Morbidity Profile and Substance use among the Elderly Tribal and Non Tribal Population of the Imphal East District of Manipur, India

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Authors' contributions

This work was carried out in collaboration among all authors. Author SY wrote the first draft of the manuscript and managed the analyses of the study. Author NRM designed the study and provided guidance to carry out the research work. Author PK performed the statistical analyses and author SN managed the literature searches. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

This study employs correlation and regression analysis to compile a comprehensive profile of morbidity and psychoactive substance use among the elderly tribal and non-tribal populations in the Imphal East district of Manipur. By identifying prevalent health issues such as hypertension, osteoporosis and diabetes mellitus, alongside shared practices of alcohol consumption and chewing tobacco, the research sheds light on critical health concerns and behavioral patterns affecting this demographic. The findings provide valuable insights for targeted interventions and policy formulation to address the pressing health challenges faced by the elderly in this region.

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Through a thorough assessment of morbidity and substance use, this study contributes to a deeper understanding of the health dynamics within the elderly population, paving the way for informed decision-making and improved healthcare strategies tailored to the needs of this vulnerable demographic group.

1. INTRODUCTION

Population ageing is a worldwide phenomenon experienced by all countries in the world and reflects social, economic, and health achievements [1]. Ageing can be described as a process of intrinsic deterioration with time that causes decrease in strength, endurance, and fecundity and increase in disease susceptibility and likelihood of death [2]. According to World Population Prospects (2017), 962 million people are aged 60 or older in the world, and that number is projected to increase to 2080 million by 2050. The older population is rapidly growing in developing regions. United Nations [3] projections indicate that about 79% of the world's population aged 60 or over will be living in the developing regions by 2050. The graying of the population has significant consequences for the health, social, and economic development of a country [4].

Degenerative diseases, or chronic illnesses, commonly affect the elderly population and most of them suffer from multiple medical conditions [5]. Chronic problems which develop gradually induce changes that are not readily reversible, requiring social and other support interventions to complement the treatment of the disease [6]. Several other studies have concentrated on a relatively small number of diseases, such as cardiovascular disease, diabetes, hypertension, arthritis, cancer, Chronic Obstructive Pulmonary Disease (COPD) and osteoporosis, rather than the whole range of chronic morbidities [7]. Degenerative aging processes and environmental, social and unhealthy lifestyles are risk factors for diseases in old age. Along with ageing, behavioral factors such as tobacco use, physical inactivity, excess consumption of alcohol and an unhealthy diet further increase the risk of Non Communicable Diseases (NCDs) and mortality due to NCDs [8].

As the elderly population is likely to increase in the future, there will be a definite shift in the disease pattern, i.e., from communicable to non-communicable. So, it is high time that the primary health care system gears up for the growing health needs of the elderly in an equitable, optimal, and comprehensive manner [5]. Extensive studies have not been carried out among the vulnerable elderly population in Manipur. Therefore, this study was carried out with an objective to find out the morbidity profile and substance use among the elderly tribal and non tribal population.

2. MATERIALS AND METHODS

2.1 Study Area and Selection of Respondents

The research was carried out in the Imphal East District of Manipur, India, where two specific Community Development blocks (CD blocks) were deliberately chosen for data collection: Sawombung CD block and Heingang CD block. These two particular Blocks are inhabited by a mixed community of tribals as well as non tribals and was therefore purposively selected for the study. Five villages within each community development block were randomly selected and twenty respondents from each village were selected purposively for the survey. A total of 200 samples, 100 samples each from tribal and non-tribal were purposively selected. In case of tribal, 40 males and 60 females, and 42 males and 58 females from non tribal were purposively selected.

2.2 Methods of Data Collection

Information was gathered through a structured interview schedule and informal discussions. The data was collected on socio-demographic factors and morbidity profile of the respondents using a predesigned and pretested schedule using simple random sampling. Socio- demographic data included factors like age, marital status, education, annual income, type of family, size of family, occupation and financial dependency. Data on morbidity pattern among the elderly was assessed through self-reported data on history of illness followed by scrutiny of health records, if available.

2.3 Statistical Analysis

The data were analyzed and tabulated using statistical tools such as frequency, percentage, means, standard deviation and Pearson's chi-square test and statistical packages such as MS Excel and R software.

3. RESULTS AND DISCUSSION

The term "profile" in this context refers to a comprehensive overview of the demographic, socio-economic, and health characteristics of the elderly tribal and non-tribal populations in the Imphal East District of Manipur. This profile encompasses factors such as age distribution, educational level, marital status, family structure, occupation, income level, and financial independence. By meticulously detailing these aspects, the authors aim to provide a nuanced understanding of the unique circumstances and challenges faced by the elderly in different communities within the region. This profile not only enriches scientific knowledge by contributing to the existing literature on elderly health and socio-economic status but also offers practical insights for policymakers, healthcare providers, and community organizations. Understanding the demographic and socio-economic profile of the elderly population allows for targeted interventions and the development of tailored healthcare programs and support services to address their specific needs. Additionally, this information can inform social policies aimed at promoting the well-being and quality of life of elderly individuals, ultimately fostering healthier and more equitable communities.

Table 1 shows the socio-economic status of the respondents. The findings demonstrate distinctive demographic characteristics between tribal and non-tribal elderly populations. Among the tribals, 50% of the respondents belonged to the age group of 70-79 years, while 56% of non-tribals were from the age group of 60-69 years. In the level of education, 29% of tribals and 34% of non-tribals were illiterate, corresponding to similar observations reported by Rajkumari [9] where she indicated 55.07 % of the elderly as illiterate in Manipur. Regarding marital status, 55% of tribals and 76% of non-tribal respondents were married. 65% of tribals and 73% of non-tribals belonged to joint families. Similar findings were observed by Kaur *et al.,* [10] where indicated 79.6% of the elderly lived in joint families in North India. It was also found that both groups predominantly comprised medium-sized families, with 62% of tribals and 64% of non-tribals belonging to 5-6 members. Among the female respondents, 39% of tribals and 37% of non-tribals were housewives. In terms of income, 34% of tribals earned an annual income between Rs. 100,001 and Rs. 1, 50,000, while among non-tribals, (25%) fell within the range of Rs. 50,001 to Rs. 100,000. Financial independence was higher among non-tribals, with (72%) being financially self-reliant compared to 53% of tribals. Similar finding were reported by Vidhyashree *et al.,* [11] which indicated 52.7% were economically independent among the elderly in a rural area in Kancheepuram District of Tamil Nadu.

Substance use among the elderly tribal and non-tribal population, as depicted in Table 2, revealed that 41% of tribals and 40% of non-tribals had the habit of chewing tobacco. Similar finding was reported by Thakur *et al.,* [12] who revealed that tobacco use was very high (58.97%) among the elderly in India. In the use of alcohol consumption, 24 % of tribals and 21% of non-tribals consumed alcohol regularly, followed by pan consumption and smoking bidis. The survey also indicated 32 % of tribal and 36 % of non-tribal communities were not addicted to any kind of substance. Similar finding were reported by Mundad *et al.,* (2013), which found that (34%) had no addiction among the geriatric population in the rural area of Aurangabad district. Substance use among older adults is high; effective screening and diagnosis will become increasingly critical [13]. The effects of substances used include digestive problems, depression, increased blood pressure, stroke, heart disease, weakened immune system, cancer [14]. Overall, studies have suggested that moderate alcohol consumption can have some protective cardiovascular factors, while heavier consumption has been associated with an exacerbation of hypertension and increased incidence of heart failure [15]. Emotional problems or stressful situations were often reported to be associated with smoking and alcohol consumption among elderly [16].

Table 3 (a) shows the morbidity profile among the elderly tribal and non-tribal respondents. Hypertension tops the list of morbidity profiles followed by osteoporosis and diabetes. Hypertension, also known as higher or raised blood pressure, is a condition, in which the blood vessels have persistently raised pressure [17]. Hypertension is one of the most important drivers of the rising mortality and disability associated

Table 1. Socio-economic status of tribal and non-tribal elderly population (n=200)

Study Variables	Frequency (%)					
	Tribal		Total	Non-Tribal		Total
	Male (n=40)	Female (n=60)	(n=100)	Male (n=42)	Female (n=58)	(n=100)
Age Group						
60-69	17 (42.5)	23 (38.33)	40 (40)	24 (57.14)	32 (55.17)	56 (56)
70-79	20 (50)	30 (50)	50 (50)	14 (33.33)	18 (31.03)	32 (32)
80 & above	3 (7.5)	7 (11.66)	10(10)	4 (9.52)	8 (13.79)	12 (12)
Qualification						
Illiterate	6 (15)	28 (46.67)	34 (34)	4 (9.52)	25 (43.10)	29 (29)
Can read only	-	1 (1.66)	1 (1)	1 (2.38)	-	1 (1)
Can read and write	1 (2.5)	-	1 (1)	-	1 (1.72)	1 (1)
Primary school	2 (5)	9 (15)	11 (11)	2 (4.77)	8 (13.79)	10 (10)
Middle school	8 (20)	10 (16.66)	18 (18)	5 (11.90)	10 (17.24)	15 (15)
High School	16 (40)	5 (8.34)	21 (21)	14 (33.34)	8 (13.79)	22 (22)
High Secondary School	2 (5)	4 (6.67)	6 (6)	8 (19.04)	2 (3.45)	10 (10)
Under graduate	4 (10)	3 (5)	7 (7)	7 (16.67)	4 (6.89)	11 (11)
Post graduate degree	1 (2.5)	-	1 (1)	1 (2.38)	-	1 (1)
Marital Status						
Married	32 (80)	23 (38.33)	55 (55)	39 (92.85)	37 (63.79)	76 (76)
Unmarried	1 (2.5)	5 (8.34)	6 (6)	1 (2.38)	-	1 (1)
Widow	-	30 (50)	30 (30)	-	20 (34.48)	20 (20)
Widower	7 (17.5)	-	7 (7)	2 (4.77)	-	2 (2)
Divorce	-	2 (3.33)	2 (2)	-	1 (1.73)	1 (1)
Type of family						
Nuclear	16 (40)	19 (31.67)	35 (35)	14 (33.34)	13 (22.42)	27 (27)
Joint	24 (60)	41 (68.33)	65 (65)	28 (66.67)	45 (77.58)	73 (73)
Size of the family						
Small (1-4)	14 (35)	20 (33.34)	34 (34)	13 (30.95)	20 (34.48)	33 (33)
Medium (5-6)	26 (65)	36 (60)	62 (62)	28 (66.67)	36 (62.06)	64 (64)
Large (>7)	-	4 (6.66)	4 (4)	1 (2.38)	2 (3.44)	3 (3)
Occupation						
Retired services	14 (35)	4 (6.67)	18 (18)	13 (30.95)	5 (8.62)	18 (18)
Housewife	-	39 (65)	39(39)	-	37 (63.79)	37 (37)
Business	13 (32.5)	17 (28.33)	30 (30)	12 (28.57)	16 (27.58)	28 (28)
Cultivator	13 (32.5)	-	13 (13)	17 (40.47)	-	17 (17
Total Annual Income						
Below Rs.50,000	4 (10)	4 (6.67)	8 (8)	4(9.52)	10 (17.85)	14 (14)
Rs.50,001– Rs. 100,000	6 (15)	9 (15)	15 (15)	10 (23.81)	16 (27.58)	26 (25)
Rs.100,001Rs.1,50,000	10 (25)	24 (40)	34 (34)	10 (23.81)	14 (24.13)	24 (24)
Rs.1,50,001-Rs.2,00,000	10 (25)	10 (16.67)	20 (20)	5 (11.91)	10 (17.24)	15 (15)
Rs.2,00,000 & above	10 (25)	13 (21.66)	23 (23)	13 (30.95)	8 (13.79)	21 (21)
Financial Dependency						
Yes	-	43	43 (43)	-	28 (48.27)	28 (28)
No	40 (100)	17	57 (57)	42 (100)	30 (51.73)	72 (72)

with cardiovascular disease risk factors in India [18]. As stated, the most common morbidity pattern reported was hypertension, accounting for a prevalence rate of 40% among tribals and 37% among non-tribals. Similar findings were reported by Manjunath *et al.,* [19] who revealed

that hypertension (41.9%) was the major health problem among the elderly in Imphal District. Hypertension remains a major problem since it may be related to ageing issues, a management dilemma to Cardiovascular (CV) specialists and other practitioners [20]. In a multi-morbidity study by Patel *et al.,* [21] across India, it is reported that the prevalence of hypertension was high in Kerala (83.7%) followed by Karnataka (80.8%), and lowest in Jharkhand (56.3%) followed by Haryana (49.4%).

Table 3 (b) shows the association between substance use and morbidity pattern. Statistically, tobacco chewing had a significant effect on the incidence of hypertension and cardiovascular disease in both the study groups. Unlike western countries, India has a higher number of smokeless tobacco consumers in comparison to smokers. Studies in India including this present study, showed that smoking and chewing tobacco significantly

correlated with the prevalence of coronary heart disease and hypertension, and a higher quality of life could be achieved by avoiding such habits [22].

Osteoporosis is characterized by a decrease in bone mass and destruction [23]. Old people usually have severe osteoporosis due to gonadal and/or vitamin deficiency [24]. The prevalence of osteoporosis among the tribals was 25% and non-tribals, 30%. Similar findings were reported by Salari *et al.,* [25] who indicated that (36.1%) prevalence of osteoporosis among the elders in India. Prevalence of osteoporosis was also reported to be high in the Eastern Mediterranean region with Saudi Arabia having a prevalence rate of 32.7% and the Kuwait with 51.1%. Due to increased life expectancy, the prevalence of osteoporosis and its complications is increasing in the region [26]. Tobacco chewing was found to have a significant effect on the incidence of osteoporosis among the tribals.

Table 2. Substance use among the elderly tribal and non-tribal population

Substance use	Frequency (%)					
	Tribal		Total	Non-Tribal		Total
	Male	Female		Male	Female	
Pan	8 (20)	13 (21.66)	21 (21)	10 (23.80)	12 (20.68)	22 (22)
Tobacco	15 (37.5)	26 (43.34)	41 (41)	13 (30.95)	27 (46.55)	40 (40)
Smoking	9 (22.5)	2(3.34)	11 (11)	7 (16.67)	1 (1.72)	8 (8)
Alcohol	22 (55)	2 (3.34)	24 (24)	21 (50)	-	21 (21)
No addiction	10 (25)	22 (36.67)	32 (32)	11 (26.19)	25 (43.10)	36 (36)

Table 3(a). Morbidity profile among the elderly tribal and non-tribal population

Morbidity profile	Frequency (%)					
	Tribal			Non-Tribal		
	Male	Female	Total	Male	Female	Total
Diabetes	13 (32.5)	14 (23.34)	27 (27)	14 (33.34)	12 (20.68)	26 (26)
Cancer	2 (5)	2 (3.34)	4 (4)	2 (5)	2 (3.34)	4 (4)
Cardiovascular	2 (5)	5 (8.34)	7 (7)	4 (9.52)	5 (8.62)	9 (9)
Hypertension	16 (40)	24 (40)	40 (40)	15 (40)	22 (40)	40 (37)
Osteoporosis	9 (22.5)	16 (26.67)	25 (25)	10 (23.80)	20 (37.93)	30 (30)
Hearing defect	8 (20)	13 (21.66)	21 (21)	9 (21.66)	15 (25.86)	24 (24)
Renal	1 (2.5)	5 (8.34)	6 (6)	2 (4.76)	-	2 (2)
Asthma	2 (7.5	1 (1.67)	3 (3)	2 (4.76)	3 (5)	5 (5)
Arthritis	1 (2.5)	-	1 (1)	1(2.38)	4 (6.89)	5 (5)
Chronic obstructive Disease	-	3 (5)	3 (3)	1 (2.38)	-	1 (1)
Liver	2 (5)	-	2 (2)	2 (4.76)	-	2 (2)
Gastric	3 (7.5)	8 (13.33)	11 (11)	3 (7.14)	7 (13.33)	10 (10)
Any other	3 (7.5)	14 (23.34)	17 (17)	3 (7.14)	12 (23.34)	15 (15)
None	3 (7.5)	5 (8.34)	8 (8)	4 (9.52)	9 (15.51)	13 (13)

 # Multiple response

Table 3(b). Association between morbidity pattern and substances use among the elderly tribal and non-tribal among

Morbidity patterns	Substance use							
	P value							
	Pan		Tobacco chewing		Smoking		Alcohol	
	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal	Tribal	Non Tribal
Diabetes	0.04	0.12	-0.14**	0.07	0.18	0.86	-0.18**	-0.23**
Cancer	0.24**	0.04	-0.07	0.31	-0.005*	0.14	-0.12*	-0.13**
Cardiovascular	-0.06	0.13	-0.09**	-0.07**	-0.15	-0.13	0.15**	0.33**
Hypertension	-0.01	0.12	-0.09**	0.13*	-0.12	-0.02	0.07**	0.05**
Osteoporosis	0.12	-0.09	0.01*	0.08	0.05	-0.01	-0.05*	0.08**
Hearing defect	-0.13**	0.13	-0.10	0.02	-0.11*	-0.08	0.17*	0.03**
Renal	0.21	0.13	-0.08	-0.07	-0.04	-0.02	-0.05*	0.03**
Asthma	-0.02	-0.02	0.12**	0.16	0.17	-0.09	-0.03*	-0.04**
Arthritis	-0.08**	0.08	0.28	-0.03	0.17*	-0.05	-0.17*	0.05**
Chronic obstructive Disease	-0.02	0.35	-0.06*	-0.05	0.03	-0.09	0.09**	0.09**
Liver	0.02	-0.11	-0.05	0.22*	0.08	-0.07	0.08**	0.76**
Gastric	0.09	-0.02	-0.12	0.01	0.02	-0.02	0.04*	-0.3**
Any other	0.02**	-0.05	-0.06	-0.01	-0.11*	-0.07	-010*	0.08**

* significant at the 0.05 level

** significant at the 0.01 level

Diabetes mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia and high glycated hemoglobin with or without glycosuria [27]. In this study, diabetes was reported in 27% of tribal and 26% of non-tribal communities. Similar finding was reported by Sudarshan and Chethan, [28] who indicated that 22 per cent of the elderly population in the rural area of Pondicherry had diabetes. Elderly people with diabetes are a heterogeneous group with different life expectancy, concomitant of chronic diseases, and the ability to self-control blood glucose or give themselves an injection [29]. Chewing tobacco had a significant effect on the incidence of diabetes in tribal communities; however, there was no significant relationship found among non-tribal communities [30].

Hearing impairment had a prevalence rate of 21% in tribals and 24% in non-tribals. Pan consumption and smoking bidis had a significant effect on hearing impairment among the tribal; however, there was no significant effect found with the non-tribals.

17% of tribal and 15% of non-tribal respondents reported other ailments such as headaches, anemia, nervous system, etc. Among the tribal community, pan consumption and smoking bidis had a significant effect on the incidence of any other illness; however, there was no significant effect in the non-tribal community.

Gastro-intestinal diseases were seen in 11% of tribal and 10 % of non-tribal respondents. A minor portion reported suffering from cardiovascular diseases (7% of tribal and 9% of non-tribal respondents). Renal diseases were reported only in 6% of tribal and 2% of non-tribal respondents, asthma, 3% of tribal and 5% of non-tribal respondents, arthritis, 1% of tribal and 5% of non-tribal respondents, chronic obstructive diseases, 3% of tribal and 1% of non-tribal respondents, liver diseases both 2% of tribal and non-tribal respondents and cancer, 4% of tribal and 1% of non-tribal respondents. Among the tribal community, pan consumption and smoking bidis had a significant effect on the incidence of cancer; however, there was no such relationship found among the non-tribal community. Alcohol consumption was found to significantly affect the prevalence of all morbidity patterns both among tribals and non-tribals. However, 8% of tribal and 13% of non-tribal respondents did not show significant morbidity pattern.

Table 4. Association between morbidity pattern and socioeconomic status among the elderly tribal and non tribal

Socio -Economic status	Morbidity pattern	
	Tribal	Non-Tribal
	p value	p value
Age	0.05	0.99
Education	0.01	0.79
Occupation	0.85	0.68
Size of Family	0.23	0.25
Annual Income	0.22	0.69
Economic Status	0.10	0.10
Financial Dependency	0.007	0.59
Mass Media Exposure	0.75	0.40

* Significant at the 0.05 level
** Significant at the 0.01 level

The association between morbidity patterns and different socioeconomic variables among the elderly tribal and non-tribal is depicted in Table 4. In both groups, among the selected characteristics, i.e., age, education, occupation, annual income, size of family, economic status, and financial dependency, there was no significant relationship between morbidity patterns among the elderly tribals and non-tribals.

4. CONCLUSION

Thus, in the study, a comprehensive profile of morbidity and substance use among the tribal and non-tribal elderly population was compiled through correlation and regression analysis. This methodological approach facilitated a thorough understanding of the prevailing health issues and behavioral patterns affecting this demographic in the Imphal East District of Manipur. The necessity to compile such a profile stems from the imperative to address the pressing health concerns and formulate targeted interventions and policies tailored to the specific needs of the elderly in this region. By elucidating the prevalence of various diseases and addictions patterns, this study highlights the urgency for proactive interventions to safeguard the health and well-being of the elderly population. Addressing the issue of addiction requires the implementation of diverse educational and motivational activities aimed at promoting healthier lifestyles and reducing substance use among the elderly. Thus, based on the findings of this study, it is imperative to develop comprehensive healthcare strategies and policies that prioritize the care and support of the elderly population, ensuring their overall well-being and quality of life.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Sahao H, Govil D, James KS, Prasad RD. Health issues, health care utilization and health care expenditure among elderly in India: Thematic review of literature. Aging and health research; 2021.
Available:https://doi.org/10.1016/j.ahr.2021.100012.

2. Pooja AG, Sushma BV. Socioeconomic, nutritional profile correlates with morbidity risks and quality of health status among elderly residing at old age home& residence from different region of south karnataka. International Journal of Health Sciences and Research. 2021;11(6):349-355.

3. United Nations. Population Ageing and Development, datasheet; 2019.
Accessed on 7 February 2024.

4. Chatterjee C, Nayak NC, Jitendra M, Chatterjee S. Factors affecting the choice of health care utilization between private and public services among the elderly population in India. National Library of Medicine; 2019.
Available:https://doi.org/10.1002/hpm.2686.

5. Pathak G, Kalita D, Deka B. Study on morbidity pattern among elderly in urban area of Barpeta, Assam, Journal of Family Medicine and Primary Care; 2022.
DOI; 10.4103/jfmpc.jfmpc_1294_21.

6. Devi LB, Keisam A, Singh LV, Singh HD. Health problems among Elderly in an Urban Community in Imphal. Annals of International Medical and Dental Research. 2017;3(1):6-11.

7. Sara HH, Chowdhury MAB, Haque Md A. Multimorbidity among elderly in Bangladesh. National Library of Medicine. 2018;1(3):267-275.

8. Chobe M, Chobe S, Dayama S, Singh A, Metri K, Basa JR, Raghuram N. Prevalence of non-communicable diseases and its associated factors among urban elderly of six Indian states. National Library of Medicine; 2023.
Doi:10.7759/cureus.30123.

9. Rajkumari G. A study of elderly living in old age homes in Manipur, India. Journal of Gerontology & Geriatric Research. 2021;10(4):1-5.

10. Kaur G, Bansal R, Anand T, Kumar A, Singh J. Morbidity profile of noncommunicable diseases among elderly in a city in North India. Clinical Epidemiology and Global Health. 2019; 7(1): 29-34.

11. Vidhyashree MD, Adhilakshmi R, Kamini B. Socio-economic determinants of multimorbidity among the elderly population in a rural area in Kancheepuram District of Tamil Nadu. Journal of Research in Medical and Dental Science. 2021;9(7):436-441.

12. Thakur RP, Banerjee A, Nikumb VB. Health problems among the elderly: A Cross-sectional study.Annals of Medical & Health Sciences Research. 2013;3(1):19-25.

13. Lin J, Arnovitz M, Kotbi N, Francois B. Substance use disorders in the geriatric population and synthesis of the literature of a growing problem in a growing population. National Library of Medcience; 2023.
DOI:10.1007/s40501-023-00291-9.

14. Peckham, A. and Eshe, J. Physical and mental effects of drug abuse; 2023.
Available:https://www.medicalnewstoday.com/articles/effects-of-drug-abuse.
Accessed on 8 February 2024.

15. Sadhu JS, Novak E, Mukamal KJ, Kizer JR, Psaty BM, Stein PK, et al. Association of alcohol consumption after development of heart failure with survival among older adults in the cardiovascular health study. National Library of Medicine. 2018; 1(8):e186383.
DOI:10.1001/jamanetworkopen.2018.6383.

16. Mini GK, Sarma Ps, Thankappan KR. Pattern of tobacco use and its correlates among older adults in India. 2014;15 (15):6195-8.

17. World Health Organization (WHO)
Available:https://www.who.int>health-topics Hypertension. Accessed on 9 February 2024.

18. Gupta R, Xavier D. Hypertension: The most important non communicable disease risk factor in India. India Heart Journal. 2018;70(4):565-572.

19. Manjunath FV, Girish I, Tarini NG. Health problems of the elderly in Imphal District, Manipur: A cross sectional study. Annals of Geriatric Education and Medical Sciences. 2018;5(1):21-24.

20. Lionakis N, Mendrinos D, Sanidas E, Favatas G, Georgopoulou M. Hypertension in the elderly. National Library of Medicine. 2012;4(5):135-147.

21. Patel P, Muhammad T, Sahoo H. The burden of disease specific multimorbidity among older adults in India and its states: evidence from LASI. National Library of Medicine; 2023.
DOI:10.1186/s12877-023-03728-1.

22. Muhammad T, Govindu M, Srivastava S. Relationship between chewing tobacco, smoking, consuming alcohol and cognitive impairment among older adults in India: a cross-sectional study. BMC Geriatrics. 2021.
DOI:10.1186/s12877-021-02027-x.

23. Nielsen BR, Andersen HE, Haddock B, Hovind P, Suetta C. Prevalence of muscle dysfunction concomitant with osteoporosis in a home-dwelling Danish population aged 65-93 years-the Copenhagen Sarcopenia Study. National Library of Medicine; 2020.
Available:https://doi.org/10.1016/j.exger.2020.110974.

24. Hossein-Nezhad A, Horlick MF. Vitamin D for health: A global perspective Mayo. National Library of Medicine. 2013;88:720-55.

25. Salari N, Darvishi N, Bartina Y, Larti M, Kiaei A, Hemmati M, et al. Global prevalence of osteoporosis among the world older adults: a comprehensive systematic review and meta-analysis. National Library of Medicine; 2021.

DOI:10.1186/s13018-021-02821-8.

26. Zamani M, Zamani V, Heidari P, Parsian H, Esmaeilnejad-Ganji SM. Prevalence of osteoporosis with the World Health Organization diagnostic criteria in the Eastern Mediterranean Region: a systematic review and meta-analysis. Arch Osteoporos. 2018;13(1):129.

27. Chentli F, Azzoug S, Mahgoun S. Diabetes mellitus in elderly. Indian Journal of Endocrinology and Metabolism. 2015; 19(6):744-752.

28. Sudarshan BP, Chethan TK. Morbidity pattern among the elderly population in the rural area of Pondicherry: a cross sectional study.
Available:https://doi.org/10.18203/2394-6040.ijcmph20160423.

29. Mordarska K, Godziejewska-Zawada M. Diabetes in the elderly. National Library of Mediciene. 2017;16(2):38-43.

30. Munda V, Jadhav V, Gaikwad AV. Study of addiction problems and morbidity among geriatric population in rural area of Aurangabad District. Journal of Mid-Life Health. 2013;4(3): 172-175.