Section: Community Medicine

Original Research Article

ASSESSMENT AND PREDICTORS OF CHRONIC ILLNESS AMONG THE RURAL GERIATRICS OF BUNDELKHAND REGION IN JHANSI DISTRICT

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Received *: 05/08/2024*
Received in revised form *: 25/09/2024*
Accepted *: 11/10/2024*

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DOI: 10.70034/ijmedph.2024.4.146

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (4); 784-791

ABSTRACT

Background: India is committed to achieve United Nations Decade of Healthy Ageing (2021-2030) and life expectancy is also increasing due to rapid demographic change. Hence it is pertinent to have a view of the burden of illnesses in the rural geriatric population where health infrastructure is insufficient. **Objective:** To assess the period prevalence of the various morbidities and associated risk factors in older adults in the rural field practice area of badagaon block of Jhansi district, Uttar Pradesh.

Materials and Methods: A cross-sectional analytical study was conducted among 400 rural geriatric population from June 2023 to May 2024 in rural field practice area of badagaon-block using systematic random sampling. Data was collected through house-to-house survey by pretested predesigned structured schedule along with MNA (mini nutritional status) for nutritional status of these geriatrics.

Results: Among the 400 study population, 247 (61.8%) were female and 262 (65.6%) were in the age group of 60-69 years. Morbidity was present in 305(76.2%). Out of n=305, locomotive arthritis disorders was highest (27.5%) followed by ophthalmic illness (cataract) in 24.5%, endocrine noncommunicable disorder (diabetes) in 13.5%, hypertension in 17%, hearing loss in 5%, respiratory ailments (COPD and asthma) in 16% and less than 1% were neoplasm, chronic kidney and chronic liver disease. The relation of literacy level, occupation and social classification with chronic illness was found to be statistically significant.

Conclusion: Geriatric population suffered from multiple co-morbidities, predominantly musculoskeletal disorders, ophthalmic disorders, hypertension and diabetes The significant predictors or risk factors for the occurrence of chronic illness in these elderly are education, social class, occupation and age.

Keywords: Geriatric/ Rural/ Morbidity/ Nutritional Assessment.

INTRODUCTION

Worldwide, the proportion of older persons is expected to ascend around 21% (2 billion) by 2050 with share of individuals in their 8th decade and above would increase to 392 million globally.[1] With this pace of ageing, it is estimated that 80% of older population will be residing in developing countries and surpassed the children below 14 years of age by the year 2050.[2,3] India's older population ranks 2nd in the world and as per census 2011, the elderly population constitutes 104 million (8.2%) of the total population with 53 million females and 51 million males. It is predicted that the demographic shift in India will lead to an elderly population increased to 198 million and 320 million (19%) by the year 2030 and 2050 respectively.[4,5] Nevertheless, the lack of comprehensive social security measures at the population level has resulted in an insufficient public health infrastructure to cope with the rising health challenges as posed by a rapidly ageing population.[6] A major component of the burden of illness for the elderly derives from prevalent chronic

diseases, particularly in India where the elderly people suffer from dual medical problems that is both communicable as well as non-communicable diseases due to decline in immunity along with age related physiologic changes.[7] The combination of multi-morbidity, age related frailty, geriatric syndromes and acute illness places older people at increased risk for adverse outcomes.

Over the past decades, India's health programs and policies have primarily concentrated on issues such as population stabilization, maternal and child health, and disease control. However, if program managers and policymakers do not take timely action to address the health needs of the elderly, the current statistics on the elderly population in India could give rise to new medical, social, and economic challenges. As it is crucial to explore the morbidity profile and their risk factors among older people so as to improve the planning and prioritizing of the health services, resource allocation and appropriate effective interventions for older people in order to achieve sustainable development goals (SDG-3) and the UN decade of healthy ageing (2021-2030),which focuses on promoting good health and wellbeing so as to prioritize the promotion of healthy ageing, especially in developing countries like India. Hence, an attempt has been made in the current study to study the morbidity profile of geriatric people living in rural field practice area of the department of community medicine of lone government medical college of Jhansi district that may serve as baseline data and also help in planning the geriatric health services.

Objective: To assess the proportion of varied morbidities amongst rural elderly dwellers in the field practice area of community medicine department of MLB Medical College, Jhansi along with predictors for the occurrence of morbidity in them.

MATERIALS AND METHODS

This community based analytical cross-sectional study was conducted among geriatric population residing in Badagaon block, district Jhansi under rural field practice area of Community Medicine Department of MLB Medical College, Jhansi.

Inclusion Criteria

People aged 60 years and above, those who gave informed consent and were permanently residing in the block were included.

Exclusion Criteria

Elderly persons who were found to be non-cooperative and did not give consent to participate in the study.

Elderly who were not present at home at the time of repeated 3-4 visits.

Sample size: Taking the reference of musculoskeletal morbidity among geriatric population from a recently conducted community based cross-sectional study as 77%.8 The estimated sample size derived from the following formula:- N= Zα2× P × (1-P)/d2 Where, Zα is two tailed deviate for 95% confidence level, P= prevalence of musculoskeletal morbidity among geriatric population as 77%, d= precision or allowable error of the prevalence 5%. Calculating the sample size as 1.96×1.96 × 0.77×0.23/0.05×0.05=272. Accounting to non response of 10% N=272+27=299 Thus, the total sample size of the elderly taken in this study is n=400

Sampling: Out of the 8 blocks in Jhansi district, the 2 blocks namely badagaon and Chirgaon are under field practice area of department of community medicine, MLB medical College, Jhansi and from these 2 blocks, Badagaon block was selected due to feasibility. The total population and the total number of households as per census 2011 and obtained information from the health staff of only one subcentre located was 112859 and 819 respectively. First household was randomly selected nearest and at the right hand of this sub Centre and then every 2nd household thinking that at least one elderly person would be there in the total households in the field practice area was selected through systematic random sampling technique. All the elderly aged 60 years or more of age from the household were included in the study. If there is no elderly member in the selected household then the next household was taken in the study.

Methdology: The data were collected by the face to face interviews of the elderly participants using a predesigned and pretested questionnaire semi-structured interviewer administered questionnaire with pilot pretesting of the questionnaire done apriori. During data collection, eligible subjects were contacted by the interviewer by house to house survey of all household of the study population in the rural field practice area of the badagaon block was done and on an average of about three visits were done to assure that the willing elderly has participated. The informed consent form with the details of the research, rights regarding their participation and withdrawal at any time and were informed that anonymity will be maintained, was filled by them. Approval for the use of certain instruments for physical, clinical and anthropometric measurements in the study was also taken before data collection such as stethoscope, blood pressure machine, weighing machine, flexible measuring tape etc. After obtaining written informed consent, socio demographic, clinical and life style characteristics of the elderly respondents consisting of age, gender, education, occupation, income, socioeconomic status, employment, religion, marital status, type of family, type of addiction history, relevant clinical history and reports of the investigations along with their previous and existing health records regarding co-morbidities were checked along with nutritional assessment using mini-nutritional assessment (MNA) scale were elicited, collected and recorded. The MNA scale

includes six screening questions and twelve assessments (i.e. height, weight, mid-arm circumference, calf circumference) into consideration and provides a maximum score of 30 points utilizing the scores from both the screening and assessment parts which were combined to determine the overall malnutrition indicator score and categorizes the elderly as malnourished (MNA) <17 points, 17-23.5 points as at risk of malnutrition and 24-30 points as well nourished. All anthropometric measurements as part of MNA were taken on the non-dominant arm and leg.

Statistical analysis was performed using the statistical package for social sciences (SPSS) version 23 IBM (USA). The frequency and proportions was used in the descriptive analysis for categorical variables and Chi square test was applied to find association of the variables with the presence of chronic morbidity amongst older adults. A p value <0.05 was considered to be statistically significant at 95% confidence interval. The binary logistic regression has been conducted to ascertain the predictors for the morbidity occurrence in the geriatric population.

Ethical approval: Ethical approval for the study has been taken from the institutional ethical committee.

RESULTS

Majority of the studied elderly were in the 6th decade i.e. 60-69 years (65.5%). Only less than 10% older adults had reached 8th or beyond 8th decade of life. Female elderly outnumbered the male counterparts (61.8% versus 38.2%). Very few of them were single elderly comprising of 24.5%. Almost 88% of these elderly belonged to the Hindu religion and were residing in joint family. Slightly above 60% of them were jobless and most of them (83.9%) belonged to lower social class (III and IV) as per modified BG Prasad classification updated 2023. The proportion of uneducated elderly (51.7%) is little higher than illiterates.

Out of the diseased elderly (n=305), most of them had single morbidity (58.3%) with almost half of them suffered from orthopaedic problems, mainly arthritis and with 6% each had hypothyroidism and type 2 diabetes mellitus and while 11% had cataract ophthalmic illness. Pertaining to the pattern of 2 morbidities present amongst n=67 olders, most of them suffered from type-2 diabetes mellitus with cataract (26%) followed by respiratory ailments i.e. bronchial asthma with COPD (13%), hypertension with cataract (11%) and eye/ear disorder i.e. cataract with hearing loss (10%). One elderly was having central nervous disorder (epilepsy) with anxiety as psychological disorder. Less than 10% elderly among the cohort having 3 chronic illness was affected in maximum proportion in having type 2 diabetes mellitus/cataract/hearing loss in 8.5%, respiratory illness comprising hypertension/COPD/cataract in 8.5% and cancer/anaemia/psychological disorder in form of depression in 8.5%. The psychological ailments were revealed in 4 of these individuals, 2 were having chronic depression and the remaining 2 had chronic anxiety. [Table 1]

As shown above, very few elderly (n=13) had 4 morbidities present together, highest being was hypertension/COPD/anaemia with cataract in 23% followed by asthma/COPD/anaemia and cataract in 15%. The 4 elderly were having chronic anxiety and 3 elderly were having chronic depression along with other organ system morbidities. Approximately 12% older adults were maximum suffered from chronic illness in the group with having 5 morbidities present. The chronic depression respondents were n=4. Only 4 older adults were having highest number of morbidities i.e. 6 in number with chronic depression present in all of them. [Table 2]

In this cohort of community dwelling older adults, the frequency of locomotive disorders was highest (27.5%) followed by ophthalmic illness (cataract) in 24.5%, endocrine non-communicable disorder (diabetes) in 13.5%, hypertension in 17%, hearing loss in 5%, respiratory ailments (COPD and asthma) in 16% and less than 1% were neoplasm, chronic kidney and chronic liver disease. [Table 3]

Most of the elderly who had any morbidity belonged to the age group 60-69 years (74.8%), were females (76.1%) and married (74.5%) and the relation of age, gender and marital status with morbidity is statistically not significant. Majority of the aged people suffered from chronic disorder were hindus (75.3%) and lived in joint family and there is no statistically significant relationship of religion and type of family on the occurrence of morbidity. The relation of literacy level, occupation and social classification with chronic illness is found to be significant statistically as higher frequency of elderly having any morbidity were uneducated (90.3%), unemployed (87.4%), belonged to lower social class (89.4%). [Table 4]

The prevalence of morbidity in the elderly is 76.2%. There is comparatively higher proportion of morbidity present amongst elderly who were having unhealthy lifestyle practices (76.6%) than no addiction (75.8%) and this relationship is not significant statistically at p >0.05. The chi square statistic is 1.55 and the p value is 0.816. The chi square statistic is 2.21 and the p value is 0.528 and the result is not significant at p >0.05. Maximum proportion of morbidity present was in obese elderly followed by overweight (81%). Proportion of morbidity present among normal weight elderly (76%) was slightly higher than underweight (74%) individuals and the relationship of BMI with morbidity is not significant statistically. With age, as there is reduction in total calorie consumption, although the relative frequency of elderly who had any morbidity is comparatively greater (76.8%) amongst the well-nourished elderly but the association is non significant statistically. The

presence of chronic morbidity derange the nutritional status in 27.2% elderly who were either at risk of malnutrition or malnourished. The chi square statistic is 1.26 and the p value is 0.532 and the result is not significant at p >0.05. [Table 5]

A binary logistic regression was carried out to ascertain the risk factors or predictors for the occurrence of morbidity among the elderly. The age and BMI as continuous predictor variables are linearly associated with the logit of the morbidity amongst elderly as their p value is >0.05 that is 0.326 and 0.661 respectively. While the MNA score is not linearly associated with the morbidity as p value <005, hence MNA score variable is dropped from the model. Further, to reduce type 1 error in the model, the cut off of p value of the predictor independent variables is taken as 0.2. Hence, on using bivariate analysis, the independent variables like gender (p is 0.935), type of family (p is 0.520), religion (p is 0.219), lifestyle practices (p is 0.694) and nutritional status (p is 0.667) has been dropped from the model. So, the final model is being carried out using socio-demographic variables such as marital status, education, occupation, social class along with continuous variables like age and BMI. The significant predictors or risk factors for the occurrence of chronic illness in these elderly are education, social class, occupation and age, although the odd ratio is less than one.The nagelkerke R2 value is 0.545 which means that 54.5% variance in the morbidity of older people is explained by these predictor variables. [Table 6]

Table 1: Frequency of different single or upto 3 morbidities amongst elderly

Single Morbidity N=178	N(%)	2 morbidity present N=67	N (%)	3 morbidity present N=35	N (%)
DM	11 (6.2%)	HTN/cataract	8 (11.9%)	DM/cataract/hearing loss	3 (8.6%)
HTN	26 (14.6%)	DM/cataract	18 (26.8%)	Asthma/COPD/anaemia	2 (5.7%)
Arthritis	92 (51.6%)	Cataract/hearing loss	7 (10.4%)	HTN/COPD/cataract	3 (8.6%)
Asthma	5 (2.8%)	HTN/arthritis	3 (4.5%)	Cancer/anaemia/depression	3 (8.6%)
COPD	9 (5.1%)	Asthma/hearing loss	1 (1.5%)	DM/arthritis/cataract	2 (5.7%)
Epilepsy	3 (1.7%)	Hypothyroid/arthritis	2 (2.9%)	DM/COPD/cataract	1 (2.8%)
Hypothyroid	11 (6.2%)	Hypothyroid/anaemia	4 (6.9%)	HTN/arthritis/hearing loss	1 (2.8%)
TB	1 (0.6%)	Asthma/COPD	9 (13.4%)	Chronic liver disease/anaemia/depression	1 (2.8%)
Cataract	20 (11.2%)	Arthritis/hearing loss	4 (5.9%)	HTN/arthritis/cataract	3 (8.6%)
		Epilepsy/anxiety	1 (1.5%)	HTN/cataract/hearing loss	1 (2.8%)
		HTN/hearing loss	1 (1.5%)	Hypothyroid/anaemia/cataract	2 (5.7%)
		Anaemia/cataract	1 (1.5%)	COPD/anaemia/cataract	1 (2.8%)
		DM/hearing loss	1 (1.5%)	Hypothyroid/anaemia/anxiety	2 (5.7%)
		COPD/anaemia	1 (1.5%)	Pul TB/anaemia/anxiety	1 (2.8%)
		DM/arthritis	1 (1.5%)	Arthritis/cataract/hearing loss	1 (2.8%)
		DM/HTN	1 (1.5%)	Asthma/hypothyroid/anaemia	1 (2.8%)
		COPD/cataract	3 (4.5%)	TB/anaemia/cataract	1 (2.8%)
		HTN/COPD	1 (1.5%)	Asthma/COPD/hearing loss	1 (2.8%)
				DM/HTN/cataract	2 (5.7%)
				HTN/hypothyroid/cataract	2 (5.7%)
				Hypothyroid/arthritis/anaemia	1 (2.8%)

Table 2: Frequency of different multiple morbidities with 4 or above amongst elderly

4 morbidity N=13	N (%)	5 morbidity N=8	N (%)	6 morbidity N=4	N (%)
Asthma/COPD/anaemia/anxiety	1 (7.7%)	DM/HTN/Coronary artery disease/cataract/ Depression	2 (25%)	DM/HTN/coronary artery disease/anaemia/cataract/ Depression	1 (25%)
COPD/anaemia/cataract/ Anxiety	1 (7.7%)	HTN/stroke/anaemia/ cataract/depression	1 (12.5%)	DM/HTN/stroke/anaemia/ cataract/depression	3 (75%)
Asthma/COPD/cataract/ Anxiety	1 (7.7%)	DM/chronic kidney disease/anaemia/ cataract/depression	1 (12.5%)		
DM/chronic kidney disease/anaemia/depression	2 (15.4%)	DM/HTN/coronary artery disease/anaemia/ Anxiety	1 (12.5%)		
DM/coronary artery disease/cataract/depression	1 (7.7%)	DM/HTN/coronary artery disease/anaemia/ Depression	2 (25%)		
HTN/COPD/anaemia/cataract	3 (23.1%)	DM/HTN/coronary artery disease/anaemia/ Cataract	1 (12.5%)		
Chronic liver disease/anaemia/cataract/ Depression	1 (7.7%)				
Asthma/COPD/anaemia/ Cataract	2 (15.4%)				
HTN/COPD/cataract/anxiety	1 (7.7%)				

Table 3: Prevalence of different organ system specific morbidities amongst elderly

Organ system specific morbidities with their ICD-11 codes*	Number N=400	Percentage
Endocrine	Number	%
Diabetes (ICD -11 code is 5A11)	54	13.5%
Hypothyroidism (ICD 11 code is 5A00.Z)	25	6%
Respiratory	Number	%
Asthma (ICD 11 code is CA23.32)	23	6%
COPD (ICD 11 code is CA22.0)	40	10%
Pulmonary TB	3	0.7%
Cardiovascular	Number	%
Hypertension (ICD 11 code is BA00.Z)	67	17%
Coronary artery disease (ICD 11 code is BA52.Z)	8	2%
Neurological	Number	%
Stroke (ICD 11 code is 8B20)	4	1%
Epilepsy (ICD 11 code is 8A6Z)	4	1%
Gastro-intestinal	Number	%
Chronic liver disease (ICD -11 code is DB99.Z)	3	0.7%
Locomotor	Number	%
Arthritis (ICD-11 code is FA2.Z)	110	27.5%
Ophthalmic	Number	%
Cataract (ICD-11 code is 9B10.0Z)	98	24.5%
Ear	Number	%
Hearing loss (ICD-11 code is AB54)	21	5.3%
Hematological	Number	%
Anaemia (ICD-11 code is 3A9Z)	41	10%
Cancer (ICD-11 code is 2D4Z)	3	0.7%
Psychological	Number	%
Depression (ICD-11 code is 6A7Z)	18	4.5%
Anxiety (ICD-11 code is 6B00)	9	2.3%

Table 4: Association of socio-demographic characteristics with morbidity amongst the elderly

Socio-demographic profile	Morbidity present N=305	Morbidity absent N=95	Chi square/P value
Age in years	**N (%)**	**N (%)**	
60-69	196 (74.8%)	66 (25.2%)	
70-79	80 (79.2%)	21 (20.8%)	X^2 0.88
>=80	29 (78.4%)	8 (21.6%)	P 0.643
Gender	**N (%)**	**N (%)**	X^2 is 0.006
Male	117 (76.5%)	36 (23.5%)	P is 0.934
Female	188 (76.1%)	59 (23.9%)	
Marital status	**N (%)**	**N (%)**	
Married	225 (74.5%)	77 (25.5%)	X^2 is 4.30
Widow	56 (77.8%)	16 (22.2%)	P is 0.116
Widower	24 (92.3%)	2 (7.7%)	
Education	**N (%)**	**N (%)**	
Uneducated	187 (90.3%)	20 (9.7%)	
Primary	68 (61.3%)	43 (38.7%)	X^2 is 47.02
Secondary	36 (61%)	23 (39%)	P is <0.00001
Higher secondary & above	14 (60.9%)	9 (39.1%)	
Occupation	**N (%)**	**N (%)**	
Unemployed	229 (87.4%)	33 (12.6%)	
Agriculture	45 (56.9%)	34 (43.1%)	X^2 is 52.54
Labourer	13 (52%)	12 (48%)	P is < 0.00001
Businessmen	18 (52.9%)	16 (47.1%)	
Religion	**N (%)**	**N (%)**	
Hindu	265 (75.3%)	87 (24.7%)	X^2 is 2.98
Muslim	32 (80%)	8 (20%)	P is 0.224
Buddhism	8 (100%)	0%	
Type of family	**N (%)**	**N (%)**	
Nuclear	31 (83.8%)	6 (16.2%)	X^2 is 1.30
Joint	251 (75.6%)	81 (24.4%)	P is 0.519
Three generation	23 (74.2%)	8 (25.8%)	
Socio-economic status	**N (%)**	**N (%)**	
I	0 (0%)	0 (0%)	
II	8 (80%)	2 (20%)	X^2 is 20.54
III	110 (89.4%)	13 (10.6%)	P is <0.00001
IV	154 (72.4%)	59 (38.6%)	
V	33 (61.1%)	21 (38.9%)	

Table 5: Association between lifestyle practices, BMI and nutritional status with morbidity amongst elderly

Type of addiction	Morbidity present N=305 (%)	Morbidity absent N=95 (%)	Total N =400(%)	P value
No addiction	138 (75.8%)	44 (25.2%)	182 (45.5%)	P is 0.816
Smoking tobacco use	41 (82%)	9 (18%)	50 (12.5%)	
Smokeless tobacco use	90 (73.8%)	32 (26.2%)	122 (30.5%)	
Alcohol consumers	36 (78.3%)	10 (21.7%)	46 (11.5%)	
BMI (kg/mt2)	**Morbidity present N =305 (%)**	**Morbidity absent N=95 (%)**	**Total N (%)**	**P value**
Underweight (<18.5kg/mt^2)	65 (73.9%)	23 (26.1%)	88 (22%)	P is 0.528
Normal weight (18.5-24.5kg/mt^2)	208 (76.2%)	65 (23.8%)	273 (68.3%)	
Overweight (>25-29.5kg/mt^2)	30 (81.1%)	7 (18.9%)	37 (9.2%)	
Obese (>=30kg/mt^2)	2 (100%)	0%	2 (0.5%)	
Nutritional status	**Morbidity present N (%)**	**Morbidity absent N (%)**	**Total N (%)**	**P value**
Normal nutritional status	222 (76.8%)	67 (23.2%)	289 (72.3%)	P is 0.532
At risk of malnutrition	75 (73.5%)	27 (26.5%)	102 (25.5%)	
Malnourished	8 (88.9%)	1 (11.1%)	9 (2.2%)	

Table 6: Risk factors for the occurrence of chronic morbidity amongst elderly

Predictor variables	Uni/bivariate analysis		Multivariable analysis			
	P value	Unadjusted odd ratio (95% C.I)	B	SE	P	Adjusted odd ratio (95% C.I)
Marital status						
Married	Ref	Ref	Ref	Ref	Ref	Ref
Widow/widower	0.026	1.994 (1.087-3.657)	-0.156	0.385	0.686	0.856 (0.402-1.821)
Education						
Uneducated	Ref	Ref	Ref	Ref	Ref	Ref
Primary	0.001	0.169 (0.093-0.308)	-2.005	0.510	0.001	0.135 (0.050-0.366)
Secondary	0.001	0.167 (0.083-0.336)	-1.915	0.548	0.001	0.147 (0.050-0.431)
Higher secondary and above	0.001	0.166 (0.064-0.433)	-1.209	0.796	0.129	0.299 (0.063-1.421)
Social class						
Class 3	Ref	Ref	Ref	Ref	Ref	Ref
Class 4	0.001	0.308 (0.161-0.590)	-4.643	0.730	0.001	0.010 (0.002-0.040)
Class 5	0.001	0.186 (0.084-0.411)	-4.812	0.821	0.001	0.008 (0.002-0.041)
Class 2	0.374	0.473 (0.091-2.468)	-3.418	2.125	0.108	0.033 (0.001-2.108)
Occupation						
Unemployed	Ref	Ref	Ref	Ref	Ref	Ref
Agriculture	0.001	0.191 (0.107-0.339)	-4.039	0.709	0.001	0.018 (0.004-0.071)
Labourer	0.001	0.156 (0.066-0.371)	-4.948	0.888	0.001	0.007 (0.001-0.040)
Business	0.001	0.162 (0.075-0.349)	-4.227	0.817	0.001	0.015 (0.003-0.072)
Age in years	0.971	0.999 (0.965-1.035)	-0.079	0.031	0.011	0.924 (0.870-0.982)
BMI (kg/mt^2)	0.621	0.982 (0.914-1.055)	-0.006	0.055	0.919	0.994 (0.894-1.107)
Constant			12.897	2.610		

DISCUSSION

The study comprehensively assess a cohort of community dwelling elderly individuals in the rural field practice area of the badagaon block of the community medicine department attached to the lone government medical college in the bundelkhand region.The period prevalenceof either single or multiple chronic illness amongst these rural geriatrics is found to be higher with 76.5% and this observation is supported by the past studies conducted by Niin joseph et al (2015), Sherin S et al (2015) , Leyanna et al (2017) and Preeti Usha et al (2020) where the prevalence of geriatric morbidity varies from 80.9% to 90%.[8-11]

In context to respiratory system disorder, the present noticed respiratory ailments like COPD and asthma in 16%. elderly respondents. However, the community based research conducted in 2020 by Preeti usha et al,[8] reported higher percentage of respiratory illness which may be due to as the latter study carried out in the hilly uttarakhand state while lesser proportion of 13% geriatric were having respiratory disorder as seen by Nitin joseph et al in 2015 9.The present study has ascertained that the frequency of locomotor disorders in the form of degenerative osteoarthritis and osteoporosis was highest (27.5%) which corroborates with the former studies where the predominant locomotor system involvement in the form of chronic arthritis as in 50.5% and 39.6% respectively by Leyanna et al (2017) and Nitin joseph et al (2015).[9,11] However, it is in contrast to the observation made by Giridhar et al in 2022 where lesser percentage of osteoarthritis with 20.7% was revealed.[12]

In this current research, the frequency of endocrine non-communicablle disease including type-2 diabetes mellitus is greater than 10% that is 13.5% which is due to the biological plausibility of decline in functioning of beta cells of pancreas as

advancement of age because the role of obesity in compounding the prevalence of diabetes is absent here in the present study as most of the respondents were having normal BMI. The same finding is in agreement with hospital based and another record based survey done by Bandar alhumaidi et al (2020) and Maysoon M et al (2023) where they reported that more than half of elderly counterparts had diabetes comorbidity.[13,14] Also, one-fifth elderly people had hypertension and type-2 diabets as seen by Leyana etal (2017),[11] and Ajay kumar pandita et al (2017).[15] Regarding the relative frequency of ophthalmic ailments especially cataract was found in 24.5% with hearing loss in 5% elderly in the current survey based study. However, the studies conducted in north-eastern region of india had found a geater proportion of ophthalmic impairments amongst elderly with 46% by Giridhar et al (2022), Preeti usha et al (2020) and Pandita et al as 67.8%.[8,12,15] The cancers/neoplasm were found in <1% elderly as revealed in a study by Leyanna et al (2017) and Bandar alhumaidi et al (2020).[11,13] This finding corroborates with the current research where the frequency of occurrence of neoplasm amongst elderly is also <1%. Only a study by Nitin joseph et al (2015) reported 4.4% cancer prevalence.[9]

It has been observed in the current research that number of morbidities is fairly greater in women elderly as compared to their counterparts. About slightly higher than 20% women and men had 4 different chronic illness and 3 chronic illness respectively as noticed in a hospital based study done by Bandar alhumaidi et al (2020).[13] In a study by Preeti usha et al (2020),the proportion of female eldely having morbidities was greater (98.6%) but the association is not significant statistically.[8] However, in a study by Kowel et al (2012), almost similar proportion of men and women elderlies were affected with morbidity in around 23%.16 We have observed that with age increment, the frequency of chronic illness also increases in older adults . This has been verified in various past research studies, namely by Nitin joseph et al (2015), Leyanna et al (2017), Preeti usha et al (2020) as revealed by consistent ascending in the proportion of morbidities from 6th decade (89.6%) to 7th decade (97.7%) and 100% in >75 years although the relationship is non significant statistically as ascertained by Nitin Joseph et al in 2015.[8,9,11]

The study shows that the relation of literacy level, occupation and social class with chronic illness is found to be significant statistically as higher frequency of elderly having any morbidity were uneducated (90.3%), unemployed (87.4%) and belonged to lower social class III (89.4%). It has been observed by Sherin S et al (2015) that most of the elderly (83.5%) belonging to low/middle socio-economic status were having chronic illness.10 Same factual statement is also supported by Gurmeet kaur et al (2017) that morbidity is associated with socio-economic status of older adults.[17] The text that higher the education of elderlies, lesser the frequency of chronic morbidity in them has been seen in the twin studies conducted by Nitin joseph et al (2015) as well as by Preeti usha et al (2020) at different places across india.[8,9] In the latter study, it was reported that 98.2% illiterate elderly had morbidity although non-significant relationship. The above studies illustrated that morbid conditions were seen significantly less among well educated participants and this could be because of better self care practices and compliance with medications among well educated elderly participants. A lack of education is a proxy indicator of being socio-economically disadvantaged and this is likely to result in poor disease awareness and lesser access to health care resulting in more complicated illness, thus greater impairment. The condition of the elderly being unemployed and financially dependent makes tham predisposed for having chronic illness as Preeti usha et al (2020) ascertains that nearly 99% each in unemployed and dependant elderlies had one or the other morbidity with significant association.8

Unhealthy lifestyle choices or practices such as smoking, alcohol use, addiction use, not doing regular exercise exacerbates morbidity in old age as has been observed observed in the studies like Kowal et al (2012) and Gurmeet kaur et al (2017).[16,17] Although, in the present community based survey, the higher proportion of morbidity was observed in older adults having unhealthy lifestyle practices in varied forms of tobacco use in smokeless/smoking and alcohol use in 54.8% but the relationship is not significant statistically. Increased age is associated to vulnerability for malnutrition among the elderly and consistent finding was found from past studies where nutritional status was found to be deteriorating as age is advancing. This fact of positive correlation between age and nutritional status among elderly seems to be an irreversible phenomenon which is related to degenerative process. The relative frequency of at risk malnutrition elderly was higher (62.4%) in a study by Hailu et al (2012) 18 on ethiopian elderly as compared to the finding of Sherin S et al (2015),[10] where greater proportion of normal nutrition elderly was found (75.6%) as well as in another study conducted in other developing country (Nigeria), the proportion of normal nutrition elderly was comparatively higher (74.1%) by Joel et al (2023) while study by Abdul gaffer et al (2021) in Nigeria has found relatively lesser percentage of adequate well nourished elderly being 18.1%.19,20 The present study conforms that maximum elderly were having their weight within the normal range of BMI (18.5-24.9 kg/mt2) having 68.3% (n=273) percentage .The study had noticed that less than two-fifths elderly were found to be overweight with BMI > 25kg/mt2 as 36% with severely obese (33%) by Bandar alhumaidi et al (2020).[13] The proportion of underweight (<18.5kg/mt2) older adults ranged from 5.4% to 37.8% in the studies by maysoon M et

al (2023), Abdul gaffer et al (2021) and Shubhasish et al (2020). 14,20,21.

CONCLUSION

The prevalence of any morbidity/chronic illness amongst the community dwelling elderly adults is 76.3% with single ailments found in 58.3%. As the number of morbidities ascend in the elderly from 2 morbidities to six at a time, a linear declining trend is observed in the frequency of morbidities revealed in them from 52.8% to 3.1%. The relationship of age, gender and marital status, religion and type of family, BMI and unhealthy practices is statistically not significant. While the role of literacy, occupation and social class on the occurrence of morbidity in them is found to be significant statistically. The significant predictors or risk factors for the occurrence of chronic illness in these elderly are education, social class, occupation and age, although the odd ratio is less than one. The study recommends that geriatric health can be improved by regularly organize screening programmes under the national programme for the health care of elderly utilizing involvement of NGOs and multidisciplinary approach needs to be adopted inclusive doctors, physiotherapists, social workers etc. for the early identification of ailments in them and take corrective actions early.

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