

Cognitive Impairment Among Elderly Patients Attending Psychiatric Units in Baghdad City

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ABSTRACT

Background: cognitive functions affected by aging and biopsychosocial factors like physical illnesses, medication, various mental illnesses, socioeconomic and environmental factors.

Objective: This study aims to explore the prevalence of cognitive impairment among elderly patients who attend psychiatric units and study the association with some of socio-demographic variables.

Method: A sample of 135 elderly patients were chosen from the psychiatric units in Baghdad city during the period extended from the first of March to the 30th of September 2019 for this cross-sectional study. Some of socio-demographic variables, ICD 10 diagnoses and application of ACEIII score were applied.

Results: cognitive impairment among elderly patients aged from 60s to 80s was 49.6%, and there was significant associations between cognitive impairment and aging, level of education, and mental illness (p less than 0.05), while nearly significant association family history of mental illness was observed with cognitive impairment.

Conclusion: this study revealed that the cognitive impairment among old age patient attending psychiatric units is high, and older age person with mental illness and lower education is prone for cognitive impairment.

Keywords: Cognitive impairment, elderly patients, psychiatric units, ICD 10, Baghdad city

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1. INTRODUCTION

The mental processes involved in perception, attention, memory, language, problem solving, reasoning, and decision making (1). Cognition encompasses a wide array of essentially imperceptible processes carried out by the human brain. Cognition encompasses a wide range of mental processes, including perception, thinking, knowledge acquisition, reasoning, memory, analysis, planning, attention, idea generation and synthesis, creativity, judgment, awareness, and insight (2).

Old Age Definition:

The majority of developed countries have adopted the chronological age of 65 years as the official definition of elderly individuals. However, the United Nations has officially recognized that the term "60+" is used to describe old age. (Nevertheless, different nations and communities define the beginning of old age as ranging from the age of 45 to 70) (3). The population of elderly individuals has increased threefold in the past 50 years and is projected to increase by more than three times in the next 50 years. By 2050, the global population of those aged 60 and beyond is estimated to reach nearly 2 billion (4).

Cognitive Changes with Aging

The global population is undergoing accelerated aging. From 2015 to 2050, the percentage of the global population aged 60 and beyond is projected to almost double, increasing from 12% to 22% (5). During the process of normal aging, various cognitive abilities such as general skills and knowledge, procedural memory (related to motor skills), implicit memory (automatic memory), memory retention, fund of knowledge, vocabulary, attention, object perception, and the ability to comprehend abstractions like similarities, are often maintained well into advanced old age. However, other cognitive capacities, including as problem solving, processing speed, episodic memory, rate of learning, memory retrieval, verbal fluency, three-dimensional perception, and most elements of executive functioning, typically show a decrease (6). It is important to distinguish between normal aging and illness. Certain physiological processes diminish with advancing age, nevertheless, the occurrence of health issues is not unavoidable. The majority of age-related illnesses, such as heart disease, cancer, and dementia, are caused by pathological mechanisms rather than natural aging (7). The

process of aging and the related disorders (such as metabolic and vascular diseases) might have an impact on the manifestation and treatment of mental illnesses. However, older persons have typically been excluded from psychiatric epidemiological investigations. The prevailing belief that psychiatric illnesses are seldom among older folks is just incorrect (6,7).

2. METHODOLOGY

Setting

The study was done at psychiatric units in Baghdad teaching hospital ,AL-Rashad training hospital & Ibn Rushd psychiatric hospital in Baghdad city.

Baghdad teaching hospital is part of Baghdad medical complex that consider the main training facility to all medical specialities in Iraq, this hospital had inpatient and outpatient clinics for psychiatric patients.

Al-Rashad Hospital is Iraq's only facility providing long-term care for patients suffering from chronic schizophrenia and other severe mental disorders.

Ibn Rushd psychiatric hospital located in karada has inpatient and outpatient clinics for psychiatric patients. also specialized outpatient clinic for old age patients.

Study design

The descriptive cross-sectional study was chosen as the study design to achieve the objective of the study.

The study was done from the first of march to 30th of September in 2019 with weekly visit to Ibn rushd older adult unit.

Each hospital was visited approximately for two month duration, and each patient was examined for (30-40 min.), for application of tools and variables for this study.

Ethical Consideration

The approval of Scientific Committee of Iraqi Board for Psychiatry was taken. Verbal consenting of old age patients was taken after explanation of the aims of the study and giving them ensuring about the confidentiality and the anonymity of the collected data.

They had been told that the data will be used only for the study.

Sampling

Only old age patients with age ≥ 60 year attended or admitted to psychiatric units were included in the study.

Old age patients who seek care interviewed by the psychiatrist then they met the researcher.

A total number of 200 old age patient was collected, 65 of the patients were excluded.

elderly patients with severe sensory impairments and illiterate were excluded.

Instruments and Tools

The socio-demographic data were collected including: gender, age, marital status, socioeconomic status, and level of education, smoking history (nicotine dependence). (appendix A).

Socio economic status is adopted according to checklist for socioeconomic level assessment in Iraq that applied in previous researches (appendix B).

ICD 10 diagnosis of mental illness for each patient was confirmed by attending psychiatrist and ICD 10 criteria (8)

Before starting to use Addenbrooke's Cognitive Examination III (ACE III),

a pilot study was done to assess the applicability and understandability of the tool to target people before conducting the main study.

application of Addenbrooke's Cognitive Examination III (ACE III) Arabic version that adopted from Egyptian study (9) and old age psychiatry workshop in April 2018 (10)

The Addenbrooke's Cognitive Examination III (ACE III) is utilized to assess cognitive impairment. The original Addenbrooke's Cognitive Examination (ACE) was created by Professor John Hodges at the Medical Research Council Cognition and Brain Sciences Unit in Cambridge in the late 1990s. After it gained widespread popularity, the Addenbrooke's Cognitive Examination-Revised (ACE-R) was developed to enhance its cross-cultural applicability and increase its sensitivity. (11)

The ACE-III was developed as a replacement for the MMSE components in the ACE and ACE-R, due to the MMSE no longer being freely accessible in 2001. As a result, subsequent suggestions have offered substitutes for the MMSE, and the ACE-III has been endorsed and advised by the Department of Health and the Alzheimer's Society in the UK. (12)

The ACE-III's total score is determined by a maximum score of 100, where higher values indicate superior cognitive performance. The ACE-III offers clinicians a rapid and concise assessment of a patient's overall cognitive abilities, including specific measures for each evaluated domain. This tool aids in providing a differential diagnosis and enables the tracking of cognitive decline over time. The MMSE is not sensitive enough to detect fronto-temporal dementias, although the ACE-III has shown evidence of being able to do so accurately for detecting fronto-temporal dementia. An important limitation of the MMSE is the lack of sensitivity for the early stages of dementia. The ACE-III more efficiently detects everyday functional impairments compared with both the MMSE and MoCA. (12)

It takes 15–20 min to administer and score. It examines multiple domains including Attention(18points), Memory(26points), Verbal fluency(14points), Language(26points), Visuospatial abilities(16points) The cutoff for cognitive impairment is 82–88/100 where 88 to 82 indicate inconclusive results that include MCI mild cognitive impairment that need more follow up. The ACE-III shows high sensitivity and specificity at cut-offs: 88 (sensitivity = 1.0; specificity = 0.96) and 82 (sensitivity = 0.93; specificity = 1.0). Internal reliability of the ACE-III, measured by Cronbach's α coefficient, was 0.88. It is available freely. (4,11)

3. RESULTS

The study was conducted on 135 elderly patients whose average age ranges between 60 to 80 years, including 85 men and 50 women and Mean \pm Standard Deviation was 67.8 \pm 5.7. Among the studied group, 31% of patients at primary level of education, 23% at intermediate, 25.2% at secondary, 11.1% at institute and 9.6% at collage level of education. Married patients were 58.5% while 18.5% were singles and 22.9% were divorced or widowed. Patients with family history of mental illness were 35 (25.9 %). Low Socio-economic status (SE) reported in 24.%, faie SE in 78 (57.8%) and only 17.8% of good SE status. Smokers (nicotine dependet) were 85 (63%) patients, (**Table 1**). The distribution of ICD 10 diagnoses of the patients showed that 45.9% have schizophrenia, 23% major depression and 12.6% have dementia, other diagnoses; Bipolar disorder, General anxiety disorder, Alcohol dependence and OCD, were also reported in lower proportions of 6.7%, 4.4%, 3.7%, 2.2% and 1.5%, respectively, (**Table 2**). According to the threshold cutoff value of the ACEIII scale, 67 participants (49.7%) showed cognitive impairment (ACEIII score <82

points), , 24 (17.8%) were inconclusive (ACEIII score : 82-88) which may indicate MCI and needed further follow up and the remaining 44 participants (32.6%) were normal ((ACEIII score \geq 89), (**Table 3**). Age and the level of education were a significant factors in cognitive impairment for older patients; p-value was 0.011 and 0.003, respectively. Other variables including gender, marital status, smoking, SE status and family history of mental illness factors were not significantly associated with cognitive impairment (P. value $>$ 0.05). However, the P. value for the association with SE and family history of mental illness was close to the significance level where P. value was 0.091 and 0.060, respectively, (**Table 4**). Group items of ICD 10 diagnoses of mental illness such as Schizophrenia and dementia have a significant P. value of 0.004, (**Table 5**)

Table 1. Demographic of Study Population

Variable	No	%	
Age (years)	60 - 64	31	23.0
	65 - 69	63	46.7
	70 - 74	26	19.3
	75 - 79	9	6.7
	\geq 80years	6	4.4
Gender	Male	85	63.0
	Female	50	37.0
Level of education	Primary	42	31.1
	Intermediate	31	23.0
	Secondary	34	25.2
	Institute	15	11.1
	College	13	9.6
Marital status	Single	25	18.5
	Married	79	58.5
	Divorced/ Widowed	31	22.9
Positive family history of mental illness	35	25.9	
Socio-economic status	Good	24	17.8
	Fair	78	57.8
	Poor	33	24.4
Smoking (nicotine dependence)	50	37.0	

Table 2. Distribution of the ICD 10 diagnoses of mental illnesses among the studied group

ICD 10 diagnoses	No.	%
Schizophrenia	62	45.9
Major depression	31	23.0
Dementia	17	12.6
Bipolar disorder	9	6.7
General anxiety disorder	6	4.4
Alcohol dependence	5	3.7
OCD	3	2.2
Others(panic disorder, adjustment disorder)	2	1.5

Table 3. ACEIII Scale

ACEIII Scale	No	%
Cognitive impairment (< 82)	67	49.6
Inconclusive (82 - 88)	24	17.8
Normal (\geq 89)	44	32.6
Total	135	100

Table 4. Cross-tabulation for the association between ACEIII Scale and demographic characteristics

Variable		Score						P. value
		Cognitive impairment (<82)		Inconclusive (82-88)		Normal (≥89)		
		No	%	No	%	No	%	
Age (years)	60 - 64	11	35.5	6	19.4	14	45.2	0.011*
	65 - 69	25	39.7	16	25.4	22	34.9	
	70 - 74	18	69.2	2	7.7	6	23.1	
	75 - 79	7	77.8	-	-	2	22.2	
	≥ 80	6	100	-	-	-	-	
Gender	Male	38	44.7	14	16.5	33	38.8	0.13
	Female	29	58	10	20	11	22	
Level of education	Primary	28	66.7	6	14.3	8	19	0.003*
	Intermediate	18	58.1	5	16.1	8	25.8	
	Secondary	12	35.3	11	32.4	11	32.4	
	Institute	5	33.3	2	13.3	8	53.3	
	College	4	30.8	-	-	9	69.2	
Marital status	Single	13	52	6	24	6	24	0.146
	Married	33	41.8	15	19	31	39.2	
	Divorced	4	50	2	25	2	25	
	Widowed	17	73.9	1	4.3	5	21.7	
Family history of mental illness	Yes	12	34.3	10	28.6	13	37.1	0.06
	No	55	55	14	14	31	31	
Socio-economic status	Good	9	37.5	3	12.5	12	50	0.091
	Fair	36	46.2	16	20.5	26	33.3	
	Poor	22	66.7	5	15.2	6	18.2	
Smoking (nicotine dependence)	Smoking	25	50	7	14	18	36	0.63
	No	42	49.4	17	20	26	30.6	

*Significant difference between proportions using Pearson Chi-square test at 0.05 level.

Table 5. Cross-tabulation for the association between ACEIII Scale and ICD 10 diagnoses of mental illnesses

ICD 10 diagnoses	ACEIII Score					
	Cognitive impairment (<82)		Inconclusive (82-88)		Normal (≥89)	
	No	%	No	%	No	%
Dementia	17	100	-	-	-	-
Major Depression	16	51.6	5	16.1	10	32.3
Bipolar disorder	4	44.4	2	22.2	3	33.3
Schizophrenia	27	43.5	14	22.6	21	33.9
Generalized Anxiety Disorder	2	33.3	2	33.3	2	33.3
OCD	-	-	1	33.3	2	66.7
Alcohol dependence	1	20	-	-	4	80
Others	-	-	-	-	2	100

*Significant difference, P. value = 0.004 (P<0.05)

4. DISCUSSION

This is an across-sectional study of the prevalence of cognitive impairment among old age patients at psychiatric units in Baghdad and aimed to find an association between cognitive impairment and with some of the sociodemographic variables. This study consider first study using ACEIII in Iraq. The result of the present study showed that (49.6%) (n=67) of subjects out of the total sample (135) of the old age patients presented in psychiatric facilities, have cognitive impairment. When comparing different studies, It was found that the prevalence rate of cognitive impairment in old age patients with mental illnesses was consistent with higher rates of cognitive impairment in elderlies, that was recorded by other studies that took place Cincinnati geropsychiatric outpatients USA using MMSE 1990 was (49%) (13). The prevalence rate of cognitive impairment of this study was lower than cognitive impairment rate in the community mental health setting in USA 60% (14) this discrepancy can be explained as different starting age , instruments, and smaller sample. Almost all arab community based studies have lower rate of cognitive impairment such as the study in Saudi

Arabia among Family Medicine Clinics that had prevalence rate of cognitive impairment of 45% (15) and other study in Arabic-speaking Hajj pilgrims that has rate (29.2%) of cognitive impairment, this can be explained by multifactorial perspectives such as probable absence of mental illnesses, physical profile, nature of sample and others (16). but there are other factors that increase the risk of developing cognitive impairment, especially for those who attend psychiatric units and this is what the study showed.:-

Regarding age, the majority of sample in this study in their sixties of age and cognitive impairment rate increase with aging ($p=0.011$), this finding is revealed in many studies (14, 17-19). So, aging is associated with biopsychosocial cognitive changes.

Regarding gender, there is no significant association between gender and cognitive impairment ($p=0.130$), and this contradicts with many studies that show female gender as a risk factor for cognitive impairment and this finding can be explained by sample number and setting (psychiatric units) (20). While the level of education, majority of the sample reach below institute level of education and this study exclude illiterate, the result shows that the association between level of education and cognitive impairment is significant ($p=0.003$), and this is consistent with other studies in USA 2007 (21) and in Egypt (22) this may indicate protective mechanism of education which provides more financial and psychosocial security and cognitive reserve factor (23). Regarding marital status of the patients, the result revealed that the association between cognitive impairment and marital status was insignificant with ($p=0.146$), that not consistent with other study in general population (24) although the prevalence rate of cognitive impairment among married patients was 41.8% which is lower from other single conditions, this can be explained according to smaller sample size. In regard to family history of mental illnesses, there was nearly significant associated with cognitive impairment ($p=0.060$), this finding can support the multifactorial etiology of cognitive impairment (25). Smoking and cognitive impairment have conflicting results in researches, one study among old age attending geriatric clubs in Cairo show insignificant association with cognitive impairment (26), other study including old age people in China show Smoking was closely related to cognitive impairment, (27) in present study the relation between cognitive impairment and smoking appears insignificant this is due to nature of sample, its size, habit, and culture. Socio-economic status had been related to cognitive

impairment such as the study of old age people in china community (28),in the present study the result showed insignificant association this could be explained by the diversity of collected population and varieties of socioeconomic status. It is worth to speak in this study that mental illnesses is significantly associated with cognitive impairment ($p=0.004$),with different prevalence rate among individual presentation, hence dementing (Dementia) disorders had most higher rate of cognitive impairment among cases with diagnosis of dementia, (29). Cognitive impairments presentations among mood disorder patients were also significant ,cognitive disorder among major depressive disorder cases was (51.6%), which is consistent with the finding in Philadelphia Geriatric Center (30). The study finding in bipolar disorder cognitive impairment rate was (44.4%),which is higher than in Taipei City Psychiatric Center (32.2%) (31) may be explained by different presentation of this illness. Cognitive impairments among schizophrenic elderly patients were significant (43.5%), a longitudinal Study of Geriatric Chronically. Hospitalized Patients with schizophrenia showed that Approximately 30% of the patients who had baseline scores in the less impaired range manifested a cognitive impairment (32), moreover other study revealed that it remains unclear whether dementia or cognitive change occurs at an increased rate later in the course of schizophrenia versus controls, (33) so , cognitive impairments among schizophrenic patients are common ,need more future exploration. Other rare presentation of cognitive impairment especially, among alcohol dependence may worth mention because the change epidemiology of substance in geriatric group, like the new trends in alcohol consumption among old age in USA (34) in this study cognitive impairment among alcohol dependence was (20.0%). while it is estimated, Between 50% and 80% of individuals with alcohol dependence persons experience mild to severe neurocognitive impairment (35). Regarding generalized anxiety disorder, in this study cognitive impairment was (33.3%). While, It is has been found that 45% of elderly people with generalized anxiety disorder, experience some degree of cognitive decline that may or may not meet criteria for dementia (36). Inconclusive results(17.8%)(N=24) of the patients, those patient located in-between patients with normal cognitive and those with cognitive impairment, according to alzheimer society and department of health(UK) (37) those patient need monitoring and further neuropsychological tests.

5. CONCLUSIONS

- This study revealed the hidden and serious problem among elderly patients at psychiatric units in Baghdad city with the higher prevalence of cognitive impairment among them.
- The cognitive functions in old people is influenced by mental illnesses, ageing , and level of education this study finds association between cognitive impairment and the aging, level of education, and mental illnesses, all were found to be risk indicators for cognitive impairment in various levels, while nearly association between family history of mental illnesses was observed.
- So, those older age person with mental illness and lower education is prone for cognitive impairment.
- This is the first time, ACE-III have been applied in Baghdad city.

Ethical Approval:

All ethical issues were approved by the author. Data collection and patients enrollment were in accordance with Declaration of Helsinki of World Medical Association , 2013 for the ethical principles of researches involving human. Signed informed consent was obtained from each participant and data were kept confidentially.

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