

Cognitive assesment in elderly at social rehabilitation Rumoh Seujahtra Geunaseh Sayang Banda Aceh

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Abstract. Health problems are often occur in the elderly is impaired cognitive function. The rapid examination and practical, high value is the examination of the Mini Mental State Examination (MMSE) and Clock Drawing Test (CDT). This study to screening cognitive function in elderly. These checks are done by giving series of commands at someone and assess their accuracy. The descriptive observational study with cross-sectional method, was conducted in September 30th 2019 held at the Social Rehabilitation Rumoh Seujahtra Geunaseh Sayang Banda Aceh. From the research gained 25 people who met the inclusion and exclusion criteria consisted of 11 men and 14 women. The results of examination of MMSE in the Social Rehabilitation Rumoh Seujahtra Geunaseh Sayang Banda Aceh most normal outcome of cognitive function 76%, 16% probable cognitive impairment and 8% definitive cognitive impairment in elderly. The results of examination of CDT in the Social Rehabilitation Rumoh Seujahtra Geunaseh Sayang Banda Aceh most normal outcome of executive function 76% and 16% impairment of executive function in elderly. The results of examination of cognitive function in the Social Rehabilitation Rumoh Seujahtra Geunaseh Sayang Banda Aceh most normal outcome in elderly.

Key words: elderly, cognitive assesment, MMSE, CDT

Introduction

The rapid progress in the field of health and medicine is currently causing an increase in life expectancy. The consequence of an increase in life expectancy is an increase in the number of the elderly population.¹ A person is said to be elderly when he or she reaches 60 years and over, based on Law Number 13 of 1998. The increase of the elderly population will cause various social, economic, and health problems. Cognitive disorders are one of the health problems that can affect the quality of life in the elderly. Cognitive disorders are often misinterpreted as part of the aging process so they are often overlooked.²⁻³ Decreased cognitive function can begin from the mildest form of forgetfulness. Easy-to-forget complaints can develop from Mild Cognitive Impairment (MCI) to Dementia.⁴ Dementia itself is defined as severe and progressive intellectual impairment that interferes with one's social functioning, work, and daily activities.⁵

The increase in the incidence of cognitive impairment in the elderly and the magnitude of the impact caused the writer to make an assessment of cognitive function in the elderly. The purpose of this study is to screen cognitive functions in the elderly at Rumoh Seujahtra Geunaseh Sayang Banda Aceh.

Subject and method

This study is a descriptive observational with the design of cross-sectional. The study was done on September 30 2019 in Rumoh Seujahtra Geunaseh Sayang Social Rehabilitation Banda Aceh. Research subjects were 28 elderly people living in Rumoh Seujahtra Geunaseh Sayang Social Rehabilitation Banda Aceh, and the method of selecting research subjects was total sampling. Inclusion criteria were subjects aged ≥ 60 years, willing to take part in research, and able to communicate well. The variables studied were sex, age and education, MMSE score and CDT score.

Cognitive function was assessed using MMSE (Mini Mental Examination State) questionnaire and CDT (Clock Drawing Test). MMSE scores 24 - 30 are interpreted as normal, 17-23 probable cognitive impairment, 0-16 definite cognitive impairment. While on CDT, a value of 4 is normal and a value of <4 is considered abnormal. The data obtained was then analyzed and the data was displayed in tabular and graphical form.

Results

It was obtained data on the total number of subjects in this study in total of 25 people who met the inclusion and exclusion criteria. Subjects consisted of 14 women (56%) and 11 men (44%). Most subjects were in the age group 60-70 years (12 people; 48%), at least from the age group > 80 years

(2 subjects; 8%). Generally the subject was in the elementary education group (14 people; 56%), while the lowest was in Bachelor group, namely 1 person

(4%). The distribution of demographic characteristics is shown in Table 1.

Table 1. Characteristics of Research Subjects

Variable	Classification	Frequency (n)	Percentage (%)
Age	60 - 70	12	48
	70 - 80	11	44
	>80	2	8
Sex	Female	14	56
	Male	11	44%
Education	Elementary	14	56
	Middle School	2	8
	High School	6	24
	Diploma	2	8
	Bachelor	1	4

Based on MMSE scores, the highest scores were in the normal cognitive function group, namely 19 subjects (76%). While from the CDT score, the highest score was in the normal group of 13 subjects (52%). The following is the cognitive domain description of MMSE and CDT examination, as shown in table 2.

Table 2. Assessment of Cognitive Function

Variable	Classification	Frequency (n)	Percentage (%)
MMSE	0-16 (definite cognitive impairment)	2	8
	17-23 (probable cognitive impairment)	4	16
	24-30 (normal)	19	76
CDT	< 4 (abnormal)	12	48
	4 (normal)	13	52

Based on table 3, from the MMSE score it was found that the best functioning cognitive domain was registration of 22 people (88%), while the domain that was most disturbed was the attention and calculation functions of 12 people (48%). From the CDT score, most of the subjects' executive functions were in the normal category (score 4), namely 13 people (52%).

Table 3. Cognitive Domains on MMSE and CDT

Variable	Domain	Frequency (n)	Percentage (%)
MMSE	Orientation	14	56
	Registration	22	88
	Attention and Calculation	12	48
	Recall	13	52
	Language	15	60
CDT	Executive	13	52

Here is a table of subject characteristics based on the assessment of cognitive functions, as shown in table 4.

Table 4. Characteristics of Subjects with MMSE and CDT

Variable	MMSE			CDT	
	Normal (24-30) n (%)	Probable (17-23) n (%)	Definite (0-16) n (%)	< 4 n (%)	4 n (%)
Age					
60-70	10 (83,3)	1 (4)	1 (4)	6 (50)	6 (50)
70-80	7 (63,6)	3 (27,4)	1 (9)	4 (36,4)	7 (63,6)
>80	1 (50)	0	1 (50)	2 (100)	0
Sex					
Male	8 (72,7)	3 (27,3)	0	5 (45,5)	6 (54,5)
Female	11 (78,6)	1 (7,1)	2 (14,3)	7 (50)	7 (50)

Male					
60-70	5 (45,5)	1 (9)	0	3 (27,3)	3 (27,3)
70-80	2 (18,2)	2 (18,2)	0	1 (9)	3 (27,3)
>80	1 (9)	0	0	1 (9)	0
Female					
60-70	5 (35,8)	0	1 (7,1)	3 (21,5)	3 (21,5)
70-80	6 (42,9)	1 (7,1)	0	3 (21,5)	4 (28,6)
>80	0	0	1 (7,1)	1 (7,1)	0

Based on table 4, it was obtained from MMSE that most subjects had normal cognitive function (76%) with the largest proportion of the age group 60-70 years (10 people; 83.3%) and female sex (11 people; 78.6%). Subjects who received an MMSE score of 0-16 (definite cognitive impairment) came from the group of 2 women. From the CDT score, it was found that the majority of subjects had normal functions (score 4), namely 13 people (52%) with the largest proportion of the 70-80 years age group (7 people; 63.6%) and female sex (7 people; 50%). Subjects who received a CDT score <4, the highest proportion came from the female group (7 people; 50%).

Discussion

Cognitive function is the main human capital in carrying out daily activities. This function is divided into five large domains, namely attention, memory, visuospatial, language and executive functions that are interconnected.⁶ Cognitive is needed in terms of effective communication, including processing and integrating sensory information and responding properly.¹ Decreased and disrupted functions of cognitive can occur due to damage to brain structure and function due to aging, risk factors such as hypertension, diabetes, dyslipidaemia, nutritional disorders, cerebral vascular disease or autoimmune diseases.⁶

The results of this study showed that the majority of subjects were 60-70 years old (12 people, 48%), female (14 people, 56%) and elementary education level (14 people, 56%). The results of this study are in line with the research conducted by Hesti et al namely the minimum limit of 60 years and the research of Ramadian et al (2013) which showed that most subjects are female (93.4%), and come from the elementary education group (72.4%).⁷ Low education level is very much related to the low quality of life of the elderly.^{2,8}

From the results of examinations with the MMSE questionnaire that is a questionnaire to assess cognitive function, it was found that most of the subjects had normal cognitive function (19 subjects, 76%), followed by probable cognitive impairment (4 subjects, 16%) and then defined cognitive impairment (2 subjects, 8%). These results are in line with previous research by Ramadian et al (2013), found that most subjects had normal

cognitive function (72.1%), followed by probable cognitive impairment (24.6%) then definite cognitive impairment (3.3%). Cognitive function is greatly influenced by age.² When viewed from the domain of cognitive function, the domain of MMSE examination results that is most disturbed is attention and calculation (12 subjects, 48%), while the domain with the best function is registration (22 subjects, 88%).

Mini Mental State Examination (MMSE) is an examination method to assess cognitive function that is widely used for clinical and research. This test includes checking orientation, registration, attention and calculations, recall and language. Patients are assessed quantitatively on these functions, with a perfect score of 30. MMSE scores are influenced by age and education level, must be adjusted to the level of education completed by the subject.⁴ MMSE is a mental status check that is short, easy to apply, and has been proven as a reliable and valid instrument for the detection and tracking of neurodegenerative cognitive disorders.¹⁰

From the results of the examination of cognitive function with CDT, it was found that the majority of subjects experienced normal function (score 4), namely in 13 subjects (52%). CDT examination requires understanding, visuospatial, reconstruction, concentration, numerical knowledge, visual memory and executive functions. This examination is able to test cognitive aspects widely, subjects were asked to draw following orders or imitate existing images. CDT is generally easily accepted by subjects because it is not too long and is easily accepted.^{4,11}

Conclusion

The cognitive function in the majority of the elderly in Rumoh Seujahtra Geunaseh Sayang Social Rehabilitation Banda Aceh is normal. The most disturbed cognitive domains are attention and calculation. Declining executive function is generally found in the elderly (> 80 years). Decreased cognitive function in the elderly is more common in women than in men.

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