Prevalence of Cognitive Impairment in Community-Dwelling Older Adults

Vahid Rashedi [1*] , Mohammad Rezaei [2], Masoud Gharib [3]

1. Iranian Research Center on Aging, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
2. Faculty of Rehabilitation Sciences, Hamadan University of Medical Sciences & Health Services, Hamadan, Iran.
3. Pediatric Neurorehabilitation Research Center, University of Social Welfare & Rehabilitation Sciences, Tehran, Iran.

A B S T R A C T

Introduction: Mild cognitive impairment can be considered as an intermediate clinical state between normal cognitive aging and mild dementia. Elderly people with this impairment represent an at-risk group for the development of dementia. The aim of this study was to investigate the prevalence of cognitive impairment in community-dwelling older adults by Mini-Mental State Examination (MMSE) and its relationship with socio-demographic variables.

Methods: In this analytical-descriptive study, 212 subjects admitted to Hamadan's day care centers were selected through simple random sampling method. To gather the data, MMSE was used as well as a questionnaire containing demographic variables. Data analysis was completed through SPSS-16.

Results: The sample consisted of 17.9% male, 59.4% of whom were married. According to the results, 96 cases (45.3%) suffered from mild (MMSE≥22), 110 cases (51.9%) from moderate (11≤MMSE≤21) and 6 cases (2.8%) from severe cognitive disorder (MMSE≤10). As findings revealed, factors such as age (Pv = 0.005, r = -0.491) and schooling (Pv < 0.001) are of significant relationship with MMSE score.

Discussion: Prevalence of cognitive decline in community-dwelling older adults was of normal range. Hence, familial relations and social support can decrease mental status disorder.

1. Introduction

Functional decline due to aging associated or not with diseases may cause an impact on the body functions necessary to maintain total independence, self-care and autonomy. Frequent causes of cognitive decline among the elderly are dementia due to Alzheimer's and Parkinson's disease and some psychiatric disorders, such as schizophrenia and depression (Ávila & de Campos Bottino, 2006; Chehrehnegar, Shams, Zarshenas, & Kazemi, 2012).

Delirium is a case of mental confusion and impaired consciousness that develops quickly and is caused by an underlying medical condition. The delirious patient has a reduced awareness of, and responsiveness to the environment, which may be manifested as disorientation, incoherence and memory disturbance (Inouye, 1999). The diagnosis is left undetected by health personnel in up to 70% of the patients and it may remain unrecognized in those suffering from delirium at hospital admission (Pisani, Redlich, McNicoll, Ely, & Inouye, 2003). Cognitive decline becomes more common with ageing and, for an increasing number of people, interferes with daily functioning and well-being (Dregan, Stewart, & Gulliford, 2012). Study on relationship between mental impairment and each component of activity of daily living (ADL) in Iranian elderly residents of the Kahrizak Charity Foundation showed that cognitive status can be

* Corresponding Author:
Vahid Rashedi, PhD
Iranian Research Center on Aging, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
Tel: +98 9183071851
E-mail: vahidrashedi@yahoo.com

a predictive factor of ADL in elderly subjects (Kazemi et al., 2010)

Since its introduction in 1975, the Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975) has been utilized widely as a screening instrument to assess cognitive disorders and dementia. It is a brief, standardized method to determine a patient's cognitive function that assesses orientation, attention, immediate and short-term recall, language and the ability to follow simple verbal and written commands (Crum, Anthony, Bassett, & Folstein, 1993). It has been used as a brief cognitive test in clinical practice and research (Bleecker, Bolla-Wilson, Kawas, & Agnew, 1988). The MMSE has been translated into several languages and has been used successfully in many independent cross-national epidemiological studies of dementia (Brucki, Nitrini, Caramelli, Bertolucci, & Okamoto, 2003).

Many sociodemographic and health variables can influence general cognitive performance, with different impacts depending on age and schooling (Anderson, Sachdev, Brodaty, Trollor, & Andrews, 2007; Ansari, Naghdi, Hasson, Valizadeh, & Jalaie, 2010; Seyedian et al., 2008), as do many other sociodemographic characteristics e.g., occupation and gender (Ng, Niti, Chiam, & Kua, 2007). The aims of this study were to investigate the cognitive state in community-dwelling older adults by MMSE and its relationship with socio-demographic variables.

2. Methods

This is a cross sectional descriptive-analytic study carried out in Hamadan, Iran. The sample consisted of 212 subjects admitted to Hamadan's day care centers were selected through simple random sampling method.

Data was collected with a two-part questionnaire. The first part collected data about the sociodemographic characteristics such as age, gender, marital status, schooling and occupation. The second part included the MMSE, developed originally by Folstein et al. in English. The MMSE or Folstein test is a brief 30-point questionnaire test that is used to screen for cognitive impairment. It is commonly used in medicine to screen for dementia. It is also used to estimate the severity of cognitive impairment and to follow the course of cognitive changes in an individual over time, thus making it an effective way to document an individual's response to treatment. In about 10 minutes, it samples functions including arithmetic, memory and orientation. This test is not a mental status examination (Folstein et al., 1975). This measure was

translated into Persian and it has shown good construct validity, high test-retest and inter-rater reliability (Ansari et al., 2010; Foroughan, Jafari, Shirinbayan, Farahani, & Rahgozar, 2008; Seyedian et al., 2008).

Data obtained from the questionnaires was initially analyzed using descriptive statistics. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 16. Independent t-test, univariate analysis of variance (ANOVA) and correlation analyses were used to assess the association between variables.

3. Results

The sample consisted of 17.9% male, 59.4% of whom were married. The mean age of the sample was 67.11 years (SD: 6.49) and the mean years of admission in the centers was 1.61. The descriptive information of the sample is presented in table 1.

Table 1. Characteristics of the sample (n = 212)

Variables	n	%
Gender		
Male	38	17.9
Female	174	82.1
Marital Status		
Married	126	59.5
Widow	84	39.6
Single	2	0.9
Schooling		
Illiterate	154	72.6
Guidance	50	23.6
Diploma	8	3.8
Occupation		
Housekeeper	164	77.4
Retired	48	22.6

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According to the results, 96 cases (45.3%) suffered from mild (MMSE≥22), 110 cases (51.9%) from moderate (11≤MMSE≤21) and 6 cases (2.8%) from severe cognitive disorder (MMSE≤10). As findings revealed, factors such as age (Pv = 0.005, r = -0.491) and schooling (Pv < 0.001) are significantly correlated with MMSE score.

4. Discussion

There was a low prevalence of cognitive decline according to MMSE in the sample studied (2.8%). Mean scores were lower among the groups with more advanced age and among illiterates. Kazemi et al, in a study

including 184 elderly residents of the Kahrizak Charity Foundation, reported the prevalence of cognitive decline to be 5% (Kazemi et al., 2010).

Consistent with previous studies using different populations, we have demonstrated that age and schooling significantly affected scores on the MMSE, with the level of education having a far greater influence on test scores than age. This finding is supported by Ansari et al (Ansari et al., 2010) and Seyedian et al (Seyedian et al., 2008). In a study about the impact of sociodemographic variables on the MMSE performance of elder Australians, the regression models showed that older age, educational level, language, occupation and gender made significant and unique contributions to performance on the MMSE (Anderson et al., 2007). Lenart reported that low education level is considered a risk factor for cognitive decline at advanced ages (Lenardt, Michel, Wachholz, Borghi, & Seima, 2009). Similar to the above studies, age and education, but not gender, were found to significantly affect scores on the Community Screening Interview for dementia (CSI-D) in both rural and urban Indian sites (Sosa et al., 2009). Gender did not significantly affect scores in this study. This finding is supported by Hänninen et al (Hänninen, Hallikainen, Tuomainen, Vanhanen, & Soininen, 2002).

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Conflict Of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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