

**Research Paper****The Psychometric Properties of the Persian Version of the Camberwell Assessment of Needs (CANE) for Iranian Elderly People With Mental Disorders**Reza Salehi<sup>1</sup>, Keyvan Davatgaran<sup>2</sup>, \*Mojdeh Heidari<sup>1</sup>, Neda Mostafaei<sup>3</sup>, Mahmoud Latifi<sup>4</sup>

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**ABSTRACT**

**Objectives** Assessment of met and unmet needs of the elderly and how meeting unmet needs can increase the quality of their life. Validity and reliability of any measurement instrument essential to use it for research work. The Aim of this study is to evaluate the test-retest reliability, construct validity and criterion validity of the Persian version of CANE questionnaire as a tool for the assessment of the needs of Iranian elderly people with mental health problems and their informal caregivers.

**Methods & Materials** This cross-sectional study was done in 2016 on 123 elderly (61 men and 62 women) people with mental health disorder (convenient sampling) with mean age 72 years (SD=9.24) and 41 of their informal caregivers. To assess test-retest reliability, the interview was conducted twice with two-week interval and criterion validity to measure the correlation between the scores of the Camberwell questionnaire, a 36-item questionnaire assessing the quality of life, Modified Barthel Index, and 12-item General health survey was assessed. Construct validity was assessed by creating a correlation matrix for the first section of all 26 items of the questionnaire. The statistical analyses were performed using the software SPSS 19.

**Results** For test-retest reliability purposes, kappa coefficient elderly ( $K=0.48-1$ ) and their informal caregivers ( $K=0.65-1$ ); and Intraclass Correlation Coefficient (ICC) in elderly with 0.95 and their informal caregivers with 0.97, with a significant level of 0.05 were calculated. The results of the criterion validity, high negative Spearman's correlation between the total score of the SF36 ( $r=-0.790$ ) and MBI ( $r=-0.788$ ) and a moderate correlation between unmet needs score of the CANE with total score SF36 ( $r=-0.474$ ) and also a high correlation between score of caregiver's psychological distress item of CANE with total score of GHQ12 ( $r=0.875$ ) is revealed. The results showed good construct validity of the Persian version of the CANE.

**Conclusion** Test-retest reliability and also construct and criterion validity of the Persian version of the CANE are good. It suggests that for the other studies, the psychometric properties of the Camberwell questionnaire should be evaluated.

**Key words:**

Mental health problem, Elderly, Assessment of needs, Validity, Reliability

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## Extended Abstract

### 1. Objectives

**A**geing is accompanied by inevitable changes in normal physical and mental functions. These changes lead to the special needs of the elderly [1, 2]. These needs are more complicated among the elderly suffering from mental health problems due to physical and social problems [1, 3, 4]. Evaluating and understanding the satisfied and unsatisfied needs of the elderly can increase the quality of their life and help them in avoiding boarding centers and hospitals [5, 6]. Camberwell's Questionnaire for the needs of the elderly is an instrument that allows a comprehensive assessment of the needs of the elderly [7, 8]. Validity and reliability of measurement instruments are necessary for using them in research work. The aim of this study is to provide a Persian version of CANE and investigate the repeatability of the tests and construct validity and criterion validity in Iranian elderly with the mental health problem and their caregivers.

### 2. Methods and Materials

The present study is descriptive-analytical research conducted on 123 elderly with an average age of 72 years (SD=9.24) and 41 informal caregivers in two cities of Ahvaz and Tehran. The participating elderly were Persian speakers and had a mental health disorder, according to the psychiatrist's diagnosis and score at least a score 7 in the short cognitive test. These participants are referred to daycare centers or boarding centers providing services to the elderly. Existing sampling method was used and the sample size was considered five times the number of items in the questionnaire. After obtaining permission from the origi-

nal author, translation and cultural adaptation of the questionnaire was done while following the translation protocol and International Quality of Life Assessment (IQOLA) equivalence. After that, the data was collected. To check the repeatability of the Persian version of the questionnaire, 50 elderly people with mental disorders and 41 unofficial caregivers were interviewed. Thereafter, they were re-interviewed after an interval of about two weeks. To evaluate the repeatability of the Persian version, the Intra-Correlation Coefficient and the Kappa Coefficient were used to examine the correlation between the scores of the Camberwell's questionnaire and the level of agreement between the score of each item was used in the re-test. To verify the convergent and divergent construct validity, a correlation matrix was created for the first part of each of the 26 items of the questionnaire and the correlation between different items of the questionnaire was obtained. In the absence of a standard questionnaire, to assess the needs of the elderly with the mental disorder and the validity of concurrent criteria, 36-item quality of life questionnaire, Shah Version of Barthel Index Scale in the Elderly and 12-item general health questionnaire were used to assess mental stress of caregivers. Then the correlation (Spearman coefficient) was calculated between the scores of these questionnaires and the Camberwell's Questionnaire. This study was approved by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences.

### 3. Results

Nearly half of the participants were women, and the rest were men. Depression diagnosis rates were higher (40%), Alzheimer's (29%), and anxiety disorders (15.5%). Of them, 67% of the elderly were referrals to daycare centers for psychological and rehabilitation services and 34% of them were living in daycare cen-

**Table 1.** Correlation test results to determine the validity of the structure of the Persian version of the CANE

Items	Correlation (r)	
	Elderly	Caregivers
Memory-home protection	0.263	0.451*
Memory-self-care	0.348*	0.645
Memory-money	0.265	0.319*
Self-care-home protection	0.270	0.537*
Companionship-daily activities	0.324*	0.126

\*P<0.01

ters. After collecting and reviewing the data obtained from the questionnaire of Camberwell, it became clear that the elderly stressed on their unsatisfied needs related to their daily activities, legal benefits, intimate communications, companionship, mental discomfort, physical health, behavior, memory, misuse/neglect and urinary incontinence and caregivers identified their unsatisfied needs in mental illness, behavior, legal benefits, intimate communication, daily activities, physical well-being, and companionship. While investigating the repeatability of the test times, the coefficient of inter-class correlation was calculated between the total score obtained from the two tests and completion of the questionnaire and the result for the elderly was 95% and for informal caregivers, it was 97% at a significant level of 0.05. In accordance with the Fleiss benchmark, 1981, in the aging area, the Kappa coefficient agreement for score of each item in the retest was awesome for 62% of the items ( $k < 0.75$ ) and it was good for 33% of items (0-60.74) (The Kappa agreement coefficient ranged from 0.48 to 1) and in the field of informal caregivers, it was excellent for 83% of the items, and good for 17% of the items (the Kappa agreement rate ranged from 0.65 to 1).

The results of the validity confirmation of the simultaneous criterion showed that there is a strong negative correlation between the complete score of Camberwell and the total score of the 36-item questionnaire of quality of life ( $r = -0.78$ ), between the complete scores of the Camberwell and Shah Version of Barthel Index Scale ( $r = -0.78$ ), and a moderate correlation between the unsatisfied needs of Camberwell index with a complete score of quality of life questionnaire ( $-0.474$ ). There is also a strong correlation between the psychological stressors of caregivers with complete score of a 12-item questionnaire regarding general health examination ( $r = 0.87$ ) ( $P < 0.001$ ). While investigating the construct validity, a solidarity matrix was formed, and then the existence of positive or negative correlations between the various items of the questionnaire was evaluated. Convergent construct validity was found with significant correlation in areas expected to be damaged by memory corruption. Divergent construct validity showed a negative correlation between the information item and other items. In the field of caregivers, there was a significant correlation between the memory item and self-care, and home environment and financial security. [Table 1](#) shows the results of the Construct validation.

#### 4. Conclusion

Considering that while examining the repeatability of the tests, in-class correlation coefficient obtained was 0.8 in both areas of the elderly and caregivers, and the

kappa coefficient showed fairly good to the excellent level of agreement; therefore, the repeatability of the English version of the Camberwell Questionnaire was good. The results of this study indicate the validity of concurrent criteria and the validity of the acceptable construct of the Persian version of the Camberwell Questionnaire in Iranian older adults with health damage and their informal caregivers. According to the results of this study, the Persian version of CANE for the elderly can be used in clinical research and daily clinical activities to identify the needs of Iranian elderly people with mental disorders. Due to some restrictions such as the lack of staffs at the centers in this study, it is suggested that other studies should be conducted in the future to examine the psychometric properties of CANE.

#### Ethical Considerations

##### Compliance with ethical guidelines

The ethical committee of the Ahvaz Jundishapur University of Medical Sciences has confirmed this study.

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##### Conflict of interest

The authors declare no conflict of interest.

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