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RESEARCH ARTICLE

Quality of life in older adults with mild cognitive impairment

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ABSTRACT

Background: Mild cognitive impairment (MCI) is a common phenomenon which is noticeably common among the older individuals population. Progression of this disorder is known to increase risk of Alzheimer's disease and Dementia.

Objective: The objective of this study was to determine the association of quality of life and mild cognitive impairment in geriatric population.

Methods: The data was collected using Memory Symptom Assessment Scale-Short Form (MSAS-SF) and Quality of life- Alzheimer Disease (QOL-AD) during a time period of six months from 300 individuals aged between 55-85years. The data analysis of this study was done using SPSS 21 version. Spearman test values were calculated to obtain results.

Results: MSAD-SF and QOL-AD showed a significant decline of QOL in individuals with mild cognitive impairment. MSAS-SF and QOL-AD had the significant association with pain, lack of energy, difficulty sleeping, problems with urination, lack of appetite, dizziness, feeling sad, worrying, feeling irritable, memory, ability to do chores around the house, physical health, self as a whole and ability to do things for fun (p-value<0.05). Domains in both questionnaires indicated a decline in QOL with significant p-values of <0.05.

Conclusion: In conclusion, those who had higher impairment level had lower quality of life in multiple domains.

Key words: Aged, Cognitive dysfunctions, Geriatric population, Mild cognitive impairment, Quality of life

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Introduction:

Mild cognitive impairment (MCI) is a wide and non-specific spectrum of cognitive impairment short of dementia which causes difficulty in remembering, thinking, learning new things, and deciding choices that influences a person's activities of daily living with the ADLs maintained.(1) Progressing from mild to severe, it can lead to Alzheimer's disease (AD) in approximately 10%-15% cases.(2) Screening of the high risk patients by use of MRI is important for beginning appropriate treatment strategies and delaying onset of AD.(3) Risk factors for MCI include high cholesterol, hypertension, type 2 diabetes mellitus, older age and female gender.(1, 4-6)

Prevalence of mild cognitive impairment is 22.2% among older population in the US, with 14.71% among Chinese, 4.3% in India and 3.1% in Germany.(6) A cross-sectional study conducted in Saudi Arabia among 171 individuals concluded that the prevalence of MCI was 38.6%.(1) There is scarce information present on the prevalence of MCI in Pakistan but prevalence of dementia in South Asia is found to be approximately 1.9% suggesting that over 1.5 million population in the country is diagnosed with dementia.(7)

Neurophysiological conditions like MCI, dementia and Alzheimer's reduce a person's quality of life (QOL) as the disease progresses interfering with their behavior, personal life and psychology. In many cases improving the QOL of the patient is the main objective to make sure that pharmacological and psychosocial interventions are effective.(8) A recent study aimed to evaluate the neuropsychological characteristics, and current perspectives of MCI patients. They found that the patient's quality of life is affected in regard to depression, anxiety and apathy. Their results showed that there is high prevalence of MCI patients with at

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least one of these symptoms. Presence of these factors increase the progression of MCI to dementia.(9) A cross-sectional study which aimed to find the possible determinants of depression and MCI in people with type 2 diabetes reported that 30-85% of people who have MCI also have depression and this has an impact on the activities of daily living.(10)

The purpose of this research was to determine the aspects of the quality of life that were compromised in patients having cognitive impairment. This study will highlight the association of quality of life and mild cognitive in geriatric population allowing health care professionals to take in account all the aspects of an affected individual's life and treat them accordingly, thus enabling them to counsel the patients to improve their QOL.

Methods:

This descriptive cross-sectional comparative study was approved by the ethical review committee at Riphah International University (RIPHAH/RCRS/REC/Letter-00809). Informed consent was taken from all participants. The study was conducted in hospitals, clinics and old age homes of Islamabad and Rawalpindi namely; Tasneem Surgical Clinic, Azmat Rashid Hospital, Nijjat old age home, and Physio experts. The study was done for a duration of 6 months from January to June 2020 with a sample size of 300 people in age group of 55-85 years. Non-probability convenience sampling was used. Both genders and people with Montreal Cognitive Assessment score less than 26 were included in the study. Bed bound patient, comatose patient, those with severe visual and hearing problem or a chronic medical illness were excluded.

The Montreal Cognitive Assessment (MoCA) was used at first for the screening of mild cognitive dysfunction. Its assessment included various cognitive domains, such as attention and concentration, executive functions, memory, language, visuoconstructional skills, conceptual thinking, calculations, and orientation. The Memorial Symptom Assessment Scale (MSAS-SF) evaluate multiple domains of medical signs and symptoms that will predict beforehand the onset of a chronic or life-threatening disease. It consists of 27 variables. The subcategory includes 'no = score 0 and 'yes', 'if yes then, not at all distressed = score 1', 'if yes then, a little bit = score 2', 'if yes then, quite a bit = score 3' and 'if yes then, very much distressed = score 4'. It was used along with Quality of Life–Alzheimer's Disease questionnaire (QOL-AD) which evaluates a patient's medical, physical, social, personal and psychological aspects. It consists of 12 domains or variables such as physical health, energy, mood, living situation, memory, family, marriage, friends, self as a whole, ability to do chores around the house, ability to do things for fun, money and life as a whole. The subcategories include 'poor', 'fair', 'good', 'excellent' and 'not applicable.

The data was analyzed using SPSS version 21. For quantitative variables, mean and standard deviation were calculated and for qualitative variables, frequency and percentage were calculated. Correlation between mild cognitive impairment measured using MoCA and quality of life assessed using MSAS-SF and QOL-AD was found using spearman rank-order correlation.

Results:

A total data of 300 individuals between 55 and 85 years was collected after assessing the exclusion and inclusion criteria. Of 300 individuals, 155 (51.7%) were females and 145 (48.3%) were males. 282 (94%) of them were married and 18 (6%) were unmarried. 23.3% (70) of individuals with mild cognitive impairment scored 22 on MoCA scale. Table 1 and table 2 shows descriptive statistics of MSAS-SF and QOL-AD questionnaire. Spearman's rank-order correlation was used to determine correlation between mild cognitive impairment and quality of life (table 3).

Discussion:

This study investigated the association of mild cognitive impairment with quality of life in the geriatric population. In our study majority of the patients with mild cognitive impairment had their health domains affected mildly. Physical and psychological health of the patients were assessed by Memorial Symptom Assessment Scale – Short Form (MSAS-SF) while the quality of life was assessed using QOL-AD (Quality of life in Alzheimer's disease) questionnaire. The results had shown p value less than 0.005 for each domain which showed significant relationship of cognitive impairment with quality of life.

A previous research concluded that individuals diagnosed with MCI contributed to poor QOL. The current study also reported to have shown how QOL is negatively impacted in patients having mild cognitive impairment.(3)

A similar study aimed to find the association of physical fitness with functional capacity, cognitive function and quality of life among the aged individuals

Table 1: Descriptive statistics of MSAS-SF questionnaire

VARIABLES	No	If yes then, Not at all distressed	If yes then, A little bit distressed	If yes the, Quite a bit distressed	If yes then, Very much distressed
Difficulty concentrating	142(47.3%)	19(6.3%)	113(37.7%)	16(5.3%)	10(3.3%)
Pain	56(18.7%)	19(6.3%)	83(27.7%)	84(28.0%)	58(19.3%)
Lack of energy	43 (14.3%)	55(18.3%)	118 (39.3%)	70(23.3%)	14(4.7%)
Cough	177(59.0%)	21(7.0%)	60(20.0%)	32(10.0%)	10(3.3%)
Changes in skin	219(73.0%)	11(3.7%)	36(12.0%)	22(7.3%)	12(4.0%)
Dry mouth	197(65.7%)	23(7.7%)	48(16.0%)	23(7.7%)	9(3.0%)
Nausea	232(77.3%)	17(5.7%)	27(9.0%)	20(6.7%)	4(1.3%)
Feeling drowsy	185(61.7%)	46(15.3%)	48(16.0%)	21(7.0%)	0 (0%)
Numbness in hands and feet	175(58.3%)	16(5.3%)	61(20.3%)	34(11.3%)	14(4.7%)
Difficulty sleeping	99(33.0%)	9(3.0%)	84(28.0%)	57(19.0%)	51(17.0%)
Feeling bloated	164(54.7%)	28(9.3%)	70(23.3%)	33(11.0%)	5(1.7%)
Problems with urination	199(66.3%)	10(3.3%)	42(14.0%)	33(11.0%)	16(5.3%)
Vomiting	250(83.3%)	5(1.7 %)	32(10.7%)	7(2.3%)	6(2.0%)
Shortness of breath	231(67.7%)	14(4.1%)	56(16.4%)	35(10.3%)	2(0.6%)
Diarrhea	213(71.0%)	16(5.3%)	61(20.3%)	10(3.3%)	0 (0%)
Sweats	224(74.7%)	14(4.7%)	27(9.0%)	20(6.7%)	15(5.0%)
Mouth sores	224(74.7%)	14(4.7%)	27(9.0%)	20(6.7%)	15(5.0%)
Problems with sexual	277(92.3%)	5(1.7%)	12(4.0%)	1(0.3%)	5(1.7%)
Itching	240(80.0%)	17(5.7%)	40(13.3)	0 (0%)	0 (0%)
Lack of appetite	201(67.0%)	41(13.7%)	47(15.7%)	10(3.3%)	1(0.3%)
Dizziness	219(73.0%)	20(5.9%)	35(10.3%)	11(3.2%)	4(1.2%)
Difficulty swallowing	229(76.3%)	5(1.7%)	40(13.3%)	18(6.0%)	8(2.7%)
Change in the way food	219(73.0%)	16(5.3%)	42(14.0%)	18(6.0%)	5(1.7%)
Weight loss	205(68.3%)	33(11.0%)	43(14.3%)	17(5.7%)	2(0.7%)
Hair loss	193(64.3%)	29(9.7%)	47(15.7%)	25(8.3%)	6(2.0%)
Constipation	189(63.0%)	62.0%)	52(17.3%)	41(13.7%)	12(4.0%)
Swelling of arms and legs	192(64.0%)	21(7.0%)	51(17.0%)	29(9.7%)	7(2.3%)

Table 2 : Descriptive statistics of QOL-AD questionnaire

Variables	Rarely	Occasionally	Frequently	Almost
Feeling sad	113(37.7%)	138(46.0%)	41(13.7%)	8(2.7%)
Worrying	62(20.7%)	128(42.7%)	87(29.0%)	22(7.3%)
Feeling irritable	79(26.3%)	120(40.0%)	84(28.0%)	17(5.7%)
Feeling nervous	147(49.0%)	82(27.3%)	45(15.0%)	26(8.7%)

Table 3 : Correlation between mild cognitive impairment and quality of life.

Variables	R value	P value	Variables	R value	P value
Difficulty concentrating	-0.205	<0.001***	**Dizziness**	-0.27	<0.05*
Pain	-0.233	<0.05*	**Difficulty swallowing**	-0.015	0.790
Lack of energy	-0.171	<0.05*	**Change in the way food tastes**	-0.008	0.889
Cough	-0.065	0.25	**Weight loss**	-0.039	0.500
Changes in skin	-0.127	0.67	**Hair loss**	-0.035	0.550
Dry mouth	-0.042	0.46	**Constipation**	0.078	0.179
Nausea	0.026	0.65	**Swelling of arms and legs**	0.018	0.755
Feeling drowsy	-0.079	0.17	**Feeling sad**	-0.23	<0.05*
Numbness in hands and feet	-0.042	0.46	**Worrying**	0.39	<0.05*
Difficulty sleeping	-0.23	<0.05*	**Feeling irritable**	0.120	<0.05*
Feeling bloated	-0.44	0.443	**Feeling nervous**	-0.058	0.83
Problems with urination	-0.121	<0.05*	**Physical health**	0.222	<0.001***
Vomiting	0.002	0.974	**Energy**	0.062	0.287
Shortness of breath	-0.069	0.236	**Mood**	0.011	0.845
Diarrhea	-0.032	0.87	**Living situation**	0.018	0.176
Sweats	-0.049	0.401	**Memory**	0.118	<0.05*
Mouth sores	-0.041	0.480	**Family**	0.115	0.92
Problems with sexual interest and activity	0.063	0.273	**Marriage**	-0.019	0.745
Itching	0.021	0.723	**Friends**	0.018	0.65
Lack of appetite	-0.36	<0.05*	**Self as a whole**	0.169	<0.001***

*** = highly statistically significant *= statistically significant

using Mini-Mental State Examination (MMSE) scale to assess the cognitive impairment. Their results suggested that physical fitness impacts QOL and cognitive impairments also affects QOL adversely. Our study also concluded that cognitive impairment has unfavorable effects on the individuals QOL.(11)

The results showed that the people who were diagnosed with MCI reported lower QOL than those who did not have any diagnostic label which is in similarity to our study findings.(12)

In Malaysia a study conducted including 271 people aimed to define the MCI incidence in older adults attending primary care clinics and its association with QOL (quality of life). The results revealed that the prevalence of MCI was 23.7%, while poor QOL scores were found in all domains in patients with MCI. This showed that MCI was prevalent in the patients and was associated with a poor QOL and all its domains being affected.(8)

In yet another study conducted in 2017, it was indicated that higher scores of QOL i.e. each additional point on the scale reduced the risk of MCI by 10%. The QOL of older people declines with a growing deficit in their memory. Similarly, our study also shows that for patients with MCI, the QOL scores were low.(13, 14)

However, we were unable to collect date from other cities of Pakistan and certain hospitals in Rawalpindi restricted us to collect data due of COVID-19 pandemic restrictions imposed by the government. Many patients did not consent to filling the questionnaire due to psychological domain present in the questionnaires and because of the potential stigma attached to metal issues in Pakistan. This limited us to carry out our research on a large scale. Interventional studies should be conducted with emphasis on Physical therapy, mind relaxation exercises, stretching exercises and yoga. Also computer based cognitive training would be very helpful to stop regression to severe cognitive impairment. More education is needed to motivate the health care professionals to improve the QOL in individuals with MCI by identifying early signs of cognitive degradation. This will be helpful in counseling the patients to cope up with MCI rather than being distressed all the time about their condition.

Conclusion:

All domains of QOL were affected in individuals

having MCI. Those who had higher impairment level had lower quality of life overall.

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Khan FM: Concept of work
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