Asia-pacific Journal of Convergent Research Interchange
Vol.7, No.9, September 30 (2021), pp.13-22
http://dx.doi.org/10.47116/apjcri.2021.09.02

Development and Validation of the Korean Geriatric Morale Scale

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Abstract: In this study, a scale that can systematically measure geriatric morale was developed and validated. This study complements the limitations of using existing scales, and in other ways, reflecting the cultural characteristics they are differentiated from prior studies. Based on literature analysis and interview data, a geriatric morale model composed of 3 factors (agitation, lonely dissatisfaction, attitude toward own aging) was established, and preliminary questions were developed based on this. A survey was conducted on 1,104 elderly people who use elderly welfare centers nationwide and the validity and reliability of the geriatirc morale scale were verified. As a result of confirmatory factor analysis for construct validity verification, the fit of the one-factor model was better than that of the three-factor model, and the internal fit was also at a good level. The result of testing the criterion validity of the final scale consisting of one factor and nine items was geriatric morale. The geriatric morale scale developed in this study will be meaningful in that it can be useful as a tool to verify the effectiveness of services at institutions that provide social welfare services to senior citizens, such as general social welfare centers and senior social welfare centers.

Keywords: Elderly, Scale Development, Morale, Validity, Factor Analysis

1. Introduction

Korea is rapidly becoming an aging society due to the increase in average life expectancy and lower birth rates. According to government statistics of Korea (2018), the proportion of elderly people to the overall population is approximately 14%. Over three years, Korea added 830,992 elderly people, with 6,541,168 in 2015 to 7,372,160 in 2018. Given the trends to date, the elderly population continues to rise quickly and Korea will be reached the status of an aged society within the next few years. The increase in life expectancy has led to a rising interest in people's interest the life in old age, and the importance of old age lifestyle continues to increase. With increasing proportion of elderly life, people have shown higher interest in successful aging along with a happy old-age lifestyle, which have led to various studies and attempts to measure successful aging. A number of scales such as life satisfaction, happiness, adjustment and morale are being used to measure successful aging[1].

Among various factors utilized to measure successful aging in the elderly, various studies have taken place on life satisfaction, happiness and adjustment; however, morale has not yet been perceived as an

Received: April 08, 2021; 1st Review Result: May 26, 2021; 2nd Review Result: July 13, 2021
Accepted: August 30, 2021

important factor. However, morale is important in measuring the lives, or the changes in lifestyles of, users of institutions providing services to the elderly (social welfare centers, senior centers, and providers of social services). In other words, this indicates that the level of morale of its users can be effectively used in measuring the effectiveness of institutions or services for the elderly. This indicates that the morale of the elderly is deeply related to quality of life and life satisfaction; morale can be improved through participation in various projects or programs designed to increase the capacity of the users.

PGCMS (Philadelphia Geriatric Centre Morale Scale), a leading scale used in measuring elderly morale, has been recognized for its objectivity in other countries including the United Kingdom in measuring the quality of life of the elderly. Multiple studies have either adapted or modified the PGCMS to measure the morale of the elderly. For example, Jang (2007) studied factors that influenced the morale of elderly receiving public assistance and those who are not receiving public assistance. This study has utilized PGCMS, developed and revised by Lawton (1975), to measure elderly morale without verifying its validity. Despite the fact that the scale has already been verified for objectivity, the lack of a separate verification process is associated with issue of validity. Furthermore, it overcomes the limitations of using the existing scale on an as-is basis in existing literature, providing a differentiating factor from existing studies. The scale developed through this study is intended to be used in verifying the effects of social services for the elderly. Therefore, this study has formulated items that measure morale by reflecting the regional, sociodemographic and cultural characteristics of Korea, and aims to develop a scale that can be applied to the Korean elderly and verify its validity. This study thus overcomes the limitations of using the existing scale on an as-is basis in existing literature, providing a differentiating factor from existing studies. The scale developed through this study will carry the significance of being effectively used in verifying the effects of social services for the elderly.

2. Theoretical Background

2.1 The Concept of Elderly Morale

Morale is perceived as a leading element of individual and subjective prosperity. Furthermore, morale has been subject to consistent research in measuring the individual domains relating to life along with life satisfaction, adaptation and psychological health. Stones and Kozma (1980) defined morale as a psychological state such as courage, discipline, confidence and motivation. In other words, morale can be seen as being similar to the concept of will. Generally, morale refers to the psychological and mental state of persisting through difficulties along with courage and motivation, and is used when measuring the cognitive or emotional adaptation of the elderly[2]. Lawton (1972), an early researcher of morale, defined elderly morale is “the state of the elderly feeling positive emotions towards indicators such as economy, health and leisure.” Comprehensively, researchers differ in their definitions of morale, which can be seen as a concept that is difficult to clearly define. As such, this study has utilized the definition and main concepts of Lawton (1972), an early morale researcher.

Individuals who receive social services generally have low income, consisting of groups that have either experienced discrimination from the society as they have been excluded from the society, or those that face difficulties in social participation due to physical and mental disabilities and disorders including the elderly and the disabled; their morale can be seen as being lower than the general public. Therefore, increasing the level of subjective prosperity perceived by the users through providing social services can lead to improvements in their negative perception towards the society, attitude towards others, social adaptation and self-worth. In other words, the degree of morale becomes an important domain that measures the direct effects of services to the people.

2.2 Components of the Elderly Morale Scale and Measurements

A leading tool that measures elderly morale is the Philadelphia Geriatric Centre Morale Scale (PGCMS), developed by Lawton (1972, 1975) at the Philadelphia Geriatric Centre[3]. Lawton (1972) developed the initial items of the PGCMS as consisting of 6 factors and 22 items, formed of open-ended questions so that clinicians could use them on their patients. In 1975, Lawton removed 5 items from the 22 items developed in 1972, proposing a modified 3-factor, 17-item morale scale.

Lawton (2003) presented a modified version of PGCMS, making the scale more easily respondable; the responses could be recorded in a 5-point scale with yes/no answers and placing the resulting answers on a scale from 0 to 17. This scale is useful as it can be used to evaluate the users' quality of life using the whole scale, or partial scale as required[4].

2.3 Application of Elderly Morale in Social Welfare Studies

Users of social welfare services range from children, youth, adults, and the elderly. Each service is programmed appropriately matching the characteristics of the users, and the objectives and purposes of each service differ according to its users. Therefore, appropriate measurement scales must be used in consideration of the characteristics of its users. In other words, it is necessary to utilize a morale scale for the elderly in measuring elderly morale. As explained earlier, Lawton (1972) asserted that the indicator of morale in old age is composed of three lower constructs, ranging from stability (agitation), measuring the emotional lives of the user, attitude towards own aging, which measures the adaptation to own change due to aging, and lonely dissatisfaction, measuring loneliness or dissatisfaction in life. In other words, this scale is designed to measure the quality of life of its users, containing items that measure overall satisfaction towards life, agitation, measuring the emotional quality of life of its users, and attitude towards the aging, measuring the level to which the users adapt to changes that come with the aging. As it contains attitude towards the aging and emotional quality of life along with overall life satisfaction, this scale has the advantage of being different from other scales that simply measure overall quality or satisfaction associated with life.

The importance of emotional quality of life in the old age has been confirmed through the studies of multiple researchers[4]. Characteristics of emotional optimization become prominent in the old age, associated with reducing emotional sway and maintaining happiness; agitation, one of the components of morale in PGCMS, is able to measure emotional agitation and emotional state that can be experienced in the old age, and thus, is very useful in measuring the emotional quality of life in the old age. Moreover, according to various studies on successful aging, accepting changes that come with the aging and focusing on the positive aspects of own life are known to be effective in maintaining happiness in the old age[5]; PGCMS contains measurements of adaptation and attitude towards changes associated with the aging, and is appropriate in measuring life satisfaction in the old age[4].

Given these reasons, PGCMS is widely used in evaluating the elderly morale, subjective/ psychological well-being, life satisfaction and quality of life in the old age. For example, the British Geriatrics Society officially recommends the use of PGCMS in measuring the quality of life of the elderly. From 2000, PGCMS has been utilized in more than 40 studies published in the United Kingdom and Europe, and it is also frequently used in journals of geriatrics and psychology in more than 12 countries, including Japan and the United States. PGCMS can be used by adults aged over 55 to ultra-aged individuals aged over 100, and can be applied to users with cognitive and physical disabilities along with normal users[6].

PGCMS scores have been confirmed to be highly correlated with life satisfaction and adaptation[7], and is closely related to perceived control over daily life (Ryden, 1984) and with depression[8]. Furthermore, PGCMS scores are known to be useful predictors of stroke or death[9]. PGCMS has a high

degree of reliability and is easy to conduct and interpret, and thus is officially used in various countries with a high number of the aged population such as Japan, China, Sweden, Spain, Germany, United Kingdom and United States[10]. Through validation studies, Liang and Bollen(1983) emphasized that PGCMS could be applied across age, gender and race; it is used in numerous studies in many countries today[11].

Yoo et al. (2012) verified the reliability and validity of PGCMS and presented the Korean version of PGCMS. However, the Korean version of PGCMS was some limitations to use for the Korean elderly. Firstly, a Korean version of elderly morale scale was not reflecting the national, regional, sociodemographic and cultural characteristics of the Korean elderly. Secondly, the scale was not considered the minor differences caused in the contents of the questionnaire during the translation process (English to Korean), the original version of PGCMS was developed for foreign elderly individuals.

3. Research Method

3.1 Process of Developing the Geriatric Morale Scale

3.1.1 Literature Review and In-depth Interviews

This study is composed of three stages to develop the elderly morale scale. The first stage involved a literature review to formulate the conceptual definition of morale and preliminary measurement items. This study confirmed the measurement domains and items of the morale scale based on domestic and foreign studies(The original scale used the morale scale for the elderly developed by the Philadelphia Geriatric Research Institute (PGCMS, Lawton, 1972).). Through literature review and analysis of existing literatures, preliminary measurement domains and items were derived, which were then subject to in-depth interviews with expert groups (2 professors with social welfare and geriatric welfare majors, 4 directors of geriatric social welfare centers and 2 middle position managers). Analysis of the expert interviews led to the deletion of 2 items from a total of 17 items in 3 domains, leading to a final set of 15 items. The preliminary measurement items of the morale scale were revised and supplemented by reflecting the opinions of field experts.

The final set of preliminary morale scale items resulting from the above process is shown in [Table 1]. A total of 15 items were extracted, consisting of 6 items on agitation, 4 items on lonely dissatisfaction and 5 items on attitude toward own aging. Each item is measured on a 7-point Likert scale, with higher scores indicating higher level of morale. Although the morale scale proposed by Lawton (1972) utilizes a 2-point scale (Yes, No), this study amended it to a 7-point Likert scale.

[Table 1] Preliminary the Elderly Morale Scale

Measurement variable	Measurement item	The number of questions	
Agitation	Q1	Do little things bother you more this year?	6
	Q2	Do you sometimes worry so much that you can’t sleep?	
	Q3	Are you afraid of a lot of things?	
	Q4	Do you get mad more than you used to?	
	Q5	Do you take things hard?	

	Q6	Do you get upset easily?	
Lonely Dissatisfaction	Q7	Do you have a lot to be sad about?	4
	Q8	How satisfied are you with your life today?	
	Q9	Is life hard much of the time?	
	Q10	Do you sometimes feel that life isn't worth living?	
Attitude Toward Own Aging	Q11	Do things keep getting worse as you get older?	5
	Q12	Do you have as much pep as you had last year?	
	Q13	Do you feel that as you get older you are less useful?	
	Q14	As you get older, was the life situation worse?	
	Q15	Are you as happy now as you were when you were younger?	

3.1.2 Phase 2: Sampling and Research

To verify the reliability and validity of the geriatric morale scale, preliminary the elderly morale scale with 15 items were formed using literature views, analysis of existing literature and in-depth interviews. The survey was conducted utilizing this 15-item morale scale with the elderly individuals using senior centers across the country (Gyeonggi, Daegu, Daejeon, Busan, Jeonbuk, Chungnam, Chungbuk). The survey took place over a period of approximately one month, from October 1, 2016 to October 31, 2016, with a total of 1,350 surveys distributed and 1,280 collected, representing a collection rate of 94.8%. 176 surveys with insincere responses and non-eligibility for study targets (over 65 years of age) were excluded from the 1,280 collected surveys, and the final analysis data consisted of the remaining 1,104 surveys.

3.2 Data Analysis

This study collected data through a survey and built a causal model using statistical techniques. In order to verify the goodness of fit of the model, the collected data were analyzed using SPSS 21.0 and AMOS 21.0 programs. In this study, 7-point scale was used, and the scale used was analyzed as follows to derive the index suitable for the purpose of the study by using the scale and concept suggested in the previous study.

First, exploratory factor analysis was performed using principal component analysis and right angle / square rotation method (Varimax and Oblimin) using the collected data, and the overall reliability of the removed items was evaluated.

Second, confirmatory factor analysis (CFA) was conducted using the remaining items after exploratory factor analysis. The confirmatory factor analysis utilized Maximum Likelihood and verified whether the factor structure model obtained through exploratory factor analysis was appropriate. This measure was verified through the absolute fit index, the incremental fit index, and the simplicity fit index.

Third, to verify the validity of the final fraud scale derived from exploratory factor analysis and confirmatory factor analysis, the validity was secured through the Construct Reliability (CR) value suggested by [12].

4. Result

4.1 The General Characteristics of the Survey Participants

The general characteristics of the survey participants are followings. The genders were 365 males (33.1%) and 739 females (66.9%). The most common age group was 71 to 80 years old with 656 (59.4%), followed by 65 to 70 years old with 360(32.6%) and 81 years old or older with 88(8%). The highest academic background was 421(38.1%) graduated from four-year colleges, followed by 272 (24.6%) college graduates, 214(19.4%) graduated from high school and 170 graduates from master's degree. (15.4%) followed by Ph.D./completion 27(2.4%). In the region, Busan was the highest with 272 (24.6%), followed by Gyeonggi 227(20.6%), Jeonbuk 165(14.9%), Daejeon 124(11.2%), and Chungbuk. 112(10.1%), Chungnam 110(10.0%) and Daegu 94(8.5%).

4.2 Exploratory Factor Analysis

An exploratory factor analysis was conducted using the SPSS 21.0 statistical program to assess the adequacy of the confirmed morale scale preliminary questions. To determine whether the data collected in this study is suitable for factor analysis, Kaiser-Meyer-Olkin (KMO) measurement tool and Bartlett's test of sphericity (Bartlett's test of sphericity) were used as statistical procedures. KMO is a value that indicates the degree to which the correlation between variables is well explained by other variables. A small value indicates that the variable selection for factor analysis is poor. In general, if the KMO value is above .90, it is considered quite good, and if .80-.89 is quite good, if it is below .50, it is unacceptable [13].

The KMO test showed a fairly good value of .968. Bartlett's spherical test results indicating the suitability of the factor analysis model were statistically significant ($\chi^2 = 13828.541$, df = 105, p = .000), indicating that the factor analysis model is suitable. In other words, it can be concluded that the preliminary morale scale is suitable for the use of factor analysis and that common factors exist.

Using the preliminary morale scale question, the same results were obtained with the rotation of VeriMex and oblimin. As a result, none of the 15 items had commonalities below .40. Finally, one factor, a total of 15 questions, was extracted. As a result of analysis, factor loading was .40 or more, commonality was .40 or more, and eigen value was 1 or more. Overall variance explanatory power was 66.16%. As a result of exploratory factor analysis, the area of morale scale for which content validity was verified was reduced from three areas (factor) to one area (factor). One factor of the reduced morale scale has been renamed as “the morale of the elderly”. Based on the results of the exploratory factor analysis, a total of 15 items were used as the analysis data for the confirmatory factor analysis.

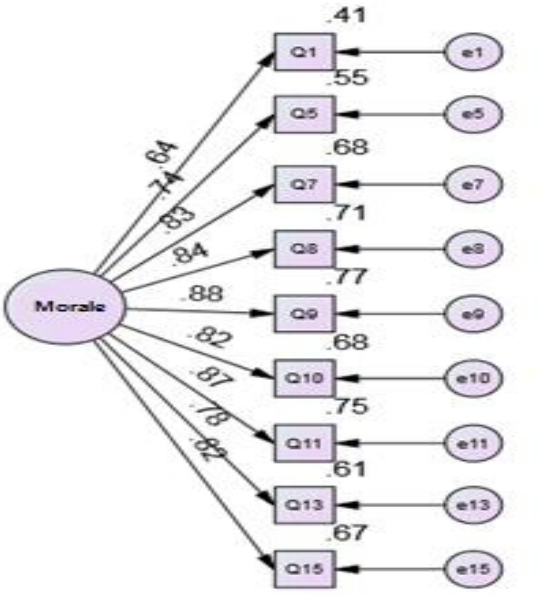
4.3 Reliability Analysis

Reliability analysis was conducted to verify the internal consistency of the 15 items extracted from the exploratory factor analysis. Cronbach ’s α, of the factor was .960. In general, if Cronbach's α coefficient is over .60, reliability is obtained. Therefore, the factor (Morale of the elderly) extracted from exploratory factor analysis and 15 questions were secured.

4.4 Confirmatory Factor Analysis

In order to secure the validity of the factor structure of the elderly morale scale developed through exploratory factor analysis, confirmatory factor analysis was performed using AMOS 21.0 statistical program. Maximum Likelihood Estimation was used to estimate factor loadings. [Fig. 1] shows the

structural equation model with the measured variables of the morale scale.



[Fig. 1] The Structural Equation Model with the Measured Variables of the Morale Scale

As a result of conducting confirmatory factor analysis on 15 items of 1 factor extracted from exploratory factor analysis, it is shown in <Table 2>. After removing six low-explanatory questions (Q2, Q3, Q4, Q6, Q12, and Q14) from 15 questions, confirmatory factor analysis was conducted using nine questions. Absolute Fit Indices showed $\chi 2 = 169.316$ (df = 27), p = .000, GFI = .965 and RMSEA = .070. As a result of examining the absolute fit index, the $\chi 2$ verification and RMSEA, GFI and AGFI values were all appropriate. The RMSEA should be less than .08 and the closer the GFI is to 1, the better the fit[14].

Incremental Fit Indices were IFI = .981, TLI = .974 and CFI = .981, which were more than .90. Parsimony Fit Indices showed PNFI = .733, PCFI = .736, and AGFI = .941. PNFI, PCFI, and AGFI values were all appropriate. PNFI and PCFI should be higher than .60, and AGFI can be interpreted as good as the closer to 1. When the model fit is comprehensive, the fit of the measurement model is generally good and it can be interpreted that the measurement model fits the data well.

The analysis results of the final research model are shown in [Table 2]. In the final model, both standardized regression coefficients and covariance between the measured variables and the factors were statistically significant (p <.001). In addition, the loading of standardized regression coefficients was all over .50.

[Table 2] The Morale Scale Final Model Factor Analysis Results

(N=1,079)

			Estimate	S.E.	C.R.	P
Q1	←	Moral of the elderly	1.000			
Q5	←	Moral of the elderly	1.112	.052	21.214	***

Q7	←	Moral of the elderly	1.316	.057	23.094	***
Q8	←	Moral of the elderly	1.312	.056	23.448	***
Q9	←	Moral of the elderly	1.392	.058	24.141	***
Q10	←	Moral of the elderly	1.364	.059	23.064	***
Q11	←	Moral of the elderly	1.398	.058	23.942	***
Q13	←	Moral of the elderly	1.238	.056	22.075	***
Q15	←	Moral of the elderly	1.335	.058	22.959	***

4.5 Validation

Convergent validity indicates that there must be a high correlation between the values measured by different methods in order to measure the same concept. In this study, we used the method based on the Convergent Reliability (CR) value to verify the convergenr validity. If the CR value is above 0.7, it is interpreted as convergent validity[13][15]. The reliability of latent factors in this study was .841 for Moral scale of the elderly, and convergent validity was obtained because the value was over 0.7.

Through exploratory factor analysis, confirmatory factor analysis, and validity test, the final questions on the morale scale of the elderly were 9 questions and the final questions are shown in [Table 3]. Reliability analysis based on the final question showed that Cronbach 's α = .942 of the morale of the elderly. The credibility of nine items of the elderly fraud scale was secured.

[Table 3] The Elderly Morale Scale Final Question

(N=1,079)

Item Number	Questions	The number of questions
Q1	Do little things bother you more this year?	
Q5	Do you take things hard?	
Q7	Do you have a lot to be sad about?	
Q8	How satisfied are you with your life today?	
Q9	Is life hard much of the time?	9
Q10	Do you sometimes feel that life isn't worth living?	
Q11	Do things keep getting worse as you get older?	
Q13	Do you feel that as you get older you are less useful?	
Q15	Are you as happy now as you were when you were younger?	

5. Conclusion

The purpose of this study is to develop a morale scale for the Korean elderly and verify the validity of the scale. To achieve this purpose, the study first analyzed the existing literature on the concept and components of morale, and studies on scale development. Based on the findings, the components of the geriatric morale scale were presented as agitation, lonely dissatisfaction and attitude towards own aging; this was followed by reformulating questions appropriate for each component to align with this study, the development of an appropriate tool to measure elderly morale and verification of its validity.

The preliminary items of the geriatric morale scale were checked for content validity based on existing literature and with expert groups. The final set of 15 preliminary items consisted of 6 items on agitation, 4 items on lonely dissatisfaction and 5 items on attitude towards own aging. The results obtained from this study are as follows.

This study has extensively considered the measurement items of the morale scale used in measuring elderly morale. Moreover, it is significant as the scale was developed to be used for Korean elderly individuals, rather than a verification of validity using the original scale. This study is expected to be beneficial as a tool to verify the service effectiveness of institutions providing social services for the elderly, such as social welfare agencies and senior centers.

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