JGG 2021;69:14-18
doi: 10.36150/2499-6564-432

Psychometric properties of the Persian version of the 27-item Elderly Attitude Questionnaire on End-of-Life Issues

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Background & aims. Elderly people have different issues at the end of their lives. This study was conducted to analyze the psychometric properties of the Persian version of Attitudes of Older People to End of Life Issues (AEOLI) questionnaire.
Methods. 189 elderly people participated in this descriptive study**.** Face, content and construct validity and reliability were assessed for determining the psychometric characteristics of the questionnaire. Construct validity was determined by exploratory factor analysis using principal component analysis with varimax rotation.
Results. The results of this study indicate that the questionnaire has an appropriate face and content validity. Internal consistency (Cronbach's alpha = 0.78, ICC = 0.729) showed a good reliability for the questionnaire. Factor analysis showed the nine items of the questionnaire can measure the attitude of the elderly toward end-of-life issues.
Conclusions. The findings of this study showed that the Persian version of the 27-item questionnaire of the elderly attitude toward end-life issues has good validity and reliability.

Key words: psychometrics, elderly, attitude, end-of-life

Received: January 24, 2020
Accepted: November 2, 2020

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Conflict of interest
The Authors declare no conflict of interest

Funding
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors

How to cite this article: Norouzadeh R, Heidari MR, Hosseinkhani SN, et al. Psychometric properties of the Persian version of the 27-item Elderly Attitude Questionnaire on End-of-Life Issues.Journal of Gerontology and Geriatrics 2021;69:14-8. https://doi.org/10.36150/2499-6564-432

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INTRODUCTION

Aging is an inevitable process in life [1]. Most developed countries have accepted the age of 65 years and developing countries that of 60 years to be considered as elderly. Currently, 4.5 million of the total population of Iran is over 60 years old [2] and by 2027, the number of elderly people is projected to reach 15 million [3]. Chronic illnesses, loneliness, a lack of social support and emotional problems at the end of life (EOL) in the elderly are issues that underline the importance of dying in this age group despite the increased life expectancy [4,5].
Most researches on older people's attitudes to death and dying is about fear, worry of dying or accepting suffering at the end-of-life [6,7]. for instance, a study shows the elderly not only had faced more death and funerals but they were more likely to think about their own death and dying and more likely to fear death [8]. The importance of focusing on measurement questionnaires in this subject is that the elderly attitude to death can profoundly effect on their mental health and quality of life. As studies have shown, there has been an increase in the incidence of depression, anxiety, and suicide in the elderly with irrational attitudes to end-of-life issues [9]. Also,

the attitude of the elderly regarding death and dying can overshadow their caring preferences at the end of life; such as the attitude to comfort care than life-saving treatment [10]. Therefore, health care providers to optimal care and support older people's decisions about end of life [11] must have sufficient knowledge, a sound understanding of the end-of-life priorities as well as older people's attitude to death [12]. To achieve this, we need a culturally specific questionnaire adapted for the Iranian elderly. Existing questionnaire rarely address elderly attitudes to EOL issues and are more in line with elders' whishes to end-of-life care [13,14]. The literature review shows there is only one special questionnaire has been designed by Catt & Blanchard (2005) to assess the attitudes of older people to end-of-life issues [15]. In any case, this questionnaire is consistent with the beliefs of the elderly in European society. Although there are common concepts in attitudes toward death between Persian and western cultures (i.e., after-death judgment and redemption/downfall, end of life rituals, religious-based belief in the sanctity of life, condemning suicide) [16], but there are diversities among Iranian people attitudes to death in realistic and natural acceptance of death, avoidance, and fear of death. For example, belief that 'death is a way to enter the eternal place'; 'death brings peace that does not exist in this world', 'death as a way to get rid of the problems', and 'apocalyptic acceptance of death; the belief that the spirit lives on after death and is transferred to the resurrection' [17]. Such attitudes are inspired by the verses of the Qur'an and Islamic traditions about the nature of death [18]. In different parts of the Qur'an, the subject of death is discussed. Death is inevitable and no one can escape it. In this case, the Qur'an says in Surah 50, verse 19 "And the intoxication of death will bring the truth; that is what you were trying to avoid ". Also in Sura 67, verse 2 says: "He (Allah) who created death and life, so that He may test you as to which of you is better in deeds. And He is the All-Mighty, the Most-Forgiving".

The importance of assess the attitudes of older people to end-of-life issues and lack of a reliable and valid questionnaire for this subject in Iran, prompted the researchers to study the psychometric properties of the Persian version of the elderly attitudes to the end of life issues.

MATERIALS AND METHODS

In this descriptive study, validity and reliability of Attitudes of Older People to End-of-Life Issues (AEOLI) questionnaire was evaluated. The study population consisted of the elderly. Subjects were evaluated for age, gender, education, employment status, marital status, and hospitalization history. 189 elderly from Elderly Centers were selected by random sampling in 4 districts (North, South, East and West) of Tehran city, 2018. Elderly Centers (Jahandidegan Centers), which are located in the city of Tehran, is a place where cultural and artistic classes, recreational tours and tourism are held along with social activities and charitable activities for the elderly. Through these centers, which are run by the elderly, the most important physical, psychological and social problems of the elderly are identified. Data collecting instrument consisted of the Attitudes of Older People to End of Life Issues (AEOLI) questionnaire and elderly demographic data sheet (including: age, gender, education, employment status, marital status, and hospitalization history). AEOLI questionnaire consist of 9 domains and 27 items including decision making (item 1), pain (items 5, 9, 20), care environment (items 3, 6, 10, 15, 27), living wills (items 8, 14, 19, 24), euthanasia (items 4, 17, 18, 26), ageism (items 13, 16, 23), psychological needs including religious/spiritual (items 11, 25), quality versus quantity of life (items 2, 7, 21, 22) and societal awareness (items 12). The questionnaire is scored on a 5-point Likert scale (strongly agree = 5, agree = 4, neutral= 3, disagree = 2 and strongly disagree = 1). The highest score is 135 and the lowest score is 27.

VALIDITY AND RELIABILITY

Permission was obtained from the designer of the questionnaire to begin the translation and psychometric process of the questionnaire. Forward-backward method was used to translate the questionnaire into Farsi (Persian).The questionnaire was first returned to Persian by two experts and a Persian version was prepared. The translated version was independently translated into English by two other individuals and was compared with the original and final version.

Validity

The validity of the questionnaire was assessed in three stages: face, content, and construct validity.To determine face validity, 10 elders were asked to comment on readability, writing clarity, easy understanding and ease of completing the questionnaire items. In qualitative content validity method, content experts and target group's recommendations are adopted on observing grammar, using appropriate and correct words, applying correct and proper order of words in items and appropriate scoring [19]. So, to determine the qualitative content validity, 5 people with knowledge and experience in the subject of the questionnaire were asked to rate about the language, appropriate words, appropriate place of the items, and clarity, simplicity,

transparency and relevancy. The construct validity was assessed through factor analysis. The main instrument has nine domains and exploratory factor analysis was used to determine its possible dimensions.

Reliability

Cronbach's alpha coefficient [20] was used to evaluate internal consistency ($\alpha = 0.78$). In this study, coefficient being above 0.7 has been considered acceptable. Also, the questionnaire was given to 20 elders in two weeks interval and intrarclass correlation coefficient was calculated between two time periods indicated good reproducibility(ICC = 0.72, $p < 0.001$, CI = 0.521-0.874).

Data analysis

Descriptive statistics (mean and standard deviation) was used to summarize demographic and clinical findings. Construct validity was determined by exploratory factor analysis using SPSS software (version 16). Kaiser-Meyer-Olkin (KMO) test was used to determine the adequacy of selected sample size for factor analysis. The Varimax rotation method was used to estimate the main components of analysis.

Ethical considerations

After approving the research topic in research ethics committee (IR.Shahed.REC.1394.287), by submitting a written letter, the researcher has introduced himself to the elders and obtained their written permission. The research objective and the steps and processes are explained in detail to the elders and they have been assured of the confidentiality of all the information. It has also been explained to all elders that their participation in this research is optional and they had right to withdraw and any stage of the research.

RESULTS

The mean age of the elders was 67.75 ± 5.69 years. Of the 189 elderly, 132 (69.8%) were women, 137 (72.5%) were married, 86 (45.5%) were retired, and 109 (57.7%) were illiterate. Because we had no assumptions about the dimensions of the questionnaire, exploratory factor analysis was used to determine the alternative structure of the questionnaire. Varimax rotation was used after performing principal component extraction to check how many factors saturated the questionnaire. The calculated value of KMO was 0.90 indicating the sampling adequacy. The Kaiser-Meier-Olekin (KMO) statistic is considered to be 0.8 or higher. The Bartlett Spherical Test was significant (Chi-square = 1491.6291, $p = 0.000$) indicating the presence of correlations among variable and the ability of the questionnaire to perform factor analysis (Tab. I). The correlation coefficients of the variables with each factor (factor loads) after rotation and ten extracted factors with eigenvalue > 1 are shown in Table II. Factors 1 to 10 can explain 67.91% of the total variance. The extracted factors were rotated using varimax rotation method and factor(s) with factor load ≥ 0.30 included in analysis. Field in his book says "Typically, researchers take a loading of an absolute value of more than 0.3 to be important" [21].

Table I. Bartlett Spherical Test and KMO.

KMO Test	Bartlett Spherical Test		
Sample adequacy	P	Degree of freedom	x^2
0.8	0.000	351	1491.621

Table II. Extracted factors.

Sum of the factor coefficients after rotation			Initial special values			Items
Cumulative frequency (%)	Variance (%)	Total	Cumulative frequency (%)	Variance (%)	Total	
14.235	14.235	3.843	17.418	17.418	4.703	1
21.433	7.198	1.943	27.124	9.706	2.621	2
28.071	6.638	1.792	34.449	7.325	1.978	3
34.434	6.363	1.718	40.754	6.306	1.702	4
40.644	6.210	1.677	46.595	5.841	1.577	5
46.567	5.922	1.599	51.398	4.802	1.297	6
52.399	5.832	1.575	55.838	4.441	1.199	7
58.030	5.631	1.520	59.987	4.149	1.120	8
63.150	5.119	1.382	64.117	4.130	1.115	9
67.912	4.762	1.286	67.912	3.795	1.025	10

So, we used suppressing factor loadings less than 0.3. Using the factor matrix of items, the factor loadings of each item were compared in the 10 extracted factors, and each item was subjected to the factor with the highest factor loading. The first factor (items 1,6,9,10,12 and 21), the second factor (items 2 and 14), the third factor (items 23, 26 and 27), the forth factor (items 3, 4 and 5), the fifth factor (items 7, 15 and 24), factor 6 (items 22 and 25), factor 7 (items 16 and 17), factor 8 (items 8, 11 and 13), factor 9 (items 19 and 20), and factor 10 (items 18). However, the main questionnaire has 9 domains: decision making (item 1), pain (items 5, 9 and 20), care environment (items 3, 6, 10, 15 and 27), living wills (items 8, 14, 19, 24), euthanasia (items 4, 17, 18, 26), aging (items 13, 16 and 23), psychological needs including religious/ spiritual (items 11 and 25), quality of life *vs* quantity of life (items 2, 7, 21 and 22) and societal awareness (item 12). After careful examination of the items it was found due to the inconsistency of some of the items with the most frequently occurring factor, the created factors could not be named based on the nature of their items. Since, factor analysis was not able to identify the items and put them in the related factor, the hypothesis of the questionnaire with nine domains and item placement in each domain is confirmed. So, the items together measure the attitude of the elderly toward end-of-life issues.

DISCUSSION

There are no studies on end-of-life care preferences among Iranian elderly and there is insufficient information on attitudes and preferences in end of life issues among the elderly population. The Attitudes of Older People to End-of-Life Issues (AEOLI) developed in the UK is related to attitude and preparedness for death and preferences about the place of care. The present study aimed to translate and investigate the characteristics of the questionnaire. A review of the literature showed that only one study in China by Law (2014) has been conducted to translate this questionnaire and examine its characteristics. In some studies, the questionnaire has been used, which does not indicate its validity or reliability. The Chinese version of the AEOLI questionnaire was prepared and evaluated for some psychometric properties. Reliability test was performed on 12 men and 38 women 65 to 95 years (mean, 84.1, standard deviation, 6.6 years). The weighted Kappa ranged from 0.61 to 1.00, indicating moderate to excellent consistency. The CVI was 0.83, indicating a high level of agreement among experts regarding relevance. Face validity confirmed that the content of the Chinese AEOLI questionnaire reflects the concepts the researcher intends to measure [22]. Catt & Blanchard (2005) developed a questionnaire to assess the attitudes of older people toward end-of-life problems. Using systematic keywords in databases such as Index medicus/ Medline, EMBASE, Pschinfo and CINAHL, he systematically searched for questionnaires and related articles about the attitude of the elderly toward end of life. These questionnaires were less commonly used in the field of aging. According to the results, Cronbach's alpha in living wills was 0.68%, euthanasia was 0.77, and quality of life vs. quantity of life was 0.52 [15]. Also, the McCarthy (2010) have used AEOLI questionnaire in a national survey to determine understanding and views of Irish adults about of ethical issues to death and dying. A list of six statements about attitude to certain aspects of death and dying were read for participants. People were most concerned about their quality of dying and believed if they were no hope of recovery because of a serious illness, their quality of life is more important than how long it lasted. At the same time, older people gave more value on length of life [23]. Gauthier and Froman (2001) developed and validated the preferences for care near the end of life (PCEOL). A sample of 198 adults was used for psychometric evaluation of the instrument. Data screening and item analysis resulted in 43 items. Factor analysis indicated a meaningful and interpretable 5-factor solution. The multidimensional internal consistency of the instrument ranged from 0.68 to 0.91. Test – retest consistency showed a correlation of 0.80 to 0.94 for factor scores over a two-week interval. Although the questionnaire addresses end-of-life issues, it only examines the multidimensional nature of the end-of-life preferences. The AEOLI questionnaire contains areas of decision making, pain, care environment, living wills, euthanasia, aging, psychological needs (religious/ spiritual), quality of life versus quantity of life, and societal awareness. PCEOL includes autonomy in physiological and health care decision making, spirituality, family, and emotional communication. There are similarities and differences between the titles of the domains and items [24]. Schirm (2008) examined the psychometric evaluation of the PCEOL questionnaire developed by Gauthier and Forman that determines the dimensions of end-of-life care during a series of 68 workshops on a sample of nurses, nursing students, nursing assistants, and the elderly. Respondents were asked to state their personal preferences in terms of their values. The findings of this study support and recommend the use of the questionnaire in nursing care based on a three-factor structure; individual autonomy, health providers, spirituality, and family [25].

Given that the elderly have many concerns about end-of-life issues, this questionnaire can be helpful in understanding their attitudes. The authors conclude that the psychometric evaluation of the Persian version of the Elderly Attitude Questionnaire to End-of-Life

issues show that the Persian versions of this standard instrument has sufficient reliability and validity for use in Persian-speaking Iranian elderly. Further studies are recommended to use this questionnaire in larger samples. One of the limitations of this study is that it cannot be generalized to the hospitalized elderly.

Acknowledgements

This study was approved by the Ethics Committee of Shahed University. The authors would like to express our sincere gratitude to the respected authorities of elderly health centers and the elderly people who have collaborated on this research.

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