

Research Paper**Determining Psychometric Properties of Iranian Active Aging Measurement Instrument**

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ABSTRACT**Objectives** This study aimed at developing and determining psychometric properties of Active Aging Measurement Instrument (AAMI) as per the Iranian aging society.**Methods & Materials** This study was performed in two phases by applying the steps identified by Ingersoll-Dayton in 2015-2016. In the first phase, according to prior studies, a preliminary AAMI was developed through three steps. In the second phase through two steps, the psychometric properties of the AAMI were examined. A total of 350 older adults belonging to health-related educational centers in Tehran municipality were included in the psychometrics study using the three-phase cluster sampling method. Statistical tests such as item analysis, exploratory factor analysis, Cronbach's α coefficient, and Pearson correlation coefficient were performed by using SPSS 16.**Results** The finding of the first phase was a preliminary 6-item measurement instrument with 5 point responses (none to very much). In the second phase, the result of examining the face and content validity was elimination of 6 items, which led to a 55-item AAMI. The result of psychometric tests after item analysis and factor analysis was the final 40-item AAMI consisting of six factors: 1. social-institutional participation; 2. active mind maintenance; 3. social contacts; 4. agent attitude; 5. productive engagement; and 6. physical-functional activity which explained 56% of the total variance. Reliability of AAMI based on examining Cronbach's α coefficient was 0.88, and also its test-retest reliability was 0.95 ($P < 0.01$).**Conclusion** The 40-item AAMI consisting of six factors in the present study not only was shown to be reliable, valid and appropriate for Iranian older adults but was also confirmed to have both subjective and objective dimensions.**Key words:**

Active aging, Measure, Psychometrics, Iran

Extended Abstract**1. Objectives****F**

ollowing the paradigm shift in the conception of aging experience, i.e. from the concept of "being alive" in the twentieth century to "ensuring the qual-

ity of life of elderly people" in the twenty-first century, active aging as a positive approach to aging has drawn the attention of policymakers and gerontologists [1].

Understanding of active aging, which is influenced by the culture and conditions of each community, has been largely based on Western studies, not applicable to the culturally-diverse communities in Asian coun-

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tries [3]. Therefore, due to inappropriate measures of active aging in Iran, the present study aimed to design and determine the psychometric characteristics of active aging measures according to the cultural criteria of the Iranian aging society.

2. Methods & Materials

The present study was a methodological research and is a part of a larger study entitled "Understanding active aging and constructing its measure" carried out by a combined research method in two stages using the steps proposed by Ingramsal-Dayton [4]. In the first step of the first stage, the study was based on the grounded theory of qualitative research aimed at achieving the native theoretical model of active aging [5]. The data were saturated and codified in the semi-structured interviews with 35 elderly people aged 60 to 85 years (who referred to the elderly centers and parks in Tehran) using theoretical sampling. Then, active aging and its dimensions were used as a part of this theoretical model for designing the tool, and the initial expressions were extracted from this section. In the second step, based on the concepts and dimensions obtained from the previous step, all psychometric measures related to active aging and their dimensions were collected, and the appropriate expressions were extracted to complete the qualitative section. Finally, in the third step, the expressions obtained from the previous steps were designed as an initial measure of active aging, with a format tailored to the elderly community.

In the second stage, the psychometric characteristics of the measure (reliability and validity) were checked. In the first step, the content validity of the measure was examined according to the opinions of 10 experts based on Waltz and Bausell content validity index and Lawshe content validity ratio [20]. The formal validity of the measure was examined according to the opinions of experts and the elderly group (15 people). In the second step, a sample of 350 old people aged over 60 years who were referred to the health centers of Tehran municipality was selected in a survey using three-stage cluster sampling. The mean (SD) age of the sample was 69 (78.6) years. Also, 52% of them were female (n=182) and 48% were male (n=168). In this survey, after analyzing the expressions, the psychometric characteristics of the measure, including the validity, were examined using exploratory factor analysis. The reliability was investigated based on internal consistency and test-retest method using Cronbach's α . The intra-cluster correlation coefficient and Pearson correlation coefficient were analyzed using SPSS16. It should be

noted that the approval of the Chancellor of the Faculty of Social Sciences of Allameh Tabataba'i University was obtained to carry out the research.

3. Results

In the first step of the first stage, the existential functionalism, the management of home affairs, the initial strategies of isolation aversion (interaction and lack of isolation), social participation (professional role-playing, voluntary activities, institutional social participation), physical dynamics, and insight-learning dynamics were revealed as active aging components that indicated the existence of mental, behavioral, and objective dimensions of active aging. According to the characteristics and dimensions of the data pertaining to those components, 96 expressions were extracted for the initial active aging measure.

Due to overlapping and conceptual affinity, the number of expressions reduced to 56. In the second step, all psychometric questionnaires were searched in internal and external databases using the keywords related to active aging components. A total of 16 out of 40 searched measures had 27 appropriate expressions for designing the research tools. In the third step, all 83 expressions extracted from the previous two steps were re-examined in terms of conceptual affinity. Thus, the number of expressions reduced to 61 after eliminating the duplicate expressions. The expressions were designed scale-like in four formats. After examining all four formats of active aging measure expressions among a small sample of the elderly, the relevant form of questionnaire for the older adults was selected.

In the first step of the second stage, the content and formal validity of the initial active aging measure (including 61 items) were assessed in the expert group, and a preliminary investigation along with an interview was conducted in a small sample of the elderly. Based on the results of the Content Validity Index (CVI) and Content Validity Ratio (CVR), and formal validity, a total of six questions were eliminated. As a result, the number of active aging measure expressions reached 55. The mean content validity index was 0.906. In the second step, in a survey to check the psychometric properties of the measure, the expressions were further analyzed, which led to the elimination of 11 expressions. The results of structural validity using exploratory factor analysis with ecomax turning indicated the ultimate measure containing 40 questions with six factors (socialization (social-institutional participation), mind-exercise, interactivity, active insight, role-play-

ing and physical-functional dynamics) with the ability to explain 56% of the total active aging variance. Finally, the reliability based on internal consistency and test-retest method indicated that the Cronbach's α coefficient, Pearson correlation coefficient, and the inter-cluster correlation coefficient were 0.876, 0.951, and 0.996, respectively ($P < 0.01$).

4. Conclusion

The active aging measure in the present study was designed based on the native understanding of active aging in the context of Iranian culture alongside the relevant texts. This indicates that active aging has objective and mental dimensions. This native understanding in the objectification and benchmarking of the external experience has led to the active aging measure including 40 expressions and 6 factors that have a good validity and reliability. In contrast to other existing aging measures that have only emphasized the existence of objective and behavioral dimensions in active aging [6, 7] and ignored the mental dimension, our measure is not only appropriate for the Iranian elderly community but also acknowledges the existence of the mental dimension of active aging, along with the objective-behavioral dimension.

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Conflict of Interest

The authors declared no conflicts of interest.