



Original Article

Study of the Morbidity Pattern Among Geriatric Patients Attending a Secondary Care Hospital in Bhubaneswar, Odisha

Braja Sundar Barik¹, Sushree Titikshya Dash¹, Minaketan Barik¹, Virendra Singh Yadav², *Tahziba Hussain¹, Sanghamitra Pati¹

¹ICMR-Regional Medical Research Centre, Bhubaneswar, India

²ICMR-National JALMA Institute for Leprosy & Other Mycobacterial Diseases, Agra, India

ABSTRACT

Background/Purpose: The Indian elderly are more likely to suffer from chronic than acute illness. There is a higher probability of co-morbidities among the elderly population with a higher prevalence of diabetes, hypertension, chronic obstructive pulmonary disease (COPD), etc. in Odisha. This exploratory study was conducted to study the pattern of morbidities among elderly attending secondary level health care facilities and is perhaps the first of its kind in this region.

Methods: In all, 500 elderly patients attending Capital Hospital, Bhubaneswar were enrolled in the study. The socio-demographic and anthropometric profile were correlated with clinical profile.

Results: About 60% (301) males and 40% (199) of females were in the age group 60-80 years. 50% (150) males and 35% (70) of females were from urban areas whereas 25% (128) were from rural areas. 29% (143) of the elderly were illiterate. 82% (409) were sedentary and 54% (270) were habitually smoking or consuming tobacco products or alcohol. While majority, i.e., 76% (382) were living alone, 24% (118) were living with family. The socio-economic status of 62% (309) of the elderly was low. A large proportion of the elderly were having poor vision (30%), arthritis (14%), anemia (11%) and hearing impairment (5%). Pre-existing diseases such as diabetes (25%), hypertension (12%), cardiovascular diseases (5%), chronic kidney (2.4%), digestive (1.4%) and respiratory diseases contributed to the various morbidities.

Conclusion: A sedentary life style without much activity, addictive habits, living alone and lower socio-economic status were the major factors for morbidities among the elderly.

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*Correspondence

Dr. Tahziba Hussain
ICMR-Regional Medical
Research Centre,
Bhubaneswar, India

E-mail:
tahziba_hussain@hotmail.
com

Received 14 July 2021

Accepted 19 October 2021

Keywords

Geriatric patients, pattern of morbidities, Bhubaneswar, Odisha.

1. INTRODUCTION

Aging is an inevitable process. Old age persons are

more vulnerable to physical and social problems. The natural process of aging is associated with physical changes, mental illness, social isolation, shortage,

evident decrease in household support, impairment of cognitive functioning, grief, restricted choices for livelihood provision and dependency towards edge of life. All these issues influence the standard of life in old age and medical care as and when necessary. These changes directly or indirectly increase the aged susceptibility to age-related diseases and conditions. As the population ages, a corresponding change in life span and severity of disease is expected. Number of aged persons has risen steeply during 2001 to 2011 and it is anticipated that the figure of elderly people is likely to increase to around 324 million by the year 2050. According to official census evaluation, by 2021, the number of aged persons will increase to 140 million.

With 8.3% of more than 60 years old in total population, India has earned the tag of an elderly nation.^{1,2} Elderly with disability are at a high risk of serious ailments and bruises resulting from chronic diseases. Double medical issues, i.e., both communicable and non-communicable diseases occur among the elderly people.³ They are unable to take advantage of all the provisions owing to lack of transport, funds, geographical stretch and physical disabilities, or support for travel in spite of the fact that Primary Health Centres and sub-centres are dispersed throughout the country. Improper prescription is a major public health issue owing to its forthright affiliation with morbidity, mortality and loss of health resources. Nonetheless, the ultimate apprehension and constraint for older people are similar even though all patients are individuals especially those with multiple morbidities. They become restricted to the house or a room and their dimensions may be reduced by inactivity. They may feel annoyed and discouraged due to loss of personal independence. Co-morbidity is usual among elderly persons and its magnitude and corresponding severe impact are indistinct.^{4,5} There is a higher probability of co-morbidities among the elderly population with a higher prevalence of diabetes, hypertension, chronic obstructive pulmonary disease (COPD), respiratory diseases, etc. in Odisha. About 50% of the aged persons suffer from have chronic illnesses and multi-morbidities. In India, more than 70% of aged persons of rural areas encounter social and community related disputes because of illiteracy, unemployment.^{6,7} Therefore, geriatric health is one of the emerging health concerns in present era. There is a need for emphasizing and exploring the medical and socio-economic issues encountered by the elderly people and formulate programs for enhancing their quality of life.

There are few epidemiological surveys for profiling the pattern of morbidities among elderly in Odisha. These studies have focused on several issues like inappropriate prescription of medicines among elderly patients, MRI of brain, physical co-morbidities

in geriatric clinic presenting with psychiatric illnesses, fragility hip fractures, pulmonary tuberculosis in elderly, evaluation of mandibular movements in patients suffering from rheumatoid arthritis, otorhinolaryngeal problems and effects of osteoarthritis on quality of life among those admitted in the Medical College at Cuttack and Bhubaneswar.⁸⁻¹⁴ This exploratory study was conducted including socio-demographic, anthropometric and clinical profile to establish the pattern of morbidities among elderly patients attending public health care facilities.

2. METHODS

Institutional Human Ethics Committee approved the detailed protocol of the study.

2.1. Study Subjects

In all, 500 elderly patients [age between 60-100 years] attending the OPD and IPD of Capital Hospital, Bhubaneswar were enrolled randomly (convenience sampling). Elderly suffering from any disease were designated as stated in the project algorithm, national and international geriatric guidelines.² EPI info software (WHO/CDC, Atlanta) was used for sample size calculation. An oversight prevalence of 50% morbidity was considered with a feasible evaluation of 45% on one end and 95% confidence interval. Sample size of 500 subjects was calculated using this information.

All the patients participating in the study were explained about the purpose and nature of the study in local language (Odia). Informed consent was obtained before including them in the study.

2.2. Inclusion Criteria

In order to reduce any bias arising during the interview and examination of the respondent, only those elderly who were 60 years and more and not having any demonstrable difficulty in understanding were included in the study.

2.3. Exclusion Criteria

Seriously ill patients, not able to communicate or not willing to participate were excluded.

Various data on socio-demographic and anthropological characteristics were collected from elderly patients using a pre-tested semi-structured standard questionnaire at the time of testing. This included details on age, gender, literacy status, occupation, marital status, life style, BMI, habits, medical history, duration of illness [diabetes, hypertension], systemic examination [respiratory system, cardio vascular diseases (CVD), chronic kidney disease (CKD), COPD, Nervous disorders],

complications, any other ailments and self-reported adherence to prescribed medicines, etc. Self reporting was analyzed for presence of morbidities, supported by history, check up and review of medical documents. Self-reported morbidities were noted for vision, hearing, musculo-skeletal, respiratory, cardiovascular, gastrointestinal and genitourinary problems.

2.4. Statistical Analysis

SPSS version 25 was used for Statistical analysis. The proportions and inter-group differences were compared with the Chi-Square (χ^2) test and considered statistically significant if p values were $p < 0.05$.

3. RESULTS

In this study, 500 elderly patients were recruited. The socio-demographic profile of elderly patients is depicted in Table 1. 60% (301) males and 40% (199) of females were in the age range of 60-70 years. 61% (67) males and 39% (43) females were in the age range of 71-80 years. 50% (150) males and 35% (70) of females were from urban areas whereas 25% (75) males and 27% (53) females were from rural areas. Overall, 29% (143) of the elderly were illiterate and 55% (278) had studied up to secondary level. With regard to lifestyle, 82% (409) were sedentary whereas only 18% (91) were leading an active life. 54% (270) were habitually smoking or consuming tobacco products or alcohol. 24% (118) were living with family [spouses, sons, daughter - in-laws, grand children, etc.] having a support system. But majority, i.e., 76% (382) were living alone either with spouses due to nuclear family

system of the children or children staying away from paternal homes. The socio-economic status of 62% (309) of the elderly was low, i.e., they belonged to below poverty line whereas 38% (191) were living above poverty line.

The anthropometric and clinical profile of elderly patients is depicted in Table 2. Of all the elderly examined, 70% (348) were having normal weight, 22% (108) were over weight and 8% (44) were under weight as indicated by BMI. The blood pressure was in normal range i.e., [90-119/60-79] among 25% (127) of elderly patients, 51% (257) were having pre-hypertension, i.e., [120-139/80-90], 12% (62) had hypertension stage 1, i.e., [140-159/90-99] while 10% (53/500) were having stage 2 hypertension [$>160/>100$]. With regard to complications at the time of enrollment in the study, a number of pre-existing diseases were reported. Among those screened, 25% (128) were having diabetes. The incidence of diabetes was more among males 57% (74/128) than females 43% (54/128). 30% (150) of the elderly were having poor vision and 14% (70) had arthritis. A significant percentage, 11% (56) of the elderly had anemia and 5% (25) were suffering from hearing impairment. Overall, 5% (25) of the elderly had CVD. 56% (14/25) of the males had CVD as compared with 44% (11/25) of the females. Overall, 2.4% (12) of the elderly had CKD. Incidence of digestive disorders was found among 1.4% (7) of the elderly. Although 7.4% (37) had a history of asthma, COPD [Chronic Obstructive Pulmonary Disease] was found among 2% (10) of the elderly.

Some other common infections were found among 3%

Table 1. Shows the socio-demographic profile among elderly patients

Parameters	Males [n=301,%]	Females [n=199,%]	Numbers screened [n=500, (%)]	Statistical analysis [χ^2 , p value]	
Age (in years)	60-70	217 (59.77)	146 (40.23)	363 (72.6)	1.373, 0.712
	71-80	67 (60.91)	43 (39.09)	110 (22)	
	81-90	15 (60)	10 (40)	25 (5)	
	91-100	2 (100)	0	2 (0.4)	
Locality	Urban	150 (49.83)	70 (35.17)	220 (44)	6.211, 0.045
	Semi Urban	110 (36.54)	42 (21.11)	152 (30.4)	
	Rural	75 (24.9)	53 (26.66)	128 (25.6)	
Literacy Status	Illiterate	93 (18.6)	53 (10.6)	146 (29.2)	0.044, 0.998
	Secondary Education	186 (35.7)	92 (18.4)	278 (55.6)	
	Graduation	37 (7.4)	18 (3.6)	55 (11)	
	Above Graduation	14 (2.8)	7 (1.4)	21 (4.2)	
Life Style	Active	47 (9.4)	44 (8.8)	91 (18.2)	24.559, <0.0001
	Sedentary	316 (63.2)	93 (18.6)	409 (81.8)	
Habits	All Types (Smoking /Alcohol/Tobacco, etc.)	236 (78.4)	34 (17.0)	270 (54)	127.578, <0.0001
	None	90 (18)	140 (28)	230 (46)	
Type of Family	Nuclear	225 (74.75)	157 (78.89)	382 (76.4)	8.963, 0.003
	Joint	67 (22.22)	51 (25.62)	118 (23.6)	
Socio-economic Status	Above Poverty Line (APL)	121 (40.19)	70 (35.17)	191 (38.2)	26.189, <0.001
	Below Poverty Line (BPL)	186 (61.79)	123 (61.80)	309 (61.8)	

(15) of the elderly. About 2.8% (12/500) of the elderly were suffering from Cancer. Thyroid dysfunction was reported among 2% (10) of the elderly. History of nervous disorder was given by 0.6% (3) of the study subjects. Two out of 500 elderly were having TB, the incidence being 0.4% which is low. Pre-existing diseases such as diabetes, CVD, anemia and asthma, played a significant role in various morbidities among the elderly. Majority of the elderly in this study had poor vision, arthritis and hearing impairment.

4. DISCUSSION

In our study, 500 elderly patients attending the OPD and IPD of Capital Hospital Bhubaneswar were enrolled. About 60% males and 40% of females were in the age group 60-80 years. 50% males and 35% of females were from urban areas whereas 25% each of both gender were from rural areas. 29% of the elderly were illiterate. 82% were sedentary and 54% were habitually smoking or consuming tobacco products or alcohol. Use of tobacco products was higher among the elderly in our study, hence there is a possibility for behaviour change communication for these addictive habits.

While majority, i.e., 76% were living alone due to several reasons, 24% were living with family having a support system. The socio-economic status of 62% of the elderly was low. A sedentary life style without

much activity, addictive habits, living alone and lower socio-economic status were the significant factors for various morbidities among the elderly. Pre-existing diseases such as diabetes, CVD, CKD, digestive disorders and respiratory diseases like asthma, COPD played a significant role in various morbidities among the elderly. The incidence of TB was low. 25% (128) were having diabetes. A large proportion of the elderly were having poor vision, arthritis, anemia and hearing impairment. Use of hearing aids was reportedly very low despite a high prevalence of loss of hearing. Further, 3% (15) of the elderly in this study were having minor illness due to certain common infections. Anxiety, loneliness, slow walking, etc. were reported among few elderly patients. Urban elderly mainly suffered from lifestyle disorders such as, diabetes and hypertension, which require lifelong medication, whereas rural elderly suffered mainly from joint pains for which they were taking intermittent treatment. Table 3 shows the comparative studies on morbidity profiling among elderly in different regions of India.¹⁴⁻³⁵ These studies have reported gender wise differences with reference to physical health. Males were having more morbidities as compared to females. Majority of elderly persons reported impaired vision, hearing impairment, poor health and weakness. While most of the women reported general weakness and nervous disorders, more men reported having CVDs, tuberculosis, asthma, skin diseases and urinary problems. Both men and women reported

Table 2. Shows the anthropometric and clinical profile of elderly patients

Parameters	Categories	Male (%) n=301	Female (%), n=199	Total (%) n=500	Statistical analysis [χ^2 , p value]
Body Mass Index (BMI)	Under Weight	21 (6.97)	23 (11.55)	44 (8.8)	6.123, 0.047
	Normal Weight	206 (68.77)	142 (71.35)	348 (69.6)	
	Over Weight	74 (24.58)	34 (17.08)	108 (21.6)	
Hypertension	Normal (90-119/60-79)	85 (28.23)	42 (21.11)	127 (25.4)	0.651, 0.885
	Pre-Hypertension (120-139/80-89)	165 (54.81)	92 (46.23)	257 (51.4)	
	Stage-1 (140-159/90-99)	43 (14.28)	19 (9.54)	62 (12.4)	
	Stage-2 (>160/>100)	35 (11.62)	18 (9.04)	53 (10.6)	
Existing diseases	Diabetes	74 (24.58)	54 (27.1)	128 (25.6)	45.631, <0.0001
	Poor vision	117 (38.87)	33 (16.58)	150 (30)	
	Arthritis	27 (8.9)	43 (21.60)	70 (14)	
	Anemia	30 (9.96)	26 (13.06)	56 (11.2)	
	Hearing Impairment	17 (5.64)	8 (4.02)	25 (5)	
	Asthma	18 (5.98)	19 (9.54)	37 (7.4)	
	Chronic Obstructive Pulmonary Disorder	4 (1.32)	6 (3.01)	10 (2)	
	Cardio-vascular diseases	14 (4.6)	11 (5.52)	25 (5)	
	Chronic Kidney Disease	6 (1.99)	6 (3.01)	12 (2.4)	
	Digestive disorders	5 (1.66)	2 (1)	7 (1.4)	
	Other Infections	9 (2.90)	6 (3.01)	15 (3)	
	Cancer	12 (3.98)	2 (1)	14 (2.8)	
	Thyroid (Hypo / Hyper)	7 (2.32)	3 (1.50)	10 (2)	
	Nervous disorders	1 (0.33)	2 (1)	3 (0.6)	
	Tuberculosis	1 (0.3)	1 (0.5)	2 (0.4)	

Table 3. Shows the comparative studies on morbidities among elderly in different regions of India

Sl. No.	Authors	Place of study	Year of study	Number of geriatric patients enrolled	Results
1	Joshi, K., Kumar, R., & Avasthi, A. (2003).	Department of Community Medicine, Postgraduate Institute of Medical Education & Research, Chandigarh.	July, 1999 - April, 2000	200 subjects over 60 years old (100 each from the urban population of Chandigarh City and the rural population of Haryana State	Most of the morbidities were more common in the rural area except for hypertension (56%), osteoarthritis (34%), anxiety (10%), diabetes mellitus (8%), obesity (8%), and psychosis (5%) which was more common in the urban area. Among the symptoms noted in elderly subjects, most frequent was depression (70.5%), followed by visual impairment (61%), chronic cough with difficulty in breathing (52%), joint pains (37%), tremors (33.5%), parasthesia (23%), decreased hearing (21%), generalized pruritis (19.5%), and epigastric burning sensation with flatulence (14.5%).
2	Purty, A.J., Bazroy, J., Kar, M., Vasudevan, K., Zacharia P., & Panda, P. (2006).	Department of Community Medicine, Pondicherry Institute of Medical Sciences, Kalapet, Pondicherry.	October, 1, 2002 - October, 31, 2003.	320 elderly persons	The average illness per person was 2.77. Pain in the joints and joint stiffness was the most common morbidity in 43.4%, followed by dental and chewing complaints in 42%, decreased visual acuity due to cataract and refractive errors in 57% and hearing impairment in 46 15.4%. Other morbidities were hypertension in 14%, diarrhea in 12%, chronic cough in 37 (12%), skin diseases in 12%, heart illness in 9%, diabetes in 8.1%, asthma in 6% and urinary complaints in 5.6%. Anemia was found in 52.5%, elevated ESR in 37%, elevated blood sugar in 13% and abnormal ECG findings in 34.7%.
3	Bhatia, S., Swami, H., Thakur, J., & Bhatia, V. (2007).	Department of Community Medicine, Govt. Medical College, PGIMER, Chandigarh.	2005-2006	361 aged persons	The main health-related problems among the aged were those of the circulatory system (51.2%), with about two-fifths (41.6%) suffering from hypertension, followed by those of the musculoskeletal system and connective tissues disorders (45.7%); cataract was seen in 18.6%. Hypertension was the most prevalent condition, and significantly more in females (46.4%) than in males (34.9%). Diabetes mellitus was significantly more in females (18%) than in males (6.4%).
4	Mundada, V., Jadhav, V., & Gaikwad, A. (2013).	Rural Health and Training Center (RHTC), Paithan of Government Medical College, Aurangabad.	September 1, 2006 to August 31, 2007	625 elderly people	328 (52.48 %) were females and 297 (47.52 %). Prevalence of cataract was 40.16%, joint pain 23.04%, COPD - 7.52%, senescent forgetfulness - 10.88%, hemorrhoids - 8.64%, benign enlargement of prostate (BEP) - 7.20% in elderly males, hearing impairment - 24.8%, hypertension - 21.6%, Diabetes mellitus - 13.92% and anemia - 8.32%.
5	Sharma, D., Mazta, S.R., Parashar, A. (2013).	Indira Gandhi Medical College, Shimla, Himachal Pradesh	2010 - 2011	400 elderly people	The most frequent health problem was musculoskeletal problem, comprising 55% of the problems followed by hypertension in 40.5%. Cataract and dental problems ranked third affecting 30% older persons. Anemia comprised of the fourth morbidity affecting 16.5% of the study population. A significantly higher proportion of women suffered from musculoskeletal problems (females: 66.7% vs. males: 42.7%), hypertension (females: 48% vs. males: 32.7%), diabetes (females: 7.8% vs. males: 3.6%), while chronic obstructive pulmonary disease (males: 14.3% vs. females: 0.4%) was observed more in men. Hypertension was more prevalent in urban elderly (56%) as compared with rural counterparts (25%).
6	Mini, G., & Thankappan, K. (2017).	The study used data, collected by the United Nations Population Fund from seven selected Indian States.	2011-2012	9852 older adults (≥60 years)	63% of the older adults suffered from at least one NCD. Multi-morbidity was seen among 30.7% of older adults. Of those with NCDs, 49% had multi-morbidity. Among the elderly with multi-morbidity, the most common clusters of conditions were arthritis and high-blood pressure (7.5%), arthritis and cataract (5.3%) and diabetes and high-blood pressure (4.7%)
7	Gupta, M., Borle, A., Chhari, N., & Gupta, S. (2015).	Dept. of Community Medicine, Osmania Medical College, Koti, Hyderabad, Andhra Pradesh.	2011-2012	216 elderly persons	The most prevalent morbidity was hypertension (46.9%) followed by Arthritis (30.2%), Diabetes (26.5%), Respiratory problem (24.3%) and Cataract (21%).

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Table 3. Shows the comparative studies on morbidities among elderly in different regions of India

Sl. No.	Authors	Place of study	Year of study	Number of geriatric patients enrolled	Results
8	Selvaraj, K., Srinivasan, M., Duraisamy, V., Ramaswamy, G., Venugopal, V., & Chinnakali, P. (2016).	Siddha OPD from two of the randomly selected sub-district level siddha facilities in Erode district, Tamil Nadu.	June, 2014 to July, 2014	763 elderly patients	The study showed that most common morbidity was arthritis (45.2%) followed by neuritis (8.8%), diabetes (6.6%), bronchial asthma (5.2%), hemiplegia (3.7%) were the top five morbidities. Arthritis (40%), bronchial asthma (7.9%), neuritis (7.2%) were the top three morbidities among the males, whereas in females, arthritis (52.5%), neuritis (11%) and diabetes (6.3%) were the common morbidities.
9	Barua, K., Borah, M., Deka, C., & Kakati, R. (2017).	Urban slums of Jorhat district, Assam.	August, 2015 - January, 2016	125 elderly Patients	The most common morbidity was arthritis (70.4%) followed by visual impairment (58%). Majority (83.7%) were seeking treatment for different health problems.
10	Sneha, M., Arlappa, N., Suryanarayana, P., Balakrishna, N., & Santosh, V. (2017).	Community based study carried out by Division of community studies, ICMR- National Institute of Nutrition, Hyderabad.	2015 -2016	112 geriatric patients	The prevalence of hypertension was 79.3% followed by central obesity 76.6% and high blood sugar 62.2%. Hyper-triglyceridemia was among 24.3%, hypercholesterolemia 10.8% and low HDL was 23.4%. Most importantly the metabolic syndrome among geriatric population was 54.1%.
11	Pandita, A.K., Roy, D., & Saxena, V. (2017).	Department of Community Medicine, Himalayan Institute of Medical Sciences, Dehradun.	2016-2017	520 elderly	The most common morbidity in study subjects was arthritis (49.61%) followed by cataract (46.34%), chronic gastritis (44.23%), COPD (25%), diabetes (21.15%), skin lesions (19.03%), hypertension (11.39%).
12	Devraj, S., & D'mello, M.K. (2019).	Department of Public Health, K.S.Hegde Medical Academy, Nitte (Deemed to be University), Mangalore, Karnataka.	2018-2019	384 elderly patients	The elderly population reported suffering from morbidity conditions such as hypertension (65.4%), diabetes (39.1%) and arthritis (17.7%), whereas 83.6% of them were on some medication.
13	Marmamula, S., Modepalli, S., Kumbham, T., Challa, R., & Keeffe, J. (2021).	International Centre for Advancement of Rural Eye care, L V Prasad Eye Institute, Hyderabad.	2019-2020	1821 participants	Hypertension was the most common systemic condition (25.4%), followed by diabetes (9.0%), and body pains (muscle-skeletal) (9.9%).
14	Kshatri, J., Palo, S., Bhoi, T., Barik, S., Pati, S. (2020).	ICMR-Regional Medical Research Centre, Bhubaneswar, Odisha.	June, 2019 - February, 2020	725 rural older adults	The overall prevalence of multi-morbidity was 48.8%, n = 354) and among them dyads were most common (25%) followed by triads (15.2%).
15	Usha, P., Kishore, S., Singh, M., Jain, B., Kumar, D., Reddy, N., Rehan, A., & Ranjan, S. (2020).	Department of Community & Family Medicine, AIIMS, Rishikesh, Uttarakhand.	June, 2019 - Nov., 2019	400 older adults	The most common affected organ system was musculoskeletal (77.20%). Other commonly affected health systems were psychological (75.90%), digestive (73.60%), eye (56.67%), endocrine (35.90%), cardiovascular (33.08%), general and unspecified health problems (32.05%), ear (24.62%) and respiratory system (19.74%). Very few elderlies had neurological (6.67%) and urological (1.28%) problems.
16	Present study, Hussain et al.	Division of NCDs, ICMR-Regional Medical Research Centre, Bhubaneswar, Odisha.	Nov., 2020 - Feb., 2021	500 elderly attending Capital Hospital, Bhubaneswar	A large proportion of the elderly were having poor vision, arthritis, anaemia and hearing impairment. The incidence of TB was low. Pre-existing diseases such as diabetes, hypertension, CVD, CKD, CLD, respiratory diseases like asthma and COPD played a significant role in various morbidities among the elderly.

having joint pains. The health status of women was poor owing to under nourishment related with certain cultural tradition in rural areas. Moreover, menopause and certain other hormonal disorders in women might be the cause for poor health status of women. Different study settings, nature of morbidity assessed and the way it was assessed could contribute to these observed differences. These studies, including ours, indicate that prevalence of morbidity is considerably high among the elderly. The continuing procedure of urbanization, up gradation and their accompanying course of action resulted in disintegration of joint family system and support base of the elderly. The traditional pattern and ethics of Indian society emphasize regard and providing care for the elderly. Members of the household and society are the basic caretakers of elderly. Community education and collective involvement is required to strengthen the traditional family system. Self-care, informal and formal support systems including those from family, friends, public health and social services are included in the assistance procedure for the elderly.³⁶⁻⁴⁰

4.1. Strengths and Limitations

This study has specific strengths and some constraints. A substantial number of elderly patients were registered sequentially in a sturdy manner using electronic database for recording and reporting. As this was an exploratory study, we collected information on self reported morbidity among elderly, from both urban, semi-urban and rural areas. Most morbidity was extracted by simple questions and clinical examination and not confirmed by any investigations or laboratory tests. Early or sub-clinical cases might be missing affecting the internal validity of the study and this might lead to under estimation of the actual morbidity.

Sample size calculation was used to estimate the morbidity prevalence and but not for eliciting various correlations. Most of the assumptions are more hypothetical than factual, therefore, a considerably bigger sample proportion would be required to substantiate these alliances appropriately.

5. CONCLUSION

This survey has demonstrated that the study population had a higher comprehensive morbidity. A significant load of illness consisted of non-communicable as well as degenerative diseases. Preventive health education is important to all people, especially for older patients as they are at greater risk to develop disease.

This study emphasized there is a high prevalence of morbidity and certain problems like musculoskeletal disorder, depression, vision problems, hypertension and diabetes mellitus were common. Therefore, the

facilities providing geriatric health care services should be strengthened to provide comprehensive services at every level to address the medical assistance needs of the vulnerable aged population.

It is expected that the growth of the aged population will increase the burden of co-morbidities and complications throughout the country in future.

The key challenges for accessing to medical services for the elderly in India are certain social constraints sculpted by gender and other basis of discrimination namely socio-economic background, dishonor, religion and caste. Decreased movement, diminishing societal occupation and the restricted scope of the health system are some of the physical barriers. Some of the predominant constraints of health accessibility are restrictions in income, occupation and possessions as well as the insurance offered for health expenditures in the Indian health system.

5.1. Recommendations

There is a need for comprehensive health programs especially for elderly population. A comprehensive proposal and collaborative attempts by the medical and allied sphere is required for improving the quality of life of the aged persons. Along with medical treatment, economic and social support needs to be provided by Government and non-government organisations. Strengthening of primary health care services, follow-up and establishment of geriatric care units at major referral hospitals are urgently needed. Efforts for income generation to support themselves in whatever small ways are also required. Elderly patients need to be screened for hyperglycemia, hypertension, CVDs and other physical ailments, regardless of their condition and manifestation, at steady gaps, which in turn, would contribute significantly in untimely diagnosis of several non-communicable and degenerative diseases. Another prime concern is providing therapeutic and palliative services and assisted living facility for long term care.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interests.

ACKNOWLEDGEMENTS

We thank the Director of Capital Hospital, Bhubaneswar, for granting us permission to conduct the study. We also acknowledge the services rendered by Niranjana Sahoo, Technician B, for co-ordination and assistance in the study. We are indebted to all the elderly who have co-operated throughout the study period.

Funding

No funding was received for this study.

Author Contributions

Braja Sundar Barik working as a Junior Research Fellow has compiled and analyzed the data. He was involved in searching literature. Sushree Titiskhya Das has collected the socio-demographic data of elderly patients attending the hospitals. Minaketan Barik was involved in analysis and compilation of data. Tahziba Hussain conceptualized the idea, designed the study, wrote and edited the article throughout all stages. V S Yadav of the ICMR-National JALMA Institute for Leprosy & other Mycobacterial Diseases, Agra did the statistical analysis of data. Dr. Sanghamitra Pati, Director facilitated the study by providing all necessary support.

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