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Original Research Article

Psychiatric Morbidities, Neurocognitive Impairment, Quality of Life, And Burden of Care in Elderly Patients: A Tertiary Care Hospital-Based Cross-Sectional Study

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Abstract

Background: The elderly population suffers from disability and functional impairment due to the increasing age and changing social circumstances. Besides physical illnesses, psychiatric morbidities are frequently encountered among elderly individuals. Functional dependency for the activities of daily living is common among elderly people. All these collectively hamper quality of life in elderly patients and increases the burden of caregivers as well. With this background, the present study was carried out to explore the psychiatric morbidities, quality of life and caregiver burden in elderly population.

Aim and Objectives: To study sociodemographic profile, psychiatric morbidities, neurocognitive impairment, quality of life, and burden of care in elderly patients.

Method: This was a hospital-based cross-sectional observational study conducted at a tertiary care center. 195 consecutive patients from the various outpatient departments fulfilling the study criteria were enrolled. Subjects were interviewed using a pre-designed study pro-forma. The Montreal Cognitive Assessment (MoCA), the 36-items Short Forn Survey (SF 36) and the Zarit Burden Interview (ZBI) were used for cognitive impairment, quality of life and caregiver burden, respectively. Data was analyzed on SPSS 22.0 using appropriate statistical methods.

Results: The mean age of patients was 67.59± 6.09 years. Majority of patients were males (63.08%), married (82.6%), uneducated (43.6%) and unemployed (49.23%) and were staying in a Joint family. 35.38% (N=69) patients were found to be having psychiatric morbidity among which most prevalent class of psychiatric morbidity was Depressive disorder (30.43%). One fourth (24.62%) of the patients had cognitive impairment on MoCA assessment. Mean scores ranging from 30 to 60 out of 100 in Health-Related Quality of life were obtained in all domains of SF-36 with lowest in Physical role limitation domain. The mean score of caregiver burden (ZBI) was 26.12. More than half 59.49% of the caregiver reported as feeling burdened ranging from mild to severe burden, while 40.51% of the caregivers reported no burden at all. The caregivers who were burdened, 72.5% had patients with psychiatric illness, while 52.4% were burdened with patients other than psychiatric morbidity.

Conclusion: Despite adequate healthcare, the main issues concerning aging and mental health are prevention, early recognition of major psychiatric morbidities, treatment and quality of life interventions. There is a need to undertake routine screening of psychiatric disorders in geriatric population considering the common occurrence in them. Early diagnosis and timely intervention can improve the quality of life in the elderly and reduce the burden of care in their caregivers.

Keywords: Geriatric, Elderly, Psychiatric Morbidities, Quality Of Life, Caregiver Burden.

Introduction

The geriatric population is defined as population aged 60 years and above [1]. People aged 60 years and over are expected to constitute 10.2% of the total world population by 2025.[2] The phenomenon of population ageing (defined as increase in the median age of the population) is already a major social and health problem in the developed countries.[3] The life expectancy of an average Indian has increased from 54 years in 1981 to 64.6 years in 2002[4].

According to Sharma, the population of people aged 60 years or above is likely to increase to 18.4% of the total population in India by the year 2025. [5] The elderly has their problems of disease and disability due the increasing age and changing social circumstances and the need for social support forms an important aspect of geriatric healthcare.[6]. Improved healthcare promises longevity but social and economic conditions, such as poverty, break up of joint families, and poor services to the elderly, pose a psychiatric threat to them.[7]

The feeling of loneliness along with the natural age-related decline in the physical and physiological functioning make the elderly more prone to psychological disturbances.[8] Functional dependency is common among elderly people and many would need assistance in their activities of daily living. Long-term care has become one of the major problems facing an aging society.[9] According to the "Mental Health Action Plan 2013–2020" (WHO, 2013), mental health is an integral part of health and well-being and the report recognizes that certain groups, such as older people, are at higher risk of having mental health problems and consequently having higher rates of disability and mortality. The main issues concerning aging and mental health are prevention, early diagnosis, recognition of major diseases, treatment and quality of life interventions, at both individual and community level.[10]

With the increase in average life expectancy, chronic conditions inherent to aging, such as decline in neurocognitive functioning i.e., Dementias are inevitably growing along with related behavioral and psychological disorders, which highlights the need for specific interventions in elderly mental health problems. Beside dementia and mild cognitive impairment, other issues like poor psychosocial support, increasing dependency rates, frailty, delirium and the risk for mental health problems like anxiety and depression or the unmet needs of older people, require substantially more attention from professionals and policy agents.

The burden of mental health problems is frequently considered as an inevitable part of the process of aging, worsening the already negative stereotype about being old. Mental health issues, particularly those affecting old age are frequently underestimated, adding to the suffering of a large number of people who could be treated and benefit from diverse social and health care interventions to enhance their well-being.[10] The population of elderly is growing rapidly with the increase in life

expectancy. Besides physical illnesses, psychiatric morbidity is also commonly seen in older adults. Hence, the burden of caregivers and health care professionals is increasing day by day. [11] The proportion of older adults in less developed countries is rising much faster than in developed countries [12]. The life expectancy of an average Indian has increased from 36.7 in 1951 to over 67.14 in 2012. Also, the population of older adults (≥60 year) in India increased to 102 million in 2011.

The proportion of elderly persons in India ranges from 5.3 per cent in 1961 to 7.5 per cent in 2001, and to 8.4 per cent in 2011[13]. A robust growth in the number of elderly people in the general population in recent years is termed as "greying of the world". Population ageing is the result of a process known as demographic transition, in which there is a shift from high mortality/high fertility to low mortality/low fertility, resulting in an increased proportion of older people in the total population. India is presently undergoing such a demographic transition. [14]

The life expectancy in India has almost doubled from 32 years in 1947 to 63.4 years in 2002.[15] In the elderly, mental disorder is a key factor affecting the use of acute hospital beds, the need for residential care and the demand upon domiciliary services. Conditions such as dementia, depression and anxiety disorders influence decisions as to whether or not physical illness can be managed at home; they determine the capacity for self-care and the ability to perform daily tasks of life and, because of the practical and emotional burden imposed upon the family members, they may lead to institutionalization or heavy investment in domiciliary services. [14]

Lack of state supported care services begets the informal caregiving by family members as the mainstay of care provided to the dependent older people in many developing countries, including India. Little is known about the time spent on caregiving, its cost and the burden experienced by these informal caregivers.[16] Therefore, with this background, the present study is carried out to explore the psychiatric morbidity in elderly population presenting to tertiary teaching centre .

Objectives

1. To study the prevalence and pattern of different psychiatric morbidities present in elderly patients.
2. To assess the prevalence of neurocognitive impairment in elderly patients.
3. To quantify health-related quality of life in the elderly patients.
4. To explore the burden of care in primary care-givers of elderly patients.

Methodology

Study Design: descriptive, observational, cross-sectional study;

Site of study: The study was conducted at the outpatient department of the tertiary care teaching hospital at Navi Mumbai;

Study duration: 24 months;

Sample size: Sample size of 195 was obtained by calculating from the statistical formula for cross sectional studies.

$$\text{Sample size } N = Z^2 (P) (1-P) / C^2$$

P = Prevalence =24%. The proportion of elderly patients with psychiatric illness is 24%. (previous Indian study published by ICMR [17];
C = precision = 6%;
Z=1.96 at confidence interval of 95%;

Sampling Technique: Purposive sampling. All patients of age 60 years and above attending the various OPDs at tertiary care teaching hospital over a study period of 24 months were screened for the study and those fulfilling the study inclusion and exclusion criteria were enrolled.

Inclusion Criteria

1. Male & Female patients of age 60 years and above.

2. Patients willing to participate in the study after informed consent.
3. Patients with primary caregiver.

Exclusion Criteria

1. Uncooperative patients
2. Lack of consent
3. Patients without primary caregiver

Procedure

The sample collection was started after Institutional Ethics Committee (IEC) approval [No.2108/SC/1/32]. Patients attending various OPDs at tertiary care teaching hospital were screened for eligibility to participate in study. After enrollment in study, participants and their primary caregivers were interviewed by trainee psychiatry resident using appropriate instruments. Data entry and statistical analysis were done by using SPSS Software 22.0.

Instruments

1. Study Proforma: Socio-demographic data and clinical variables were recorded using predesigned interview proforma.
2. Montreal Cognitive Assessment (MoCA): This is a one-page 30-point tool to determine if cognitive impairment is present. It takes approximately ten minutes to complete. It evaluates attention, orientation, memory and delayed recall, Naming, Language, Abstraction, visuospatial and executive functions. If the summed score is more than or equal to 26 it denotes normal.
3. 36-Item Short Form Survey (SF-36): It is a very popular instrument for evaluating Health-Related Quality of Life (HRQoL). There are two distinct components measured by the SF-36: a Physical Component Summary (PCS), and a Mental Component Summary (MCS). The SF-36 measures eight scales: physical functioning, role physical, bodily pain, general health, general health, vitality, social functioning, role emotional, and mental health. Scores for each of these scales ranging from 0 to 100. Higher scores indicate higher HRQoL.
4. Zarit Burden Interview (ZBI): The ZBI is one of the commonly used instruments to assess caregiving burden in clinical and research settings. The revised version contains 22 items which are based on 5-point Likert scale. Response options range from 0 (Never) to 4 (Nearly Always). Interpretation of total Score: 0 - 21: little or no burden, 21 – 40: mild to moderate burden, 41 - 60: moderate to severe burden, 61 – 88: severe burden.

Statistical Analysis

Data were entered into Microsoft Excel spreadsheet and statistical analysis was performed using SPSS software version 22.0. Categorical data were summarized into tables, while continuous data were summarized using mean and standard deviation. Pearson's chi-square test was used to determine the association between categorical dependent variables, while independent t-test or analysis of variance was applied to continuous dependent variables. Pearson's correlation coefficient was used to test the association between continuous dependent and independent variables. All analysis was two-tailed and the level of significance was set at p value < 0.05.

Results

Sociodemographic profile

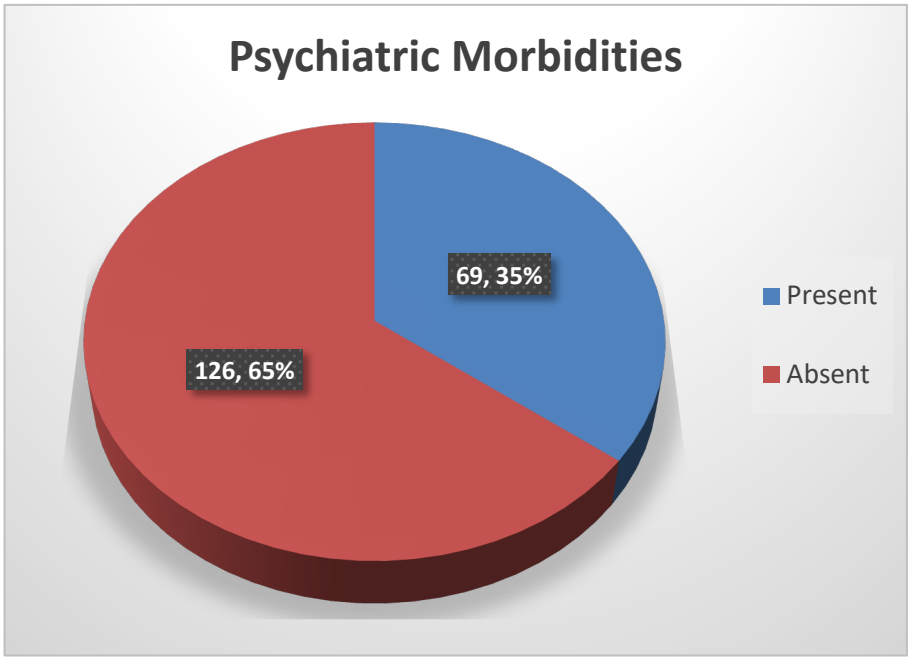
The mean age of patients was 67.59 ± 6.09 years with minimum age 60 years and maximum age of 85 years. More than half of the study population belonged to young old category (66.2%) and minimum (5.6%) belonged to oldest old category. Males (63.08%) predominated the sample population over females (36.92%). Majority of patients were married (82.6%) followed by widowed (16.9%). Most of the patients were uneducated (43.6%) and unemployed (49.23%). Majority was staying in a Joint family (27.2%). [table 1]

Table 1: Socio-demographic variables

Variable		Frequency	Percents
Age Group	Young Old (60-69)	129	66.2
	Old Old (70-79)	55	28.2
	Oldest Old (80 +)	11	5.6
Gender	Male	123	63.1
	Female	72	36.9
Marital status	Unmarried	1	0.5
	Married	161	82.6
	Widowed	33	16.9
Education	Uneducated	85	43.6
	Primary	42	21.5
	Higher Secondary	42	21.5
	Graduation and above	26	13.3
Occupation	Unemployed / Retired	108	55.4
	Unskilled Worker	50	25.6
	Skilled Worker	37	19.0
Family type	Nuclear	53	27.2
	Extended Nuclear	46	23.6
	Joint	96	49.2

Prevalence and pattern of Psychiatric morbidities among elderly

In our study 35.38% (N=69) patients were found to be having psychiatric diagnosis [Graph 1] Among these psychiatric morbidities, most prevalent class was Depressive disorder (30.43%), followed by substance use disorder (24.63%) and Neurocognitive disorders (23.18%).) [table 2]



Graph 1 Prevalance of psychiatric morbidities

Table 2: Psychiatric morbidities in study sample

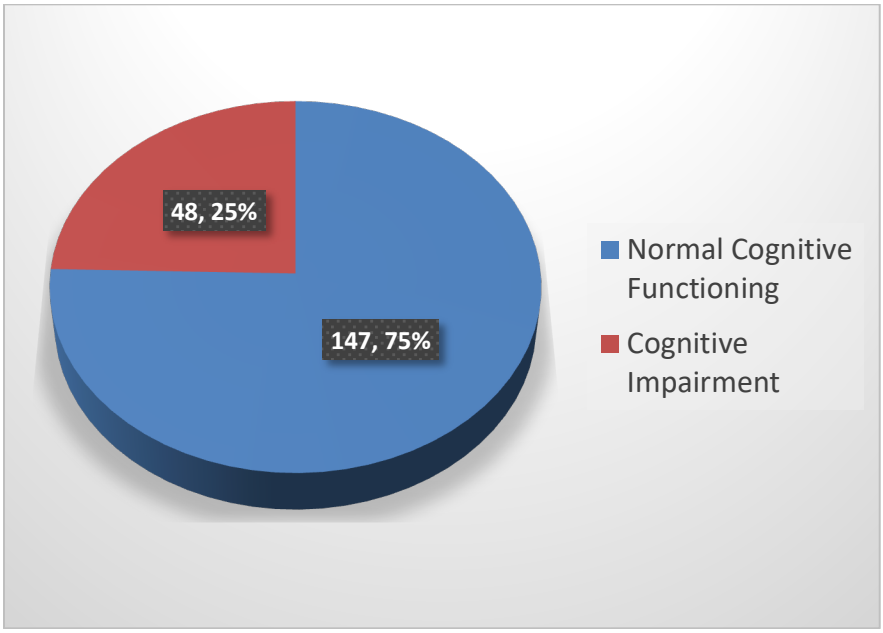
Diagnostic category	Freq	%	Diagnostic subcategories	Freq	%
Psychotic Disorder	4	5.79	Late Onset Psychosis	4	5.79
Depressive Disorder	21	30.43	Major Depressive Disorder	16	23.18
			Persistent Depressive Disorder	5	7.24
Anxiety Disorder	2	2.89	Illness Anxiety Disorder	2	2.89
Stressor Related Disorder	6	8.69	Adjustment Disorder	6	8.69
Somatic Symptom Disorder	3	4.34	Somatoform Disorder	3	4.34
Substance use disorders	17	24.63	Alcohol Use Disorder	12	17.29
			Benzodiazepine Use Disorder	2	2.89
			Nicotine Use Disorder	3	4.34
Neurocognitive Disorders	16	23.1	Major Neurocognitive Disorder	10	14.49
			Minor Neurocognitive Disorder	6	8.69
Total	69	100	Total	69	100

Cognitive impairments using MoCA

Patients were screened using Montreal Cognitive Assessment, and we have found that one fourth (24.62%) of the patients had cognitive impairment, while rest three fourth hadnormal cognitive functioning. [Graph 2]

Table 3 (a) shows highest 54.5% cognitive impairment among oldest-old age group (>80 yrs) of age. Followed by 27.6% incidence of cognitive impairment among Old-old (70-79 yrs), whereas only 21.3 % incidence of cognitive impairment was seen amongst Young-old (60-69 yrs). p value by chi square test is 0.47 which makes it statistically not significant.

Table 3(b) indicates that out of the patients screened positive for cognitive impairment 46.4 % had psychiatric morbidity compared to only 12.7% had cognitive impairment in absence of psychiatric morbidity. Which is statistically significant with p value by chi square test is 0.01.



Graph 2: Cognitive impairments using MoCA

Table 3 (a): Age groups versus cognitive functioning

		MOCA Status		Total	p Value by Chi Square Test
		Normal Cognitive Functioning	Cognitive Impairment		
Age	Young Old	102	27	129	0.47
		78.7%	21.3%	100.0%	
	Old Old	40	15	55	
		72.4%	27.6%	100.0%	
	Oldest Old	5	6	11	
		45.5%	54.5%	100.0%	
Total		147	48	195	
		75.4%	24.6%	100.0%	

Table 3 (b): Psychiatric diagnosis versus cognitive functioning

		MOCA Status		Total	p Value by Chi Square Test
		Normal Cognitive Functioning	Cognitive Impairment		
Psychiatric Diagnosis	Yes	37	32	69	0.01
		53.6%	46.4%	100.0%	
	No	110	16	126	
		87.3%	12.7%	100.0%	
Total		147	48	195	
		75.4%	24.6%	100.0%	

Health-related quality of life

Table 4 indicates the mean scores of various domains of physical component and mental component using SF-36 screening tool forhealth-related quality of life.

Table 4: Distribution of PCS and MCS of quality of life using SF-36.

Physical ComponentScore	Minimum	Maximum	Mean	Std. Deviation
Physical Functioning	5	100	56.54	26.592
Role Limitation Due to Physical Problems	0	100	31.92	40.813
Bodily Pain	0	100	59.67	29.924
General Health	0	85	41.08	27.454
Mental ComponentScore	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Role Limitation Due to Emotional Problems	0	100	46.33	49.069
Vitality	0	100	47.00	26.942
Social Functioning	0	100	59.10	28.388
Mental Health	0	100	60.41	23.814

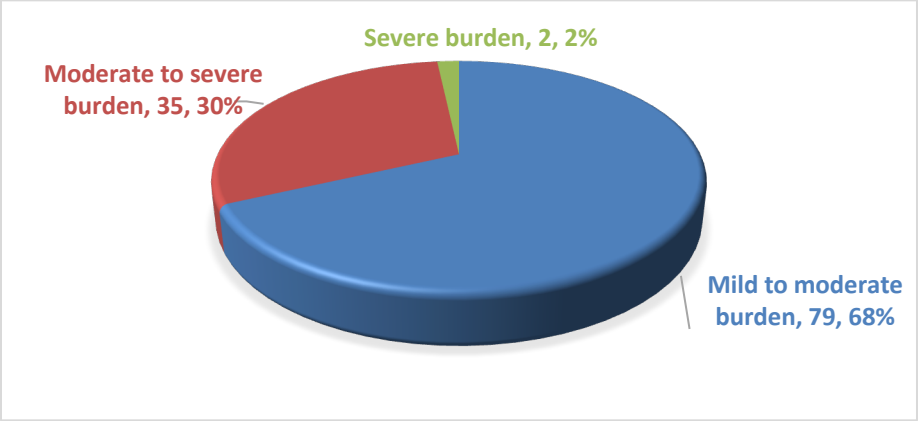
Caregiver burden

In our study the primary caregivers of the study population were screened using ZBI scale for the assessment of caregiver burden, the mean score of burden was 26.12 with minimum score of 3 and maximum score of 62. More than half 59.49% of the caregiver reported as feeling burdened ranging from mild to severe burden, while 40.51% of the caregivers reported no burden at all. Out of the burdened caregiver, two third 68.10% reported only mild to moderate burden, followedby 30.17% caregivers reported moderate to severe burden and only 1.72% caregivers reported having severe burden of caregiving. (Graph 3)

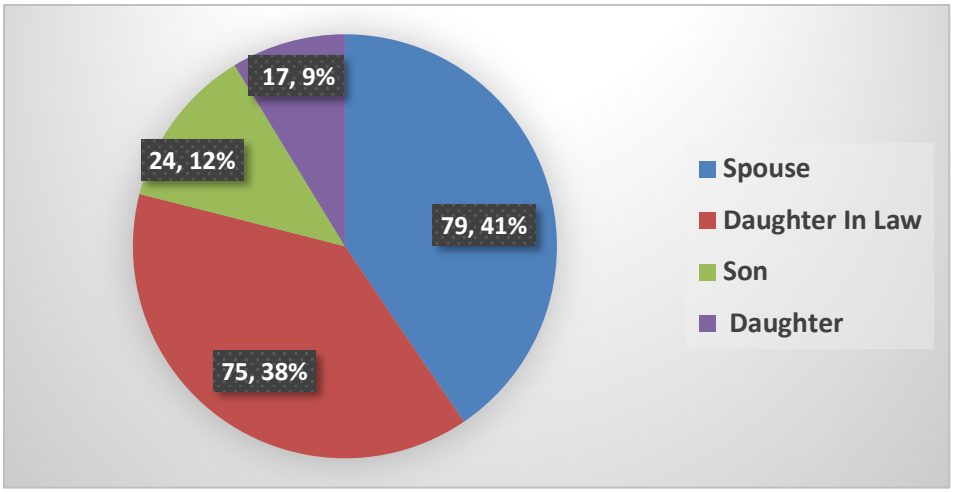
The mean age of the caregivers was found to be 45.15 Years, with minimum age of 27 years (Daughter in law) and maximum age of 75 years (Spouse). The study shows that mostly Spouses (40.5%) and Daughters-in-law (38.5%) were involved in caregiving (Graph 4)

More than half of the caregivers reported mild to severe burden, out of which 68.8% were caregivers of patients with cognitive impairment. However, the finding is not statistically significant with p value by chi square test 0.18. [Table 5 (a)]

In Table 5 (b) we have found that out of the caregivers who were burdened, 72.5% had patients with psychiatric illness, while 52.4% were burdened with patients other than psychiatric morbidity. Which is statistically significant with p value 0.01.



Graph 3: Distribution of primary caregivers according to severity of burden



Graph 4: Distribution of primary caregiver and their relation with patients.

Table 5 (a): Cognitive functioning using MoCA score versus caregiver burden using ZBI score

		ZBI Status		Total	p Value by Square Test
		Little or no burden	Mild to severe burden		
MOCA Status	Normal Cognitive Functioning	64	83	147	0.18
		43.5%	56.5%	100.0%	
	Cognitive Impairment	15	33	48	
		31.3%	68.8%	100.0%	
Total		79	116	195	
		40.5%	59.5%	100.0%	

Table 5 (b): Psychiatric diagnosis versus caregiver burden using ZBI score

		ZBI Status		Total	p Value by Chi Square Test
		Little or no burden	Mild to severe burden		
Psychiatric Diagnosis	Yes	19	50	69	0.01
		27.5%	72.5%	100.0%	
	No	60	66	126	
		47.6%	52.4%	100.0%	
Total		79	116	195	
		40.5%	59.5%	100.0%	

Discussion

Sociodemographic profile

In our study total 195 elderly patients (60 yrs and above) were enrolled, with the mean age of 67.59 years (S.D. ± 6.09 years), the minimum age being 60 years and maximum being 85 years. The elderly population in the study sample has been classified as 'Young old' with age from 60-69 years, as 'Old old' ranging from 70-79 Yrs, and as 'Oldest Old' with age more than 80 yrs. One third (66.15%) of the patients were between the age group of 'young old' (60-69 yrs), while majority of the patients (63.1%) were male. The age group was younger than the previously reported Indian studies wherein majority of population was between 70-79 yrs of age ('Old-old' in our study) [18]. This could be because those studies were conducted in community and old age homes while ours is a hospital-based study. This finding is in accordance with other studies done in India [9,19-21].

In our study, males (63.1%) patients outnumbered female (36.9%) patients and majority (82.6%) were married. Similar findings are reported by Bhogale G.S. *et al*, Prasad K.M.R. *et al*, Singh G.P.*et al*. [19-21] Some community based Indian studies also reported females outnumbering male populations as well, particularly in middle old and very old categories [18]. This can be explained by greater longevity in females.

Majority of the patients were uneducated (43.6%), followed by 21.5% of Primary and Higher Secondary of each, and 13% have completed their education up to graduation and post-graduation,which is in concordance with the previous hospital based Indian studies. According to Pereira Y.D.S. *et al*, the illiterate group around 62.3%, these high illiteracy rates can be attributed to the majority of the patients hailing from rural areas [9]. In our study more than half (55.38%) were unemployed/retired, followed

by 25.64% unskilled workers, 19% skilled worker.

In our study half of the study population 49.23% (N= 96) were staying in a Joint family, followed by 27.18% (N=53) were staying in nuclear family, while 23.59% (N= 46) were staying in an extended nuclear family. Similarly, in a study by Pereira Y.D.S. *et al* 2002, three fourths of the subjects were living either in extended or joint families, suggesting that family setting continues to be available for the elderly [9,21].

Out of the 195 Patients 35.4% (N=69) were diagnosed with a psychiatric illness, but only 18.46% (N=36) presented with chief complaints regarding psychiatric illness, while Pereira Y.D.S.*et al* found that the patients probably presented to the psychiatric services after trying out alternate treatment modalities, citing various factors like under recognition of less serious mental illnesses in the rural setting, followed by inaccessibility to tertiary care psychiatric care [9].

In our study only 6.15% (N=12) had psychiatric illness in past and have taken treatment for the same as well, while only 12.82% (N=25) patients reported positive family history of psychiatric illness. Similarly, in study by Pereira Y.D.S. *et al*, more than three quarters of the patients did not have family history of mental illness, this signifies that hereditary factors are relatively unimportant in the elderly mentally ill [9].

Prevalence and pattern of psychiatric morbidities among elderly

In our study 35.38% (N=69) patients were found to be having psychiatric diagnosis, this high prevalence of psychiatric disorders in elderly population is in accordance with the various community and hospital based Indian and western studies, prevalence rates range from 22.3% in a study by Nandi D.N. *et al* 1975, to 46% in a French study by Ritchie K *et al* 2004 [9,22].

- Mood Disorders: In our study, most common psychiatric diagnosis was found to be Depressive disorder (30.43%), which constituted three fourth of the patients having Major Depressive Disorder and 24% having Persistent Depressive disorder. This finding is comparable with study from India by Singh G.P. *et al* which reported that mood disorders, particularly depressive disorders were predominantly observed in elderly patients. Author concluded that affective disturbances, in particular depression, was the most frequent psychiatric disorder in the elderly. Mood (affective) disorders formed 48.07% of the total sample, wherein major depressive episode alone contributed to 89.6% of the total mood (affective) disorders [21].

  Various international studies assessing pattern of psychiatric illness observed that the first onset of affective disorders had relatively steady increase with increasing age constituting the most common diagnosis in elderly above 60 years of age [23,24].

  Various bio-psycho-social factors can be assumed to contribute to onset or relapse of the depressive episodes during this age. Genetic vulnerability, past history of depression and medicalmorbidity can be important etiological factors for geriatric depression [25]. Disruption and losses of important relationships become more frequent with increasing age, can be contributing factor for increasing onset of mood disorders in elderly [26].

- Substance use: It is the second most common psychiatric diagnosis in our study where about one fourth of the patients had substance use disorder. Majority (70.6%) of the patients with substance use disorder were having Alcohol related use disorders, and remaining proportion consisted of

Nicotine use disorder (17.65%) and benzodiazepine use disorder (11.76%). Amongst the patients of substance use disorder predominant were males (70.6%). This finding is in accordance with western literature where, elderly male gender is established as an important risk factor for drinking related problems [26]. According to Reifler B. *et al*, In USA, alcohol and substance use disorder have beenreported to be the third leading health problem among elderly, constituting 10% of all cases treated by geriatric mental health facilities [28] which is at par with findings in our study.

Alcohol use disorder sometimes, is seen as a frequent co-morbidity with existing psychiatric diagnosis like depression. A systematic review by Gum AM *et al* reported that the association of depression and alcohol use disorder in elderly is as high as 20% [29].

Alcohol use is not uncommon among the elderly; however, it often remains under-recognized and is commonly associated with physical and psychological comorbidities. Various researches have observed a wide range of prevalence of alcohol use disorder ranging from 1.1% to 31.3%.,[14,30-33], the diversity in the prevalence can be because of under-reporting, lack of informant and non-disclosure by patient due to shame or guilt [34].

- Neurocognitive Disorder: Neurocognitive disorder was the third most common psychiatric morbidity among study population, observed in 23.18% of them. Out of 16 patients who had neurocognitive disorders, 14.49%(N=10) met diagnostic criteria for Major Neurocognitive Disorders and 8.69%(N=6) met diagnostic criteria for Minor Neurocognitive Disorder. The prevalence observed is less than that observed in other Indian hospital-based studies which reported prevalence of dementia to be 34.3%, & 33.6% [19,26]. The difference in the prevalence can be explained by that fact that the different screening scales used have different sensitivity and specificity in screening dementia.
- Stressor Related Disorder: Stressor related disorders consisting of adjustment disorders was reported by 8.69% of the patients diagnosed with psychiatric morbidities. Old age is accompanied by many adverse life events which can pose adjustment challenges for the elderly person. Factors related with aging such as social isolation, financial insecurity, decreased autonomy, poor health and impending deathare observed to increase the prevalence of stress related disorders like adjustment disorders associated with anxiety and depression in late life [21].
- Psychosis: Only 2.1% (N=4) in our study had diagnosis of schizophrenia and/or other psychotic disorders. Most common pattern of presentation was the late-onset psychotic disorder and three fourth patients were females. Pareira Y.D.S. *et al* reported prevalence of psychotic disorders to be 12.2%of which majority were females [9]. According to Hafner H *et al*, the risk for developing psychosis especially schizophrenia increases in postmenopausal women. Certain biological protective factors against functional psychosis, such as lowering of estrogen occur in the postmenopausal age [35]. Findings in our study report lesser prevalence of psychotic disorders than from various other hospital OPD-based studies which observed the prevalence to be 17 and 33% [9,21,36]. The lower prevalence of severe mental illness like psychosis in the current sample could be explained by the fact that the study population was primarily taken from geriatric OPD and the severe cases might have been attended

by psychiatric department.

- Anxiety and Somatoform Disorder: In our study the prevalence of Somatic symptoms disorder that is somatoform disorder was 4.34% (N=3) and anxiety disorders including Illness Anxiety Disorder 2.89%(N=2) were the least common psychiatric morbidities. The underreporting of the anxiety disorders in geriatric population is common and is highlighted in various existing research [20,21]. Anxiety and somatoform disorders in the elderly have received lesser attention than mood disorders, and neurocognitive disorders. However, this disorder accounts for only a small group of psychiatric hospital admissions of elderly patients. Sometimes some aches and pains are considered to be part of normal ageing process are hence they may not report it to the physician. Anxiety and somatoform disorders are considered as having hidden morbidity and have been adding to the burden of psychiatric illness and to the society as well. [21]

Neurocognitive functioning assessed using MoCA

In our study, 24.62%(N=48) were found to be having cognitive function impairment which is in accordance with the recent Indian study by Mohan D. *et al* which reported the prevalence of cognitive impairment in 26.06% of the elderly population. [37] Current study observed higher prevalence of cognitive dysfunction compared to previous Indian studies which reported prevalence of 19.26% and 14.9% in North and East India respectively. [38,39] This difference in prevalence could probably be due to the difference in study population and the different criterias used.

Positive association was found between age and the cognitive impairment among elderly patients, more than half of the oldest old (54.5%) had cognitive impairment, while, the cognitive impairment was only 27.6%, 21.3% among Old-old (70-79 years) and young old (60-69 years) respectively. In our study we have found a positive statistically significant association between presence of psychiatric illness and cognitive impairment, 46.4 % of the patients with cognitive impairment were having psychiatric illness. A study conducted by Nair V *et al*, was an attempt to identify risk factors for cognitive decline in older adults, which reported that major depressive symptoms wereassociated with a 15% greater prevalence of mild cognitive impairment [39]. Research by Mohan D. *et al* highlights that the positive factors associated with Mild Cognitive Impairment were, presence of depression, anxiety, history of imbalance on walking and current orprevious use of alcohol [37].

Health related quality of life

In our study, the mean score on four physical component score was found to be, physical functioning (56.54), role limitation due to physical problems (31.92), bodily pain (59.67), general health (41.08). The mean scores of mental component score were found to be role limitation due to emotional problems (46.33), vitality (47), social functioning (59.10), mental health (60.41), so thefindings suggest that the overall quality of life was moderate as the mean ranges from 31.92 to 60.41 among all eight components. Similar findings have been reported by an Iranian study, whichobserved that the overall quality of life and overall health status in participants was of moderate level [41].

Our findings are contrary to the reported by Shah V. *et al*, wherein, the author reported that qualityof life profile fell into category of "good" and "excellent" and none had poor quality of life [42]. Physical, environmental, and psychological domains were better in those who were educated and married individuals living with their spouse, this can

be attributed to the community-based study compared to hospital-based nature of our study.

Burden of Care

Current study shows that majority of the caregivers were females of mean age 45.23yrs and were mainly Spouse and Daughter in law 40.5%, 38.5% respectively who were involved in the process of caregiving. When the perceived burden was assessed using ZBI scale, it was observed that majority of the caregiver reported mild to severe burden of care (59.49%), while 40.51% of the caregivers reported little or no burden at all.

Amongst the caregiver who perceived burden, majority reported mild to moderate burden (68.10%), followed by 30.17% reporting Moderate to severe burden and only 1.72% reported severe burden of caregiving. According to study by Omoyeni E.N. *et al* exploring caregiver burden, maximum caregivers were females (68.2%) of middle age (41.2%) who percieved moderate level of stress (34.1%), followed by mild level of stress (31.6%), and rest of the caregivers had high level of stress. In this study the burden was assessed using caregiver strain index scale.[43]

More than half (68.8%) of the caregivers reported for caregiving of patients with cognitive impairment, although this association was not statistically significant. In our study we have found statistically significant correlation that out of the caregivers who were burdened, 72.5% had patients with psychiatric illness to care for. A study by Swain S.P. *et al* 2017, in an attempt to compare the family burden among patients suffering from schizophrenia and dementia, most of the families assured about the patient's inability to carry out activities of daily routine were most inconvenient and distressing factor to the caregivers. They have also found that due to higher amount of time spent in caregiving (3-4 hrs per day) for patients with dementia, their caregivers experienced disruption of family leisure and interactions, reduced interactions with friends and relatives because of their emotional burden and persisting stress in the family. Whereas caregiver of patients suffering from schizophrenia have less family interactions only during exacerbation of symptoms of the patient.[44]

In a Ethiopian study by Ayalew M *et al*, who studied the predictors of caregiver burden, observed that Age of the caregivers, being female caregiver, duration of contact hours with the patient per day, perceived stigma by the caregiver, and providing care for patients who had history of substance use in life were positive predictors of higher burden among caregivers.[45] The gradual breakdown of the joint families with urbanization and smaller nuclear families with both spouses working has introduced the new problem of increasing load on the family caregivers.

Limitations

Generalization of results- since our study was hospital based, our findings could not be applied to the various different community settings. Targeting specific psychiatric diagnosis would have brought in better results.

Conclusion

This study observed that psychiatric morbidities was common in elderly population attending non-psychiatry set-up. Most common psychiatric diagnosis included mood (affective) disorders, substance use disorders, and neurocognitive disorders. One fourth of the patients screened positive to have neurocognitive impairment. Higher prevalence of cognitive impairment was seen among patients with psychiatric morbidities. Elderly patients had moderate quality of life with high mean scores on physical functioning and bodily pain, social functioning and mental health on domains of SF-36. Majority of the primary caregivers

were females and reported mild to severe burden of care. Burden of care was significant in patients with psychiatric morbidities. There is a need to undertake routine screening of psychiatric disorders in geriatric population considering the common occurrence in them.

Early screening, prompt diagnosis and timely intervention can improve the quality of life in the elderly and reduce the burden of care in their caregivers. The caregivers of elderly people need special attention in view of the perceived burden of care while they look after their loved older ones. An effective consultation-liaison practices including psychiatrist, geriatrician, physician, and neurologist can improve the holistic care of thegrowing elderly population.

References

1. Elango S. A study of health and health related social problems in the geriatric population in a rural area of Tamil Nadu. Indian J Public Health. 1998; 42:7–8.
2. Bulletin of the World Health Organization. 2004; 82:213–18.
3. Bhende A, Kanitkar T. Principles of population studies. 6th revised ed. Mumbai: Himalaya Publishing House; 1997;137–40.
4. Ministry of Health and Family Welfare, Government of India. Annual report: Health plan and policy. New Delhi: Ministry of Health and Family Welfare; 2002; 15.
5. Sharma S. Ageing: An Indian experience. Souvenir of ANCIPS 94, Madras. 1994:101–5.
6. Singh, A. P., Kumar, K. L., & Reddy, C. M. P. K. Psychiatric Morbidity in Geriatric Population in Old Age Homes and Community: A Comparative Study. Indian Journal of Psychological Medicine, 2012; 34(1): 39–43.
7. Venkobarao A. Geropsychiatry in Indian culture. Can J Psychiatry. 1979;25:431–6.
8. Ghosh AB. Psychiatry in India: Need to focus on geriatric Psychiatry. Indian J Psychiatry. 2006;48:4–9.
9. Pereira YD, Estibeiro A, Dhume R, Fernandez J. Geriatric patients attending tertiary carePsychiatric hospital. Indian J Psychiatry. 2002;44:326–31.
10. Fernandes L and Paúl C. Editorial: Aging and Mental Health. Front. Aging Neurosci. 2017;9:25.
11. Scazufca M, Menezes PR, Almeida OP. Caregiver burden in an elderly population withdepression in São Paulo, Brazil. Soc Psychiatry Psychiatr Epidemiol. 2002;37:416–22.
12. Rajan SI, Chatterjee CB. Mumbai, India: Centre for Enquiry into Health and Allied Themes; 2006. Population ageing and health in India.
13. 2011 Census of India. [accessed on Nov 25, 2017]. Available from: http://en.wikipedia.org/wiki/2011_census_of_India .
14. Seby, K., Chaudhury, S., & Chakraborty, R. Prevalence of psychiatric and physical morbidity in an urban geriatric population. Indian Journal of Psychiatry, 2011; 53(2): 121–127.
15. UN population Division: World population prospects, the 2000 revision. New York: United Nations publication; 2001.
16. Brinda E. M., Rajkumar A. P., Enemark U., Attermann J., & Jacob K. Cost and burden of informal caregiving of dependent older people in a rural Indian community. BMC Health Services Research, 2014; 14: 207.
17. Tiwari SC, Srivastava G, Tripathi RK, Pandey NM, Agarwal GG, Pandey S, Tiwari S. Prevalence of psychiatric morbidity amongst the community dwelling rural older adults in northern India. Indian J Med Res. 2013 Oct;138(4):504-14.
18. Tiwari, S. C., Pandey, N. M., & Singh, I. Mental health problems among inhabitants of old age homes: A

preliminary study. Indian journal of psychiatry, 2012;54(2): 144–148.
19. Bhogale, G.S., Sudarshan, C.Y. Geriatric patients attending a General hospital Psychiatry Clinic. Indian Journal of Psychiatry, 1993;35(4): 203-205.
20. Prasad K.M.R., Sreenivas K.N., Ashok M.V., Bagchi D. Psychogeriatric patients-A sociodemographic and clinical profile, Indian Journal of Psychiatry, 1996; 38(3): 178-181.
21. Singh G. P., Chavan B. S., Arun P., Lobraj & Sidana A. Geriatric Out-Patients with Psychiatric Illnesses in A Teaching hospital setting - A Retrospective Study. Indian journal of psychiatry, 2004; 46(2): 140–143.
22. K. Ritchie, S. Artero, I. Beluche, M. Ancelin, A. Mann, A. Dupuy, A. Malafosse and J.Boulenger prevalence of DSMIV psychiatric disorder in the french elderly population British Journal of Psychiatry (2 0 0 4) , 1 8 4 , 14 7 -1 5 2.
23. John,M.Eagles & Lawrence,J.Whaley (1985) Ageing and affective disorders: The age as first onset of affective disorders in Scotland 1969-1978. British Journal of Psychiatry, 147, 180-187.
24. Spicer, C.C., Hare, E.H. & Slater,E.(1973) Neurotic and psychotic forms of depressive illness, evidence from age incidence in a national sample. British Journal of Psychiatry, 123, 535-541.
25. Birrer RB, Vemuri SP. Depression in later life: a diagnostic and therapeutic challenge.Am Fam Physician. 2004 May 15;69(10):2375-82.
26. Venkoba Rao A. Geropsychiatry in India – An Overview. Proceedings of the First National Seminar on Geriatric Psychiatry, Kottayam; 1989.
27. O'Connell H, Chin AV, Cunningham C, Lawlor B. Alcohol use problems in elderly peopleredefining an age-old problem in old age. BMJ. 2003;327:664–7.
28. Reifler B, Raskind M, Kethley A. Psychiatric Diagnoses among geriatric patients seen in an outreach program. J Am Geriatr Soc. 1982:530–3.
29. Gum AM, Cheavens JS Psychiatric comorbidity and depression in older adults. Curr Psychiatry Rep. 2008 Feb; 10(1):23-9.
30. Tiwari SC, Kar AM, Singh R, Kohli VK, Agarwal GG. An epidemiological study of prevalence of neuro-psychiatric disorders with special reference to cognitive disorders, amongst (rural) elderly-Lucknow study. New Delhi: ICMR Report; 2010.
31. Alam M, Karan A. Elderly health in India: Dimension, differentials and determinants.New Delhi: United Nations Population Fund (UNPA); 2011.
32. Kinra S, Bowen LJ, Lyngdoh T, Prabhakaran D, Reddy KS, Ramakrishnan L, et al.Sociodemographic patterning of non-communicable disease risk factors in rural India: A cross-sectional study. BMJ. 2010;341:c4974.
33. Grover S, Kumar V, Avasthi A, Kulhara P. First prescription of new elderly patients attending the psychiatry outpatient of a tertiary care institute in North India. Geriatr Gerontol Int. 2012;12:284-91.
34. Lal Rakesh, Pattanayak Raman Deep, Alcohol use among the elderly: Issues and considerations. Journal of geriatric mental health. 2017;4(1): 4-10
35. Hafner H, Behrens S, De Vry J, Gattaz WF. An animal model for the effects of estradiol on dopamine-mediated behavior: implications for sex differences in schizophrenia. Psychiatry Res. 1991; 38:125-134.
36. Tiple P, Sharma SN, Srivastava AS. Psychiatric morbidity in geriatric people. Indian J Psychiatry. 2006;48:88–94.
37. Mohan D, Iype T,Varghese S, et al. A crosssectional study to assess prevalence and factors associated with mild

cognitive impairment among older adults in an urban area of Kerala, South India. BMJ Open 2019;9:e025473.
38. cognitive impairment in elderly population of North India. https://www. alz. co. uk/ sites/ default/ files/conf2013/ oc004. pdf (accessed 02 Nov 2022).
39. Das SK, Bose P, Biswas A, et al. An epidemiologic study of mild cognitive impairment in Kolkata, India. Neurology 2007;68:2019–26.
40. Nair V, Ayers E, Noone M, et al. Depressive symptoms and mild cognitive impairment: results from the Kerala-Einstein study. J Am Geriatr Soc 2014;62:197–9.
41. Yaser Khaje-Bishak1, Laleh Payahoo1, Bahram Pourghasem2, Mohammad Asghari Jafarabadi3 Assessing the Quality of Life in Elderly People and Related Factors in Tabriz, Iran, Journal of Caring Sciences, 2014; 3(4): 257-263
42. Venu R. Shah, Donald S. Christian, Arpit C. Prajapati, Mansi M. Patel, and K. N. Sonaliya Quality of life among elderly population residing in urban field practice area of a tertiary care institute of Ahmedabad city, Gujarat J Family Med Prim Care. 2017 Jan-Mar; 6(1): 101–105.
43. Omoyeni E N. A pilot study assessing the burden of caregivers of elderly patients at University College Hospital UCH. Journal of Clinical Oncology 2018 36:34_suppl; 12- 12
44. Swain SP, Behura SS, Dash MK. A comparative study of family burden and quality of life between caregivers of schizophrenia and dementia patients. Int J Community Med Public Health 2017;4:2021-6.
45. Ayalew, M., Workicho, A., Tesfaye, E. et al. Burden among caregivers of people with mental illness at Jimma University Medical Center, Southwest Ethiopia: a cross-sectional study. Ann Gen Psychiatry. 2019; 18: 10.