ANALYSIS OF COGNITIVE ABILITY AND DEPRESSION SCREENING AMONG ELDERLY PEOPLE AND ITS RELATIONSHIP WITH A HISTORY OF FALLS

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ABSTRACT

Aging is a continuous process of natural changes that often culminate in functional decline. Among the factors that can lead to a reduction in quality of life are falls. There are several risk factors that predispose the occurrence of these accidents, including reduced cognitive ability and depression, both of which can act as causes and consequences. Therefore, it is essential to assess these variables. In this sense, the Mine Mental State Examination (MEEM) and the Geriatric Depression Scale (EDG) were used to assess 120 elderly people from an Open University for the Elderly (UNIAPI), as well as to correlate their data with their history of falls in the last year. In the MEEM, the average overall score was 25 points. However, when checking the educational level of the elderly who reported a fall in the last year, it was found that the majority had incomplete high school education (41.7%) and achieved the expected score on the test, not indicating a depressive disorder. In the EDG, of those who suffered accidents due to falls, only 20% had a score equal to or greater than 6 points, which constitutes mild depression. Therefore, it is not possible to establish a direct relationship between cognitive ability and risk of depression with accidents due to falls.

Keywords: Falls; Cognition; Depression; Aging.

INTRODUCTION

Aging is a phenomenon that affects all human beings and is characterized as a dynamic, progressive, and irreversible process. This process often affects various areas of an individual's life, including social, economic, family, and cultural aspects. If there are no adjustments to lifestyle, these changes can lead to a reduction in quality of life and leave individuals more susceptible to illness (Rocha, 2018).

Among the factors that can lead to a reduction in overall well-being are accidents due to falls. They cause a decrease in the quality of life of individuals, being more significant in the psychological domain (Paiva, Lima, Barros, & 2021). In addition to the individuals themselves, other third parties are also affected by this complication. According to Lopes (2010), the family or caregiver responsible for the elderly may end

up having to assist in activities that were not previously necessary and, in more extreme situations, the elderly person may become totally dependent. Thus, it is evident that falls have repercussions in several areas.

In this sense, one of the important conditions that affects the functionality of individuals and predisposes them to falls is cognitive ability. According to Cruz *et al.* (2015), in senescence there is impairment of the neurotransmitter system and cerebral hypotrophy, mainly in the frontal and temporal lobes, responsible for cognitive functions, in addition to the limbic system. These factors make it common to observe impairments in cognitive function among the elderly.

The repercussions of these changes are diverse and directly influence the increased likelihood of falls. This is because the cognitive domains affected are those related to motor planning, dual-task attention, and responses to environmental circumstances. Thus, those with cognitive impairment have gait changes, such as slowing, mobility deficits, behavioral changes, and shorter reaction times to imbalance, predisposing them to falls (Cruz *et al.*, 2015).

Another factor that affects and is affected by fall accidents is depression. According to Prata (2011), this disorder directly influences the occurrence of falls, since in this condition individuals become indifferent to their environment, their attention level is impaired, their stride length is reduced, their energy decreases, their self-confidence is reduced, and they become reclusive and inactive. In addition, many use psychotropic drugs as treatment, which can generate the symptoms already reported. It is also important to note that the occurrence of these accidents can further accentuate the patient's depressive symptoms, since their self-confidence, self-esteem, and often physical capacity are compromised, thus amplifying the symptoms of the pathology.

Therefore, considering the above and understanding the numerous consequences that falls can cause, it is important to assess cognitive ability and screen for depression among the elderly and correlate the level of cogniti and depression with the history of falls, in order to reduce their consequences and ensure quality of life for the elderly.

METHODOLOGY

The elderly participants at UniAPI underwent an interview in which they answered three standardized questionnaires. The first questionnaire included questions to identify their history of falls. The second used the Mini Mental State Examination (MMSE) to screen for cognitive function. The third questionnaire used the Geriatric Depression Scale (GDS) to screen for depression in older adults.

All data obtained were tabulated in spreadsheets using Excel, where they will be classified. For the MEEM, according to Duque *et al.,* it is important to take into account the patient's level of education. Thus, people with 11 years of schooling are considered to have impaired cognitive function when their score is equal to or less than 27; in a person with 1 to 11 years of schooling, cognition is impaired when equal to or less than 22 points; and in an illiterate person, when equal to or less than 15 points. For GDE, the reference values proposed by Sheikh *et al.* (1986) were used, in which 0 to 5 points is considered normal, 6 to 10 points as mild depression, and 11 to 15 points as severe depression.

Next, the data were related to the history of falls reported by the participants, and the relationship between the data was studied. This study complies with Resolution 466/12 of the National Health Council and has been approved by the Ethics and Research Committee (CEP) of UniEVANGÉLICA, through opinion no. 1,583,515.

RESULTS

A total of 120 elderly individuals of both sexes participated in the study, of whom 91.6% were women and 8.3% were men. The average age of the group was 71 years, and most of them had incomplete elementary education (38.3%), followed by complete elementary education (25%). Regarding the history of falls in the last year, 40% of the sample confirmed an episode of falling in the last year (Table 1).

Table 1. Sociodemographic profile and history of falls in the sample of home care patients participating in the UniAPI project

VARIABLES		N	% OF TOTAL
Average age (years)		7	
Gender	Women	110	91.67
	Men	10	8.33
Education	Illiterate	1	0.83
	Incomplete elementary education	4	38.33
	Complete elementary education	30	25

	High school education	24	20
	Higher education	19	15.83
Was there a decrease in the last year?	Yes	48	40
	No	72	60

Source: Author, 2024.

With regard to MEEM, the average score of the 120 participants was 25 points; however, the scores need to be corrected according to educational level in order to classify whether or not there is cognitive impairment. Table 2 shows the expected results and the average test score according to educational level, with those below the expected score classified as cognitive impairment. It can be observed that only individuals with complete high school education obtained scores lower than expected and were classified as having cognitive impairment.

When compared to the history of falls, the average MEEM score of those who fell was 25 points, of which 68% had a score lower than 27 points. When checking the educational level of these elderly individuals who reported falls in the last year, it is evident that the majority have incomplete high school education (41.7%) and achieved the expected score on the MEEM.

Table 2. Relationship between educational level and MEEM score.

EDUCATION	N	EXPECTED MEEM	AVERAGE MEEM OBTAINED
Illiterate	1	Greater than 15	2
Incomplete elementary education	46	Greater than 22	24
Complete elementary education	30	Greater than 22	25
High school education	24	Greater than 27	26
Higher education	19	Greater than 27	27

Source: Author, 2024.

In the EDG, the average score obtained from the sample was 3 points, which is characterized by the probable absence of depressive disorder. However, of those who suffered accidents due to falls, 20% had a score equal to or greater than 6, which constitutes mild depression.

Finally, when comparing the three variables, MEEM, EDG, and falls, it was observed that in the group that reported a fall in the last year, most participants had incomplete elementary education, thus achieving the expected score on the MEEM, which does not indicate cognitive impairment. Of these participants who reported falls

and had incomplete primary education or were un ted, only 25% had a score equal to or greater than 6, which constitutes mild depression.

CONCLUSION

The MEEM instrument was used to assess the cognitive ability of the elderly at UNIAPI, which showed that the group that fell the most, those with incomplete elementary education, achieved the expected score on the test, and the fall could not be related to cognitive impairment. The EDG was used to screen for depression, which showed that only 20% of the elderly who fell in the last year had a score equal to or greater than 6, which constitutes mild depression. When comparing the three variables, it is not possible to directly associate cognition with falls, nor depression with the cause of falls, nor cognition with depressive disorder.

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