundred thousand people die due to suicide. Suicide can happen at any time of the life cycle and is the second leading cause of death among 15-29 year olds in the world [7]. Common methods of suicide to be the use of firearms, hanging and suffocation, drowning, carbon monoxide poisoning, jumping and drug overdose. Suicide has gradually increased in the world, especially in European countries. In the Netherlands, the number of suicides increases annually between 3% and 6% [8].

Suicide is also growing in Iran. In a meta-analysis study, it has been concluded that in recent decades, Iran has the biggest contribution in the increase of suicide rates among Islamic countries and Eastern Mediterranean countries [9]. The provinces of Ilam, Lorestan, Hamadan, Kurdistan and Kermanshah have the highest rate of successful suicide in this country. Also, the provinces of Isfahan, Yazd, Semnan and Qom have the highest rate of attempted suicide and the lowest rate of successful suicide [10]. The results of Zarani and Ahmadi's study 2021 also showed that, contrary to global statistics, suicide attempts are more common among Iranian men [11].

Suicidal behavior is divided into four main categories: thoughts, planning, attempt and successful suicide. In suicidal ideation, a person harbors thoughts and plans for suicide, but may never actually do it. In the stage of planning for suicide, a person tries to provide suitable conditions, tools or place in order to commit suicide [12].

Suicide can also happen among soldiers. In a survey, the suicide rate in military personnel is twelve per 100,000 people and in civilians nine per 100,000 people [13]. The United States Department of Veterans Affairs also announced that 17 people die by committing suicide every day. In a study consistent with this result, it has been estimated that suicide is more common among military personnel than civilians [14, 15].

On the other hand, among the general population and especially among military personnel, suicide literacy is important. Suicide literacy is the knowledge about the causes, risk factors, signs or symptoms, and treatment of suicide. This is an important subject because by knowing the different aspects of suicide, the prevalence of suicide can be reduced. Adequate knowledge in this area may facilitate seeking professional help, while incorrect and incomplete knowledge causes hesitance to receive adequate supports for suicide prevention [16]. Suicide literacy in the general population is insufficient [17]. As a result, the issue of suicide is considered to be a taboo and the warning signs of suicide are neglected [18].

Studies show that the quality of nursing care for patients who have attempted suicide can be affected by various factors, including: the nurses' knowledge about suicide, their ability to assess the risk of suicide, and their professional experiences, attitudes and beliefs regarding suicide and it being a taboo subject [19]. Other studies also confirm that suicide literacy is very effective in improving attitudes, and reducing stigmatization and judgment in people [20, 21] [22, 23].

As a result, it is very important to identify groups that have little literacy in this field in order to promote programs related to mental health, so that by knowing and informing the general public and professionals about suicide, it can be better handled and prevented. One of the tools that can be used to evaluate the level of suicide literacy is a questionnaire. The Batterham PJ., Calear AL et al.'s Literacy of Suicide Scale (LOSS) 2012 can be a suitable tool in this field [16]. This scale can be efficient and useful due to its reference scale and the absence of such a questionnaire in Iran. This scale contains 27 items. Twelve items are taken from the Revised Facts on Suicide Quiz (RFOS) developed by Hubbard and McIntosh, and the other items are added in order to more accurately assess the four domains of suicide literacy identified by Calear et al [16]. These four domains consist of: a) signs and symptoms of suicide, b) causes or nature of suicidal thoughts and behaviors, c) risk factors, and d) treatment and prevention of suicide. In this context, the psychometric properties of this questionnaire have been proven in various studies and it has been effective in clinical studies and interventions [24]. Therefore, by knowing the level of suicide literacy in people and investigating the impact of this type of literacy on other psychological variables, we can have a better and more thorough understanding in this field and help specialists and psychotherapists in interventions related to suicide. Also, conducting this study is

important because there is no related tool in Persian that can be used to measure suicide literacy in people and evaluate it with other related variables.

Also, due to the fact that the military society and especially the soldiers are prone to having suicidal thoughts due to various reasons such as the pressure of the military environment and commanders, and the difficulty to adapt to changes as well as personality problems, thus it is necessary to investigate and measure the level of suicide literacy in this population. Therefore, the aim of the present study was to translate, and assess the validity and reliability of the LOSS of Caelear and Batterham et al. in the military community.

Materials and Methods

The present study is cross-sectional study with methodological approach. The current study population consists of all of the military personnel who are serving in the guard corps of Tehran and Arak in April and May of 2021.

The sample was also selected via convenience sampling method, which consisted of: a) ten experts in the content validity assessment stage; b) 20 soldiers in the stage of qualitative assessment of face validity, ICC and difficulty coefficient and conducting a test- retest assessment within 2 weeks. c) 415 soldiers to assess the concurrent validity. The inclusion criteria were: not having any psychological disorders or any history of suicide and self-mutilation in the past, and the exclusion criteria were: refusal to participate in the test and incomplete filling of the questionnaires.

Translation process

First, the English version of the questionnaire was given to English language experts for translation, and the questionnaire was translated into Farsi. Then, in the backward forward stage, the translated version was independently translated into English by two other people who were fluent in both English and Persian, and a copy was made from it. Next, the English translation was compared with the original version, and the final version was prepared by the research team. Finally, the final Persian version of the questionnaire was approved after being edited by an expert in Persian language and literature.

Validation

Face Validity

In order to evaluate the face validity, the questionnaires were completed by 20 soldiers and their validity was examined. Impact Score formula was used to assess the face validity. The accepted standard for item impact score was 1.5.

Content Validity

In order to evaluate this index, CVR was used according to the index of Lawshe's table. According to Lawshe's table with ten experts, CVR above 0.62 is acceptable [25]. Also, the content validity index or CVI (which belongs to Waltz & Bausell) was used to measure the content validity of the questionnaire. According to this index, if the resulting value is smaller than 0.7, the item is rejected, if it is between 0.7 and 0.79, it should be revised, and if it is greater than 0.79, it is acceptable [26].

For this purpose, in order to check the CVI and CVR, questionnaires were first sent to ten experts in the fields of health education, nursing, nutrition and psychology responded to check the necessity and importance of the questions. In order to examine a number of questions in the questionnaires whose CVI and CVR were estimated to be less than 0.62 and 0.70 (respectively), the relevant questions were presented to these ten experts for the second stage; of them six people responded and the CVI and CVR were recalculated.

Reliability

In order to check the reliability, the questionnaires were given to 20 soldiers, and after two weeks, the participants were again asked to fill the questionnaires, and at the end, the intra-class correlation coefficient was calculated.

Concurrent Validity

That is, examining the relationship between the scores of LOSS with Stigma of Suicide Scale (SOSS) that measures convergent validity. Also difficulty coefficient used in this study.

Data analysis

Statistical analysis was completed by using statistical software such as IBM SPSS-23. Spearman's internal correlation, measure validity analysis and difficulty test were used.

Tools

Literacy of Suicide Scale (LOSS)

LOSS was developed by Caelear et al. to measure the level of suicide literacy. This scale contains 27 items, and 12 of its items are taken from the Revised Facts on Suicide questionnaire (RFOS) developed by Hubbard and

McIntosh, and other items were added to more accurately assess the four domains of suicide literacy identified by Calear, Batterham et al 2012. These four domains include: a) causes or nature of suicidal thoughts and behaviors (questions 1 to 10), b) risk factors (questions 11 to 17), c) signs and symptoms of suicide (questions 18 to 23), and d) treatment and prevention of suicide (questions 24 to 27). In this questionnaire, correct answers are given a score of 1, and wrong answers and "I don't know" are given a score of 0. The sum of the correct items and the total score of the person shows the person's literacy. Higher scores indicate a higher level of suicide literacy. This scale can be used to identify the strengths and weaknesses of people's awareness in the field of suicide[16].

Stigma of Suicide Scale (SOSS)

This questionnaire was created by Batterham, Claire and Christiansen 2013 and its purpose is to evaluate the stigmatizing attitude of the general public towards people who commit suicide. This questionnaire has a long version (58 questions) and a short version (16 questions). Each question is rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher levels of stigmatization towards suicidal [27]. The stigma of suicide scale has three subscales: stigma, isolation/depression, and glorification/normalization. In terms of narrative validity in the first subscale, Cronbach's alpha is estimated to be 0.70. In each subscale, the convergence validity of the total score of this questionnaire is 0.66 by Batterham, Claire and Christiansen, 2013 and the construct validity of the depression questionnaire is reported to be 0.46 [28]. In Chan, Batterham, Christiansen, and Galtley's study [29], Cronbach's alpha in the subscales of stigma, isolation/depression, and glorification/normalization was estimated to be 0.95, 0.90, and 0.88, respectively. In Ozturk, Akin and Dorna's study, the internal correlation of the Turkish version of this scale was reported to be 0.93[30]. In the present study, this questionnaire was used to check the convergent validity.

Findings

Demographic Information

First Stage

In the first stage, 30 soldiers were studied. The demographic information of the participants was such that all the participants were single, from the city of Arak, IRGC soldiers, and had no history of self-harm, drug use, or referral to a psychiatrist. The mean age of the participants was 21.75 ± 2.97 years. Also, the mean duration of military service of the participants was equal to 20.55 ± 3.72 months.

Second Stage

Then, to test Concurrent validity, a questionnaire was administered on 415 soldiers. The demographic information of the participants was such that all the participants were single, from the city of Arak, and soldiers of the IRGC (military unit in Iran). The mean age of the participants was 21.40 ± 2.41 years. Among the participants, 72 subjects had a low economic status (up to 118.5 dollars), 181 subjects had a moderate economic status (118.5 to 237 dollars) and 162 subjects had a high economic status (more than 237 dollars). Also, the mean duration of military service of the participants was equal to 20.55 months with a standard deviation of 3.72.

Translation Process and Content validity

In the suicide literacy questionnaire, questions 1 (Asking someone directly, "Do you feel like committing suicide?" will probably lead to that person's suicide), 8 (media coverage of suicide will definitely encourage others to commit suicide), 22 (suicide rarely happens without warning) and 23 (the highest risk of suicide in depressed people is when they start to recover) were modified based on the opinions of experts and based on their comments. The elimination of these questions was due to the amount of CVR and CVI.

The results of the face validity study showed that the CVR of questions 1, 2, 5, 12, 13, 17, 19 and 21 were equal to 1, questions 3, 4, 7, 9, 10, 11, 14, 15, 16, 18, 20 and 24 were equal to 0.8 and questions 6, 22, 23, 25 and 27 were equal to 0.6, and questions 8 and 26 were equal to 0.4. Also, the CVI of questions 2, 3, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19 were also equal to 0.8, questions 1, 4, 5, 7, 8, 20, 21 and 22 were equal to 0.7, questions 6, 23, 24 and 25 were equal to 0.6, question 26 was equal to 0.5 and question 27 was equal to 0.4.

Also, based on the obtained results, the face validity of each question was reported as favorable (between 1.39 and 3.78).

In the first stage, questionnaires were sent to 30 people, 10 experts responded and their CVI and CVR were calculated. According to the cut-off point of 0.62 for CVR and 0.70 for CVI, some questions were lower than the cut-off points. After doing the calculations, in the self-literacy questionnaire, seven questions (6, 8, 22, 23, 25,

26 and 27) were less than the CVR cut-off point and six questions (6, 23, 24, 25, 26 and 27) were less than the CVI cut-off point. The rest of the questions were favorable.

In the second stage, these questions were again sent to six experts. The results showed that in the suicide literacy questionnaire, all of the questions were retained, but nine questions from this questionnaire were edited, modified and considered to be fluent. (Table 1)

Reliability

As can be seen in the table below, the Cronbach's alpha of the components of the suicide literacy questionnaire is higher than 0.70, and as a result, these components have good validity. Also, the amount of Coder Richardson and ICC is also at a favorable level. According to experts, the level of difficulty of the questions was at a favorable level (Table 2).

Convergent Validity

In Table 3, the relationship between the components of LOSS and SOSS has been investigated.

As can be seen in Table 3, the total score of suicide literacy has a direct and significant relationship with the normalization components, causes or nature of suicidal thoughts and behaviors, risk factors, signs and symptoms of suicide, and the treatment and prevention of suicide. It also has an indirect and significant relationship with the components of depression, stigma and the total score of stigma.

Evidently, all components of suicide literacy (Causes or nature of suicidal thoughts and behaviors, risk factors, signs and symptoms of suicide and treatment and prevention of suicide) have a direct and significant relationship with the total score of this questionnaire in both stages. So that in the first stage, the components that had the highest correlation with the total score were the risk factors ($r=0.702$; $p=0.01$), causes or nature of suicidal thoughts and behaviors ($r=0.666$; $p=0.01$), signs and symptoms of suicide ($r=0.490$; $p=0.01$), and treatment and prevention of suicide ($r=0.358$; $p=0.01$), respectively.

In the second stage, the components with the highest correlation were the causes or nature of suicidal thoughts and behaviors ($r=0.768$; $p=0.01$), risk factors ($r=0.721$; $p=0.01$), signs and symptoms of suicide ($r=0.556$; $p=0.01$), and treatment and prevention of suicide ($r=0.432$; $p=0.01$), respectively.

Discussion and Conclusion

The purpose of the present study was to psychometrically evaluate the LOSS in military forces. The statistical sample consisted of two specialists and experts in the translation stage, 16 experts in the content validity evaluation stage, 20 soldiers in the face validity qualitative evaluation stage, and 415 soldiers to evaluate the convergent validity. The results showed that based on CVR, CVI and face validity, all questions of the suicide literacy questionnaire were at the optimal level and all 27 questions of this questionnaire were maintained and were culturally compatible. The CVI of our study was 0.7 and above but the CVI of the Malay version of the LOSS (M-LOSS(I-CVI) and the Turkish version was 0.83 (and above) and 0.8 (and above), respectively[31, 32]. Considering the fact that the population of our study was the military community and that it is a unique population, this study's CVI can be justified and can show the validity of the Persian version.

Also, Kuder-Richardson and the optimal components were calculated. In this context and in line with the results obtained, Al-Dalake et al. [33] concluded in their study that the LOSS has a favorable Cronbach's alpha (Cronbach's alpha >0.70). K-R in Turkish version was 0.61 which was less than our study[32]. In a study on the general population of Iran, the Cronbach's alpha was 0.85 and the ICC was 0.89, which is higher than the present study [34]. In a study in India on medical students, the Cronbach's alpha was 0.74 which was close to our study. As a result, the reliability index of our study was moderate and favorable compared to other studies[35].

The results of Spearman's internal correlation coefficient showed that all components of suicide literacy had a direct and significant relationship with the total score of this questionnaire, and that the subscales of LOSS, had a positive and strong correlation with each other. But, there was a weak negative correlation between the subscales of SOSS and LOSS. The significance, strength and direction of the correlation were reported in the Arabic version[33]. Also, the correlation of this questionnaire with the stigma questionnaire was reported (-0.50) and it was concluded that the suicide literacy and suicide stigma questionnaires in Arab society have good validity and reliability. Similar to the present study in the German population, the LOSS was negatively associated with the SOSS[36]. Gholamrezaei et al. concluded that there is a significant relationship between suicide literacy and suicide stigma at the 0.05 level.[21] Also, in line with the obtained results, we can refer to the study of Claire et al. [24] where the researchers concluded that this questionnaire has good validity and

reliability and can be used for psychological education interventions. As a result, the LOSS demonstrated good convergent validity with the SOSS.

According to the obtained and previous results, it can be said that the increase in suicide literacy in people causes the attitude of people and the way they deal with suicide to change in a positive way, and this understanding and knowledge, both for them and for the people who commit suicide, can be fruitful. As a result, the availability of suitable tools for evaluating the level of suicide literacy can be very useful in assessing the level of awareness and literacy in individuals, provinces of the country, different cultures, military personnel, etc. Accreditation and localization of such a tool assist in understanding the prevalence, rate and severity of suicide in the country (and especially among the military) and in taking appropriate measures to prevent and reduce it. Compared with other researches, the obtained results have good validity and vision. As a result, according to the results of this research and other researches, it can be concluded that this questionnaire can be used in Iranian society.

Therefore, considering the growth of suicide statistics in Iran and it being a taboo subject in the society and the lack of awareness among the general public about suicide and not knowing its cause and its consequences, as well as the lack of sufficient research in this field, the present study can be helpful. By knowing the level of suicide literacy in people and investigating the impact of this type of literacy on other psychological variables, we can reach a better and more thorough understanding in this field and help specialists and psychotherapists in interventions related to suicide.

Among the limitations of the current research is the lack of confidence in the research by people who had a history of suicide, the fact that this research was conducted only on soldiers, the absence of samples from different ethnicities and cultures, and the incomplete filling of a number of questionnaires by the soldiers (due to fatigue and lack of time), which caused a number of questionnaires to be removed and given to other soldiers. Due to the fact that the items are binary coded (correct or incorrect), the factor structure analysis was not conducted on the LOSS. Although, this is the first time that such research was conducted in the military society in Iran. Also, available sampling reduces the generalizability of the results.

Conclusion

The Persian version of the LOSS in the soldier community has good and favorable validity and reliability, and can be used to measure the level of depression literacy in this group. We recommend that suicide literacy of the soldiers be increased through holding various classes and workshops and the concepts related to suicide be thought to them. We also recommend that after completing the psychometric evaluation, by using the present questionnaire, the level of suicide literacy in the general population be evaluated.

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Ethical Permissions:

Ethical considerations have been implemented in this study and they are as follows:

1) Necessary permits to conduct this study were obtained from the relevant research center.

2) The participants of this study were assured that their recorded information will be kept confidential. This study has been registered with the ethics code of IR.BMSU.REC.1400.097 at Baqiyatullah University of Medical Sciences

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