TURKISH ADAPTATION OF THE AGING ANXIETY SCALE FOR MIDDLE-AGED WOMEN: VALIDITY AND RELIABILITY STUDY

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ABSTRACT

Purpose: This study aimed to adapt the Aging Anxiety Scale for Middle-Aged Women to the Turkish culture and to evaluate its validity and reliability.
Methods: This methodological study was conducted with 248 women. The scale was performed to language and content validity analysis and exploratory and confirmatory factor analysis for construct validity. For reliability analysis, Cronbach's alpha for internal consistency analysis, intraclass correlation analysis, test re-test, and item-total correlation were used.
Results: In exploratory factor analysis, it was determined that the total variance was described as 59.15%. In the confirmatory factor analysis, the fit indices of the scale were found acceptable. Cronbach's alpha coefficient of the scale was 0.89.
Conclusions: The study determined that the Turkish version of the Aging Anxiety Scale for Middle-Aged Women is a valid and reliable measuring instrument.

Keywords: Aging, anxiety, middle-aged, woman, reliability, validity

INTRODUCTION

The elderly population has been globally growing. According to World Population Prospects (2019), 703 million people are over 65 years old, and the elderly population is expected to increase by 16% by 2050. Thus, one in six people in the world will be an individual aged 65 or older (1). Life expectancy varies by gender and it is noted that women live longer than men (2). The gradual increase of the elderly population can also affect the perception of aging and the aging process. Aging is inevitable and old age can be perceived as a period of concern for the individual due to the multiple changes it brings.
Aging anxiety is defined as negative emotions and fears about old age, which involves losses in physical, psychological, social, and transpersonal dimensions (3). Aging anxiety refers to individuals' fear of aging (4). The efforts of individuals to maintain their appearance towards being young, not accepting their age, and not interacting with the elders suggest that aging for some individuals is alarming (3). Negative attitudes about aging and negative stereotypic thoughts can increase the anxiety of aging (5,6). Elevated aging anxiety can lead to increased fear of death and decrease the positive optimistic point of view on events (7).
Aging anxiety can occur at any age in adults; however, it has been determined that aging anxiety is higher in middle-aged individuals than in young and elderly people (8). In middle-aged adults, aging

anxiety can be more internal, as changes related to their aging body, unlike young adults, are more evident. Usually, these age-related changes are related to general functions such as memory/health for men and appearance for women (9). According to the literature review, aging anxiety can be at different levels in both genders; some studies specify higher aging anxiety in women, and the opposite findings are also found (4,8). There are also available studies where there is no gender difference in aging anxiety (10,11). It was noted that in young women and men, both genders had high aging anxiety in terms of physical appearance and negative attitudes towards aging (9).

Concerns about appearance are more common in middle-aged women. It is argued that aging anxiety and sociocultural impacts in middle-aged women led to dissatisfaction with their bodies (12). Middle-aged women face age-related pressures, such as the need to eliminate wrinkles and other signs of aging (13). Because of the fear of being evaluated negatively, this may lead to interventions related to their body, external appearance, anti-aging behavior, to prefer cosmetic surgery in women, especially in middle-aged women (14,15). According to the studies on middle-aged women, social support, self-sufficiency, and perceived health status were decreased as aging anxiety increased (16,17).

Aging anxiety in middle-aged women significantly affects successful aging (18). Based on this argument, it is very important to promote healthy aging to increase the life satisfaction of individuals and to preserve their integrity. It is important to determine the aging anxiety that affects the mental state and successful aging in women; the lack of a measurement tool developed for middle-aged women in Turkey complicates this situation. This study, it is aimed to adapt the Aging Anxiety Scale for Middle-Aged Women, which was developed abroad, to Turkish, and to perform its validity and reliability.

METHOD

The methodological research was carried out in two cities in Turkey. It is recommended to reach 5-10 times the number of individuals on the scale for the validity phase of the research (19). Myers et al. (20) indicate that the sample number should be over 200 for the confirmatory factor analysis. In this context, 248 people were reached by a simple random sampling method. Inclusion criteria for the study included those who were female, aged 40-59 years,

literate, without understanding, and had any cognitive impairment. The retest (n = 51) was performed an average of three weeks after the original test. Data were collected between January and April 2020.

Instruments
Introductory Information Form
This form, which was developed by the researcher, was formed by using literature on aging anxiety to collect introductory data specific to middle-aged women. The introductory information form consists of questions related to women's age, marital status, level of education, working status, childbearing status, number of children, and old age anxiety.

Aging Anxiety Scale for Middle-Aged Women: The scale developed by Lee and You (21) is a 19-item 5-point Likert scale. There are four subscales of the scale. These subscales are as follows: Social valueless, physical weakness, concern about changes in appearance, negative expectations in old age. In the scoring of the scale, the total value of all subfield points is calculated as total points, and as the point increases, so does the level of aging anxiety. Items of the subscales of negative expectations in old age are reverse-coded during scoring. The Cronbach's alpha value obtained as a result of the study was 0.91 (21).

Research Process: In this study, the language equivalence and validity study of the Aging Anxiety Scale for Middle-Aged Women was conducted primarily, and then the reliability study was conducted. The steps of the research were completed in accordance with the steps to be followed during the adaptation process (22).

Psycholinguistic properties and language adaptation: For the study of Turkish adaptation of the scale, Dr. Haejin Lee's permission has been taken. In the translation of the scale, all of the scale items were translated into Turkish independently by two academicians and a linguist. The Turkish translation of the scale was then examined by a Turkish Language and Literature expert in terms of language structure, spelling, and meaning. The final form of the Turkish version of the scale was given by the researchers in accordance with the recommendations. In the back-translation process, the Turkish translation of the scale was translated into English by a linguist, and then assessed by one of the

authors of the scale, Dr. Haejin Lee. In accordance with the approval of the author, the language equivalence was terminated.

Content Validity: The opinion of 11 experts was resorted to evaluate scale items within the content validity. For this validity, the Turkish form of the scale was forwarded to nine experts in the field of psychiatric nursing and two experts in the field of obstetrics and gynecology nursing. The experts were requested to rate each item (not appropriate; Slightly appropriate (need to be adjusted to the proper form); Appropriate (minor changes required for the item); Absolutely appropriate) using the Davis technique (23). In accordance with expert opinions, the authors of the research made the necessary adjustments on the scale and the final form of scale items was given.

Reliability Process: The test-retest method was used to determine the reliability of the scale. The test-retest method is a way to estimate reliability in which the same test is given twice, after an interval of time, to the same individuals. It shows the stability of the

test in regard to measurement (19,24). The re-test was carried out on the same women about three weeks after the first application.

Data Analysis: Evaluating data was carried out with the SPSS-version 25.0 program.   LISREL 8.80 program was utilized for confirmatory factor analysis. The content validity index was used to test the content validity of the scale and the evaluation was made. Exploratory factor analysis was conducted in validity analyses and confirmatory factor analysis was conducted for structure validity. Cronbach's alpha correlation coefficient, test-retest, intraclass correlation coefficient (ICC), Pearson correlation, and item-total correlation were used for the reliability analyses of the scale.

Ethical Consideration: In the first stage of the research, to perform Turkish validity and reliability study, the permission of Dr. Haejin Lee who developed the scale was taken via e-mail. The Research Ethics permit was approved by the Human Research Ethics Committee on 02.12.2019 with the

Table 1: Exploratory factor analysis results for the Aging Anxiety Scale for Middle-Aged Women (n = 248)

Subscales	Factor Loading
Physical Weakness	
1. I feel like I am not the same as before.	.740
2. I feel more and more physical limitations during my activities.	.681
3. I feel like I cannot learn new things as quickly as before.	.702
4. I am afraid menopause will cause me health problems.	.361
Variance Explanation Ratio: 7.621 %	**Eigen Value:** 1.448
Concern About Changes in Appearance	
5. I do not want to think about the fact that I am getting old.	.780
6. I do not want to see myself changing when I look in the mirror.	.824
7. I am worried because I think my appeal as a woman may be slowly fading.	.755
8. I am afraid I will look old and ugly.	.627
Variance Explanation Ratio: 9.430%	**Eigen Value:** 1.792
Social Valueless	
9. I am concerned that economic independence will be difficult in my old age.	.620
10. I am afraid I will be one of those elderly alienated people.	.783
11. I am afraid that people will start to ignore me as I get older.	.830
12. I feel slightly anxious about the rest of my life.	.590
13. I am afraid I will be left alone.	.807
14. I am afraid there will be fewer things I can decide or do for myself.	.689
15. I do not know what to do with the rest of my life.	.697
16. I think I need someone to trust and count on as I get older.	.573
Variance Explanation Ratio:35.556 %	**Eigen Value:** 6.756
Negative Expectations	
17. I feel more relaxed as I get older.	.591
18. I think I will be wiser than I am now when I get older.	.820
19. Life is likely to be satisfactory even when I am older.	.650
Varience Explanation Ratio: 6.542%	**Eigen Value:**1.243
Total Variance: 59.149 %	

number 2019/54. The participants were informed about the purpose and procedure, and written consent was obtained from those who agreed to participate before online data collection.

RESULTS

The average age of the participants in the study was 47.56±5.81. 81.9% of the participants were married, 88.3% had children, 41.9% had two children, 45.2% were university graduates and 27.02% were housewives. The majority of the respondents answered "disease" to the question of what came to mind first about aging, and they answered "being in need of others" to the question of what worried them the most about old age.

Validity

The opinions of 11 experts for the validity of the scope were evaluated with the Content Validity Index. The total index values of all experts were 0.95 and the index values for subscales were above 0.90.

Exploratory Factor Analysis

Kaiser Meyer Olkin (KMO) measurement technique is frequently used to determine the adequacy of sample size in exploratory factor analysis. In this study, the KMO value was set to .887. The value of the Barlett test was $\chi^2 = 1959,899$ and had a statistically significant difference (p<.001). Based on these findings, the sample size was sufficient for factor analysis.

Exploratory factor analysis (EFA) was 0.361-0.740 for the physical weakness of factor loads, 0.627-0.824 for concern about changes in appearance, 0.573-0.830 for social valueless, and 0.591-0.820 for negative expectations in old age. It is also noted that the total variance of the scale was found as 59.15% (Table 1). According to the EFA results, it was determined that the same factor structure was obtained with the original form. Physical weakness subscale consists of 4 items (1,2,3,4), concern about changes in appearance subscale consists of 4 items (5,6,7,8), social valueless subscale consists of 8 items (9, 10, 11,12,13,14,15,16) and negative expectations consists of 3 items (17,18,19).

Confirmatory Factor Analysis

Whether the scale met compliance indices were evaluated. When examining compliance index values, it was identified as RMSEA=0.076, CFI=0.96,

NFI=0.93, NNFI=0.95, RFI=0.92, SRMR=0.059, χ^2/df=2.44 (Table 2). CFI, NNFI values were above 0.95, NFI and RFI were above 0.90. Values for factor loads of the model are shown in Figure 1. In Figure 1, it is found that the scale was compatible with its original subscales.

Table 2: Confirmatory factor analysis fit indices for the Aging Anxiety Scale for Middle-Aged Women

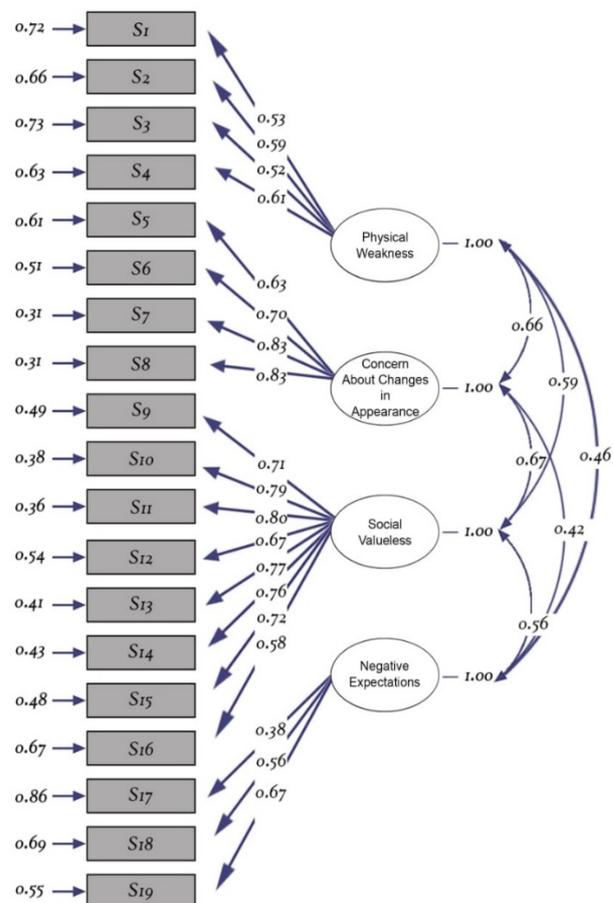| Fit indices	Model tests
Root Mean Square Error of Approximation (RMSEA)	0.076
Comparative Fit Index (CFI)	0.96
Normed Fit Index (NFI)	0.93
Non-Normed Fit Index (NNFI)	0.95
Relative Fit Index (RFI)	0.92
Standardized Root Mean Square Residual (SRMR)	0.059
χ^2/df	356.95/146=2.44

Figure 1. Structural Equation Model of Aging Anxiety Scale for Middle-Aged Women

Table 3: Test-retest results (n = 51)

Subscales	Test Mean (SD)	Retest Mean (SD)	Statistical Analysis		r	ICC
			t-test	p		
Physical weakness	3.31 (0.84)	3.24 (0.90)	0.671	.506	0.60	0.75
Concern about changes in appearance	2.76 (0.93)	2.63 (0.97)	1.485	.144	0.76	0.86
Social valueless	2.73 (1.00)	2.60(0.98)	1.923	.060	0.86	0.93
Negative expectations of old age	2.66 (0.80)	2.71(0.70)	-0.514	.610	0.65	0.78

Reliability

Internal Consistency: The Cronbach's alpha total value of the scale was 0.89. When Cronbach's alpha values of subscales of the scale were examined; it is found that the value was 0.66 for physical weakness, 0.84 for concern about changes in appearance, 0.89 for social valueless, and 0.54 for negative expectations in old age.

Stability of the Scale against Time
Test-Retest Results: The test-retest method was used to determine the consistency of the scale. The retest was applied to 51 people with an average of three weeks.

A t-test was performed to assess whether there were differences between the subscales of the Aging Anxiety Scale in the test and retest measurements. There was no significant difference between the subscales in the first test and final test measurement. The Pearson correlation coefficient was calculated as 0.88 in the relationship between the first test and the final test measurement. The correlation coefficient was 0.60 for physical weakness from the scale, 0.76 for concern about changes in appearance, 0.86 for social valueless, and 0.65 for negative expectations in old age (p<0.01, Table 3).

The ICC values for the scale were examined and the values are quite high as seen in Table 3. ICC value for the scale was 0.75 for physical weakness; 0.86 for concern about changes in appearance; 0.93 for social valueless, and 0.78 for negative expectations in old age.

Item-total correlations and values for Cronbach's alpha values when the item is deleted are shown in Table 3. Item-total correlations related to subscale were 0.380-0.450 for physical weakness, 0.493-0.671 for concern about changes in appearance, 0.494-0.651 for social valueless, and 0.280-0.368 for negative expectations in old age (Table 4).

DISCUSSION

In this study, the Turkish validity and reliability of the Aging Anxiety Scale for Middle-Aged Women originally developed by Lee and You (21) was investigated and the scale was found equivalent to its original form and Turkish form has been determined to be a valid and reliable measuring instrument. Content Validity Index (CVI), indicating compliance between expert opinions in content validity, is recommended to be above 0.80 (25,26). The CVI value of this research shows that it had a high content validity. Exploratory and confirmatory factor analyses were performed at the validity stage of the scale. In exploratory factor analysis, it was desired that the KMO value was above 0.70, (27,28) it is not

Table 4: Item total correlations according to Aging Anxiety Scale for Middle-Aged Woman

Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Physical weakness subscale		
Item-1	.380	.891
Item-2	.432	.889
Item-3	.415	.890
Item-4	.450	.888
Concern about changes in appearance subscale		
Item-5	.493	.887
Item-6	.517	.886
Item-7	.612	.883
Item-8	.671	.881
Social valueless subscale		
Item-9	.651	.882
Item-10	.644	.883
Item-11	.633	.883
Item-12	.616	.883
Item-13	.618	.883
Item-14	.651	.882
Item-15	.639	.883
Item-16	.494	.887
Negative expectations of old age subscale		
Item-17	.280	.893
Item-18	.295	.892
Item-19	.368	.890

accepted to be below 0.50 (29). It was revealed that item factor loads should be at least 0.30 and above and factor loads should be 0.32 and above (28, 30). In this study, it was seen that EFA item loads varied in the range of 0.361-0.824 and had high values in four factors. Therefore, no item was removed from the scale. It was found that the total variance of the research was 59.15%. Karagöz (31) stressed the need for total variance to be in the range of 40 -60%. In this case, it can be said that the total variance is in the range.

Confirmatory factor analysis suggests that the model has acceptable compatibility when the ratio of χ2/df of the compatibility indices is below 3 (32). The ratio of χ2/df obtained in the study was determined to be 2.44 and the model was acceptable. RMSEA and SRMR approximation to 0, NFI, CFI, RFI values approaching 1 are considered as good compatibility (33,34). If RMSEA is less than or equal to 0.08 and the p-value is less than 0.005, this indicates that the model has good compatibility (24,35). In this study, the RMSEA value was 0.076, and the p-value was less than 0.005, so the model compatibility was good. On the other hand, when examining the other compliance indices, it was identified that CFI, NNFI values were above 0.95, NFI and RFI values were above 0.90. Since the model had good compatibility, it was determined that the scale items and subscales were compatible with the original.

The total value of the Cronbach's alpha coefficient of the Aging Anxiety Scale for Middle-Aged Women was determined to be 0.89. The Cronbach's alpha value that is between 0.80-0.89 suggests that the scale has good reliability (33). It was found that the subscale of Cronbach's alpha coefficient values of the scale varied between 0.54-0.89. Cronbach alpha values reveal moderate in between the interval of 0.50-0.70 (36). The low number of items in the subscale may cause the Cronbach alpha coefficient to be low (37). Therefore, the Cronbach alpha coefficient of the negative perceptions in the old age subscale is considered to be low. Cronbach's alpha value of the original scale that is 0.91 was found 0.88 for social valueless, 0.79 for physical weakness, 0.77 for concern about change in appearance, 0.76 for negative expectations in old age (21). In test-retest analyses, it is found reliable if the intraclass correlation coefficient value is in the range of 0.75-0.93 according to the subscales of the scale (19).

The item-total correlation coefficient provides information about the reliability of each item. It is preferable that the item correlation coefficient is above 0.25 (19). When examining the values obtained from the study, the correlation coefficient of the item was above 0.25.

CONCLUSIONS

The health professionals provide health care to women in special groups and evaluate individuals from a holistic perspective, and assess them physically, psychologically, and socially. The problems experienced by individuals can, thus, be identified. It is very important to determine the perception of aging, for healthy aging and increasing life satisfaction in women. Aging anxiety reduces positive thoughts in individuals, while it can lead to a more pessimistic point of view. The Turkish version of the Aging Anxiety Scale for Middle-Aged Women has been determined to be a valid and reliable measuring instrument. The scale was equivalent to its original form, CFA and EFA findings had four subscales, and it was determined that the scale could be used to assess aging anxiety. This valid and reliable measurement tool presented in the study is considered to evaluate aging anxiety and to form a step for future quantitative studies and intervention studies.

Limitations: This study was carried out with middle-aged women living in two provinces in Turkey. Therefore, the results cannot be generalized to middle-aged women living in all provinces of Turkey.

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