

# Correlation between the Mini Mental State Examination-Korean version and the Measurement of Quality of the Environment in the institutionalized elderly

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**Abstract.** [Purpose] This study aimed to investigate the correlation between the cognitive level of the elderly and their attitude towards the living environment. [Subjects and Methods] A total of 80 elderly people hospitalized in a nursing home in K city, South Korea, participated in this study. Pearson correlation analysis was used to test the relationships between scores on the Mini Mental State Examination-Korean Version and Measurement of Quality of the Environment (facilitators and obstacles). [Results] A positive and moderately strong correlation ( $r = 0.462$ ) was found between scores on the Mini Mental State Examination and the Measurement of Quality of the Environment (obstacle). [Conclusion] In a nursing home, patients with relatively higher cognitive levels can perceive more obstacles in the surrounding environment.

**Key words:** Dementia, Nursing home, Geriatric psychiatry

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## INTRODUCTION

Cognitive levels greatly affect our daily life. Brain disorders such as dementia change a person's personality and behavior and cause a continuous loss of intellectual and emotional functions. Since the risk of brain disorders are greater in older as compared with young adults, the chances of limitations in the former's daily life also increase<sup>1, 2)</sup>.

As elderly adults cannot perform daily activities independently, they may be taken care of in an institution such as a nursing home when their cognitive ability declines beyond a certain level. Advances in medical technology have increased the average life span and consequently the number of elderly adults worldwide<sup>3)</sup>. This in turn is causing a rise in the number of individuals with dementia. The number of care facilities for the elderly is increasing in countries with a large elderly population. The service at each care facility may be at a different level, but it is not surprising that these facilities pay more attention to caring services and safety than normal homes do because they serve institutionalized

elderly adults who are incapable of living independently<sup>4)</sup>. However, the elderly's attitude towards the same living environment may vary according to individual cognitive level. This study investigated the correlation between the cognitive levels of the elderly and their attitude towards the living environment.

## SUBJECTS AND METHODS

This study was conducted with 80 elderly people who were institutionalized in a nursing home in K city. The selection criteria for the subjects were as follows: at least 65 years of age and having no disease that might affect the results of the test. Those who had visual impairments, hearing damage, or nervous system or vestibular organ problems or were unable to understand the nature of the study were excluded. The elderly who were able to perform daily activities independently were selected. All subjects understood the purpose of this study and provided written informed consent prior to participation in the study in accordance with the ethical standards of the Declaration of Helsinki.

The average age, height, and weight of the subjects were  $79.9 \pm 8.5$  years,  $154.3 \pm 9.4$  cm, and  $56.3 \pm 15.1$  kg, respectively. The Mini Mental State Examination-Korean Version (MMSE-K) was used to evaluate their cognitive ability. The Measurement of Quality of the Environment (MQE) scale was administered to evaluate subjects' attitude towards their surrounding environment.

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The MQE assesses whether environmental factors act as a facilitator or as an obstacle for a person's daily activities. Characteristics of the environment are scored on a seven-point scale from facilitator (0 to +3) to obstacle (0 to -3)<sup>5)</sup>. This study scored facilitators and obstacles separately. All data are presented as mean  $\pm$  standard deviation. SPSS for Windows (version 20.0) was used to analyze the data. Pearson correlation analysis was used to examine the correlation between the MMSE-K and the MQE (facilitator and obstacle). The significance threshold was 0.05.

## RESULTS

A positive and moderately strong correlation ( $r = 0.462$ ;  $p < 0.05$ ) was found between the MMSE and the MQE (obstacle) (Table 1).

## DISCUSSION

This study administered the MMSE and the MQE to a sample of 80 elderly people in a nursing home and investigated the correlation between the MMSE and the MQE (facilitator and obstacle). A positive and moderately strong correlation was found between the MMSE and the MQE (barrier). In other words, a higher MMSE score was associated with increased MQE (obstacle) score.

Previous studies have shown that the life satisfaction of the elderly changes when they experience cognitive decline, such as in dementia<sup>6, 7)</sup>. Clare et al. revealed that moderate to severe dementia caused feelings of uncertainty, loneliness, helplessness, or pain and decreased life satisfaction<sup>7)</sup>. However, the present study obtained contradictory results: the elderly who needed care in a nursing home were stressed, shocked, or worried about moving into a facility<sup>8)</sup>. In addition, according to Onishi et al., maladjustment to the new environment in newly hospitalized elderly people affected their life satisfaction<sup>6)</sup>. A possible explanation for this finding is that the sample of newly institutionalized patients may have had higher levels of consciousness because of the relatively low rate of conversion to dementia, whereas the present institutionalized sample had already progressed to dementia. Therefore, in addition to their denial of reality, the fact that they were hospitalized and their inability to adapt to the new environment affected the results. In conclusion, in a

**Table 1.** Correlation between the MMSE and MQE (Obstacle and Facilitator)

		MQE	
		Obstacle	Facilitator
MMSE	17.3 $\pm$ 5.3	5.1 $\pm$ 5.9	22.2 $\pm$ 9.9
		0.462*	0.223

Mean $\pm$ SD, score, \* $p < 0.05$

nursing home, patients with relatively higher cognitive levels perceive more obstacles in the surrounding environment. Therefore, nursing homes should implement measures to promote patients' adjustment to the new environment. After the adjustment period, facilities should provide patients with leisure activities or pastimes to increase their life satisfaction rather than leaving them to merely rest<sup>9)</sup>.

A limitation of this study is that correlations between the MQE scores and duration of hospitalization were not calculated. This should be investigated through follow-up testing.

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