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Original Article

Development and Psychometric Evaluation of the Elderly Dignity Questionnaire

Azadeh Nouri[1], Roghayeh Esmaeili[1*], Tahereh Ashk Torab[2]

[1]Department of Medical Surgical Nursing, Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[2]Department of Medical Surgical Nursing, School of Nursing & Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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***Corresponding Author:**
Roghayeh Esmaeili,
Email: r_esmaieli@yahoo.com

Abstract
Introduction: Respect for dignity is the core of nursing. Dignity assessment improves nurses' understanding of the level of people's need for it. Yet, there is no valid and reliable culturally-appropriate instrument for dignity assessment among elderly people in Iran. This study aimed to develop and evaluate the psychometric properties of the Elderly Dignity Questionnaire (EDQ).
Methods: The methodological study, EDQ items were generated based on the results of a qualitative study with conventional content analysis approach into dignity and the existing literature. For qualitative and quantitative face and content validity assessments, ten experts rated item then, item impact score and content validity ratio and index were calculated. Construct validity of EDQ was assessed via the exploratory factor analysis and using the data collected from 200 elderly people. Criterion validity was tested using the Rosenberg's Self-Esteem Scale. Reliability testing was performed via the internal consistency and the test-retest stability assessments and data was collected from twenty elderly. Data were analyzed using SPSS software version 13.
Results: Factor analysis loaded the forty items on six factors. factor six was combined with factor five due to its limited number of items. The five factors were labeled as roles and responsibilities (twelve items), familial and social relationships (seven items), self-dignity (ten items), authorization (four items), independence, and integrity (seven items). The Cronbach's alpha and the intraclass correlation coefficient of EDQ were 0.91 and 0.86, respectively.
Conclusion: This study confirms EDQ's validity and reliability. Thus, this questionnaire can be used for dignity in the elderly.

Introduction

Dignity protection is a component of geriatric nursing care.[1] The International Council of Nurses considers respect for human dignity and rights as an inseparable part of nursing care and introduces it as the core of nursing.[2] The Merriam-Webster dictionary defines dignity as "the quality or state of being worthy, honored, or esteemed".[3] Dignity is a complex and dynamic subjective concept and a social construct that reflects the immediate society's values and norms.[4]

Because of their old age and extensive experiences and skills, dignity is of great importance to elderly people.[5] Simultaneously, they are at risk for dignity loss due to age-related changes in their physical, psychological, and social conditions and rapid changes in information technology, traditions, and rituals. These changes give them a sense of inefficiency and vulnerability and can affect their dignity.[6] Dignity forms during interpersonal relationships[7] and is affected by personal, sociocultural, and spiritual constructs.[8]

Dignity among elderly people closely relates to their quality of life.[9] It gives people a sense of worthiness, self-confidence, and self-esteem. It also enables them to have greater control and power in life, brings them higher levels of satisfaction, encourages them to engage in self-care activities, and actively promotes their quality of life.[10]

Among the necessary steps to dignity protection and promotion among elderly people is to assess their current dignity status. Such assessment necessitates valid and reliable culturally-appropriate instruments.[11] There are different instruments for dignity assessment, including the Inherent Heart Failure Dignity Questionnaire,[12] the Attributed Dignity Scale,[13] the Preservation of Dignity Card-Sort Tool,[8] the Factors Affecting Self-perceived Dignity instrument,[14] and the Patient Dignity Inventory.[15] However, these instruments mainly measure dignity among patients with health problems such as cardiac disease, cancer, or terminal illnesses. Moreover, they

have been developed for settings such as hospitals and palliative care centers. Besides, most of these instruments have not yet been adapted to the Iranian culture and are not appropriate for dignity assessment among Iranians. Evaluation of dignity inactive elderly plays an essential role in the hope and health of the elderly. Iranian elderly have unique cultures and beliefs about other elderly and patient around the world. Therefore, the present study was conducted to develop the Elderly Dignity Questionnaire (EDQ) and evaluate its psychometric properties.

Materials and Methods

This methodological study was conducted in 2018 in two main phases: EDQ development and EDQ psychometric evaluation.

Items development (EDQ) were generated inductively and deductively based on the results of a qualitative study with conventional content analysis approach of dignity among elderly people,[16] the existing literature, and the current dignity-related measurement instruments. Accordingly, a literature search was conducted in online databases such as Scientific Information Database, IranMedex, PubMed, ScienceDirect, Scopus, Ovid, Google Scholar and using the keywords of "Scale", "Instrument", "Questionnaire", "Inventory", "Checklist", "Psychometric", "Dignified care", "Dignity", "Aged", "Older people", "Senior citizen", Elderly". The items of the existing dignity-related instruments were also reviewed one by one to extract and generate the most appropriate items for EDQ. Finally, 207 items on dignity among elderly people were generated. As we aimed to develop the maximum number of items in this phase, none of the generated items were excluded. For EDQ psychometric evaluation, the face, content, construct, and criterion validity of EDQ were assessed. Both qualitative and quantitative methods evaluated content validity. In qualitative content validity assessment, ten experts in nursing, medical ethics, and gerontology were asked to read EDQ carefully and provide written comments on the comprehensiveness, appropriate wording, and grammar of its items. Quantitative content validity assessment was done by calculating the content validity ratio (CVR) and content validity index (CVI). For CVR calculation, the same experts rated the essentiality of the items on a three-point scale as "Essential", "Useful but not essential", and "Unessential". Then, item CVR values were calculated. According to Lawshe, the minimum acceptable CVR value for ten experts is 0.62.[17] For CVI calculation, the experts also rated the item relevance as "Irrelevant", "Needs revision", "Relevant but needs revision", and "Relevant". Items with CVI values more than 0.79 were appropriate.[18]

The experts were also asked to comment on excluding some items from EDQ or adding other items to it through two open-ended questions.

Face validity of EDQ was also assessed through both qualitative and quantitative methods. The same ten experts commented on the items' structure, general appearance, and wording in the qualitative approach. Then, quantitative face validity was assessed by asking them to rate item importance on the following five-point scale as scoring from 5 to 1 for "Very important", "Important", "Moderately important", "Slightly important" and "Not important". Eight of the experts answered our request. Items with an impact score of less than 1.5 were excluded.[19] After revising the items according to experts' comments, ten elderly people were also invited to comment on the clarity and the simplicity of the EDQ items.

The construct validity of EDQ was assessed via the exploratory factor analysis. Primarily, 200 eligible elderly people were recruited to fill out EDQ. Eligibility criteria were age over 60, Iranian nationality, ability to speak Persian, necessary literacy skills, and no cognitive problem. Sampling was done in public places such as retirement centers, mosques, and parks in different geographical areas of Tehran, Iran. The sample size was determined based on the thumb rules, which recommend that 5-10 participants per item[20] or a total of 100–200 participants[21] are necessary. Collected data were used for principal component exploratory factor analysis with varimax rotation. Factor analysis are necessary. Collected data were used for principal component exploratory factor analysis with varimax rotation. Factor analysis appropriateness was determined through the Keiser-Meyer-Olkin and Bartlett's tests. The minimum acceptable factor loading value was 0.5; thus, items with factor loading values less than 0.5 were excluded.[22]

For criterion validity assessment, twenty participants were asked to complete both EDQ and Rosenberg's Self-Esteem Scale. Then, the intraclass correlation between the scores of these two instruments was examined. The Rosenberg's Self-Esteem Scale was also used in an earlier study to assess criterion validity.[13] This scale is among the most commonly used instruments for self-esteem assessment. It contains ten items on attitude towards self. Five items (items 1-5) have positive wording, while five items (items 6-10) have negative language.[23] This scale has acceptable validity and reliability. Previous studies in Iran reported that its Cronbach's alpha was 0.69,[24] 0.89,[25] and 0.85,[26] and its test-retest and split-half correlation coefficients were 0.78 and 0.68,[27] respectively. The criterion validity of this scale was also assessed using the Coopersmith Self-Esteem Inventory, which resulted in a correlation coefficient of 0.61.[24]

EDQ reliability was assessed by assessing its internal consistency and test-retest reliability. Accordingly, twenty participants were asked to fill out the questionnaire twice with a two-week interval.[20] Then, Cronbach's alpha and test-retest correlation coefficient of the questionnaire and its subscales were calculated. Data analysis was done using the SPSS software (version 13).

Results

Initially, 207 items were generated for EDQ. During

the face validity assessment, the experts recommended excluding 73 items due to their overlaps with other items. Moreover, 25 items were revised, and 36 new items were added. Thus, the number of EDQ items reduced to 170. During qualitative content validity assessment, 105 items were excluded due to overlap with other items, 23 items were revised, resulting in a 65-item EDQ. After that, ten more items were excluded due to CVR values less than 0.62, and hence, the number of items reduced to 55.

In construct validity assessment through the exploratory factor analysis, Bartlett's test value was 6134.30 ($P < 0.001$), and the Keiser-Meyer-Olkin test value was 0.82. Thus, the study sample was adequate. Exploratory factor analysis with principal component analysis and varimax rotation revealed that fifteen items had factor loading values less than 0.5, and hence, they were excluded. The remaining forty items were loaded on six factors, which explained 51% of the total variance (Tables 1 and 2). Scree plot was used to predict the number of factors. The scree plot also showed six factors (Figure 1).

As factor six contained a few items and was relevant to factor five, these two factors were combined. The final five factors of EDQ were labeled as roles and responsibilities (twelve items), familial and social relationships (seven items), self-dignity (ten items), authorization (four items), and independence and integrity (seven items).

In criterion validity assessment, participants filled out both EDQ and Rosenberg's Self-Esteem Scale. The Spearman correlation coefficient between the scores of these two scales was 0.32.

The Cronbach's alpha of EDQ and its five factors were 0.91 and 0.62–0.89, respectively (Table 3). Moreover, test-retest intraclass correlation coefficients of EDQ and its factors were 0.86 and 0.67-0.92, respectively (Table 3).

EDQ Item scoring is performed on a five-point Likert scale from 1 (Never) to 5 (Always). Items with negative wording (i.e., items 2, 3, 21, and 23-26) are reversely scored. The possible total score of EDQ is 40–200, with higher scores reflecting greater dignity. This score can be interpreted as 40-93.33: low dignity; 93.34-146.69: moderate dignity; and 146.70-200: great dignity.

Table 1. Rotational matrix of extracted components based on factor load

Questions	Factors					
	1	2	3	4	5	6
Q1			0.77			
Q2			0.58			
Q3			0.73			
Q4			0.73			
Q5	0.66					
Q6	0.62					
Q7	0.51					
Q8	0.71					
Q9	0.71					
Q10				0.61		
Q11	0.73					
Q12				0.59		
Q13			0.59			
Q14			0.53			
Q15			0.68			
Q16				0.59		
Q17	0.70					
Q18						0.69
Q19						0.69
Q20	0.67					
Q21	0.57					
Q22	0.64					
Q23	0.60					
Q24			0.62			
Q25	0.54					
Q26					0.55	
Q27				0.64		
Q28					0.60	
Q29					0.63	
Q30					0.65	
Q31					0.55	
Q32		0.65				
Q33		0.75				
Q34		0.72				
Q35		0.68				
Q36				0.62		
Q37				0.52		
Q38		0.68				
Q39		0.51				
Q40		0.58				

Discussion

This study, aimed to develop and evaluate the psychometric properties of EDQ. Findings revealed a five-subscale structure for the forty-item EDQ. The five subscales were roles and responsibilities, familial and social relationships, self-dignity, authorization, independence and integrity.

The first EDQ subscale is roles and responsibilities, referring to factors that elderly people believe improve their social acceptance, life satisfaction, and perceived dignity. These factors may include helping others, social contribution, possession and dignity, identity, and excellence. Previous studies reported integrity, excellence, originality, participation,[7] and social contribution[28,29] as the main components and characteristics of dignity among older people in line with these findings.

The second EDQ subscale is familial and social relationships. Familial and social support and effective relationships improve elderly people's self-esteem and thereby improve their life satisfaction. Two earlier studies also reported the same finding.[7,28]

Self-dignity is the third subscale of EDQ. This subscale consists of factors such as God's relationship, personal beliefs, respect, and attention. A former study also reported respect as a critical descriptor of dignity among elderly people.[10] Two other studies also showed that the

Table 2. Total variance of variance of 6 factors in Elderly Dignity Questionnaire

Factors	Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% Of variance	Cumulative %	Total	% Of variance	Cumulative %	Total	% Of variance	Cumulative %
1	13.47	24.50	24.50	13.47	24.50	24.50	6.81	12.38	12.38
2	4.50	8.18	32.69	4.50	8.18	32.69	5.76	10.32	22.70
3	3.27	5.95	38.64	3.27	5.95	38.64	5.51	10.02	32.73
4	2.54	4.62	43.27	2.54	4.62	43.27	4.30	7.81	40.55
5	2.25	4.09	47.36	2.25	4.09	47.36	2.94	5.35	45.90
6	2.10	3.82	51.18	2.10	3.82	51.18	2.90	5.27	51.18

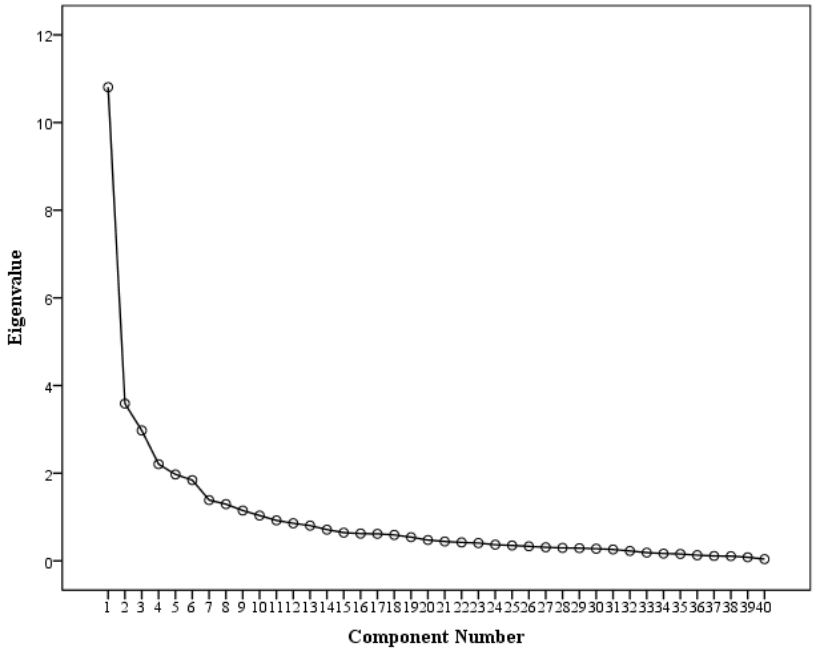

Figure 1. Scree plot for determining factors of Elderly Dignity Questionnaire

Table 3. Elderly dignity questionnaire factors and their Cronbach's alpha and intraclass correlation coefficient (ICC) values

Factors	Number of items	Alpha	ICC	95% CI of ICC
Roles and responsibilities	12	0.89	0.90	0.79–0.96
Familial and social relationships	7	0.87	0.90	0.75–0.96
Self-dignity	10	0.82	0.92	0.80–0.97
Authorization	4	0.64	0.83	0.58–0.93
Independence and integrity	7	0.62	0.67	0.17–0.87
Total	40	0.91	0.86	0.66–0.94

CI, Confidence interval.

characteristics of dignity among elderly people were respect, religious beliefs, attention to outer feelings,[7] personal opinions, and personality traits.[9]

The fourth subscale of EDQ is an authorization. In other words, authorization is a crucial component of dignity among elderly people. Previous studies also reported the same finding.[7,28]

Independence and integrity are the fifth subscales of EDQ. This subscale refers to coherence, integrity, personal privacy, control, and freedom in daily activities. Previous studies also reported personal privacy as a significant protective factor against dignity among elderly people.[11,28,30]

Chochinov et al developed and validated the Patient Dignity Inventory for dignity assessment among terminally ill patients. This inventory includes 25 items in the five subscales of symptom distress, existential distress, dependency, peace of mind, and social support.[15] However, Albers et al reported that this inventory is not comprehensive and does not cover communication and care.[31]

The Factors Affecting Self-perceived Dignity instrument is another instrument for dignity assessment. Developed by Vlug et al this instrument consists of 26 items in four subscales, namely evaluation of self to others (eight items), functional status (nine items), mental state (four items), and care and situational aspects (five items). Vlug et al tested their instrument on patients with health problems such as mobility disorder, self-care deficit, pain/discomfort, or anxiety/depression.[14] However, this study was conducted on healthy elderly people, and hence, EDQ applies to healthy elderly people.

Jacelon et al also developed the Attributed Dignity

Research Highlights

What is the current knowledge?

- Dignity is affected by sociocultural and spiritual constructs.
- Other instruments mainly measure dignity among patients with health problems.

What is new here?

- This is the first valid and reliable questionnaire for assessing dignity among the elderly based on Iranian culture.

Scale. This scale includes 23 items in three subscales, namely self-value (nine items), behavioral self-respect (five items), and behavioral respect for others (nine items).[13] This scale applies to healthy elderly people, and its subscales are almost similar to the EDQ subscales. Yet, this study's context was different from the context of the survey conducted by Jacelon et al and hence, can provide new insight into dignity among elderly people.

Finally, it should be added that the present study was the first attempt to development and psychometric evaluation of the EDQ and had some limitations.

A limitation of this study was the small sample size. Another end of the present study was the limited sampling to Tehran. Suppose it is better to test the results in other environments for generalizability. In that case, it is suggested that the psychometrics of this scale be examined in different Iran cities as well.

Conclusion

As an instrument developed based on the existing literature and dignity-related instruments, EDQ has an acceptable face, content, construct, and criterion validity, internal consistency, and test-retest stability. Therefore, it is a valid and reliable instrument for dignity assessment among elderly people in Iran and can be used in studies in this area.

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Authors' Contributions

AN, RE, TAT: Conception and design; AN, RE: Data collection; AN, RE, TAT: Data analysis and interpretation; AN, RE: Draft preparation; AN, RE, TAT: Review of article and find approval.

Conflict of Interests

The authors declare no conflict of interest in this study.

Data Accessibility

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Ethical Issues

The Ethics Committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran, approved this study (code: IR.SBMU.PHNM.1395.442). The aims and the methods of the research were explained to participants, and their informed consent was secured. Moreover, we strived to protect the privacy of participants and the confidentiality of their data.

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