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Morbidity Pattern and Health Seeking Behaviour of the Geriatric Population: A Cross-Sectional Study of Belpada Block, Bolangir District

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Abstract: Aging is a natural biological process that weakens the immune system, making elderly individuals more susceptible towards health issues. Morbidity, defined as the state of being ill or having a disease, is particularly more prevalent among the elderly people compared to other age groups. This study aimed to investigate the socio-demographic characteristics of elderly individuals as well as to identify the common types of morbidities affecting them in Belpada block, Bolangir district. A community-based cross-sectional study was conducted among 150 elderly individuals aged 60 years and above in Belpada block, Bolangir district. Stratified sampling was employed to select participants. Data were collected using schedules, semi-structured interviews, case studies, clinical examinations, and verification of medical reports. Socio-demographic characteristics as well as types of morbidity patterns were recorded and analysed using Microsoft Excel, with results expressed as percentages. Among150 elderly individuals, males (54.34%) had higher morbidity prevalence than females (45.65%), likely due to more consumption of alcohol, tobacco, as well as smoking among men as compared to women. Osteoarthritis was most prevalent (76%, 114), followed by hypertension (65.33%, 98), eye problems (62.66%, 94), diabetes (59.93%, 89.9), hearing loss (55.33%, 83), acidity (34%, 51), dental issues (16%, 24), mental disorders (12.66%, 19), heart disease (9.33%, 14), constipation (7.33%, 11), paralysis (6%, 9), liver disease (5.33%, 8), and respiratory issues (4.66%, 7). Out of 150 elderly, 130 seeking medical care, Allopathy was mostly preferred (26.15%, 34) and very few (3.84%,5) relied on faith healer. Among them 125 elderly using facilities, most (46.4%, 58) were choosing government hospitals whereas 20 (13.3%) sought no treatment due to unawareness (30%), lack of accompaniment (30%), distance (25%), or financial constraints (15%). This study highlights a high burden of chronic morbidities among

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the elderly in Belpada block, with osteoarthritis, hypertension, and sensory impairments being the most prevalent. Males exhibited a slightly higher morbidity prevalence than females. These findings indicate the urgent need for targeted healthcare interventions, including regular screening, lifestyle modifications, and accessible primary care services, to address the health challenges faced by the elderly in this region.

Keywords: Morbidity, Health, Prevalence, Illness, Elderly, Geriatric, Chronic

INTRODUCTION

Aging is an universal process that involves declining physiological functions, particularly a weakened immune system after age 60 with increasing risks of chronic diseases, disabilities, and mental health issues (Joshi et al., 2003; Kaur et al., 2019). These changes impact health, psychological well-being as well as functional capacity which impact the quality of life (Joshi et al., 2003). Globally, the elderly population (>60 years) exceeds 800 million (12% of the total) and is protruding to reach 2 billion by 2050, with 80% in low- and middle-income countries facing healthcare shortages (United Nations, 2013; Pathak et al., 2022). In India, the elderly numbered 104 million in 2011 (10% of the population), expected to reach 198 million by 2030 due to rising life expectancy and declining fertility (Banjare et al., 2014; George et al., 2017). This demographic shift will affect health, economic, and social systems, especially in rural areas with limited resources.

India's 1999 National Policy on Older Persons struggles with implementation in rural regions (Yadav et al., 2017). Socio-demographic factors like income, education as well as gender influence the health outcomes and disease vulnerability (Shraddha et al., 2012). No studies have explored morbidity patterns in Belpada block, Bolangir district, Odisha—a rural area with socioeconomic and healthcare access constraints—where conditions like hypertension, diabetes, arthritis, and ocular morbidity, hearing loss are more prevalent. Morbidity in case of elderly features chronic non-communicable diseases, sensory impairments, and musculoskeletal disorders that often leading to multimorbidity, which increases the health risks and support services. The Prevalence of diseases rises with age and varies by gender, socioeconomic status as well as by region. Studies from low-resource settings like Nigeria and India show cardiovascular, ocular, and metabolic conditions dominate, with females often at higher risk for specific disorders. A Nigerian study (n=500, mean age 67.8 years) found that hypertension (40%), cataracts (39.4%), and osteoarthritis (26.8%) most common, with higher female rates of anemia and

obesity (Ogunbode et al., 2015). An Indian study in Assam (n=150) reported eye disorders (46%), metabolic conditions (37.3%), and circulatory issues (34.7%), with multimorbidity in 34.7% of cases that increasing with age and female prevalence for cataracts and hearing loss (Kalita et al., 2022). Globally, multimorbidity affects 37.2% of adults, exceeding 60% in case of 65+ in high-income countries, with regional variations (Zhang et al., 2023). The absence of prior research on the elderly in Belpada block, Bolangir district, Odisha, that emphasizes the need for this study, which investigates the socio-demographic characteristics and morbidity patterns among individuals aged 60 and older in this underserved rural region. The research seeks to illustrate their living conditions and prevalent health issues, such as chronic non-communicable diseases and multimorbidity, while identifying socio-demographic factors influencing these conditions. By raising awareness among the elderly and their communities, the study aims to promote better health management. Additionally, it provides evidence-based insights to inform targeted interventions under frameworks like the National Policy on Older Persons (1999), promoting improved healthcare access and necessary treatments. Ultimately, this research makes a strong effort to enhance the well-being and quality of life for the elderly in Belpada block, addressing a critical gap in localized geriatric health data.

Inclusion Criteria

1. Elderly persons who were 60 years and above.
2. Elderly who gave their consent to participate in the study.

Exclusion Criteria

1. Elderly persons who were bed ridden.
2. Elderly who were not present at home at the time of visit.

RATIONALE OF THE STUDY

Beyond age 60, a weakened immune system increases the elderly's susceptibility to various health issues, including chronic diseases and disabilities, significantly impacting their well-being. In Belpada block, Bolangir district, Odisha, a rural area with limited healthcare access, these challenges are likely worsened, yet no prior research has explored morbidity patterns in this region. This study aims to investigate the way of life of elderly people and the prevalence of diseases, providing

critical insights into their health challenges. By identifying these issues, the research seeks to raise awareness among the elderly, empowering them to seek timely interventions. Furthermore, the findings will offer evidence-based data to guide government efforts under frameworks like the National Policy on Older Persons (1999), enabling targeted health treatments and improved healthcare access to enhance the quality of life for Belpada's elderly population.

MATERIAL AND METHOD

A community-based cross-sectional study was conducted from 1st February to 15th February, 2023, in four villages—Gambhari, Kindrital, Sargimunda, and Kansapala—within the Gambhari and Kandeijhulla panchayats of Belpada block, Bolangir district, Odisha. The study population included all individuals aged 60 years and older residing in these villages and give their consent to participate in this study. A house-to-house survey was performed using probability sampling, with participants selected via stratified sampling.

> The sample size was calculated by using the formula, Z^2pq/d^2, where, Z= 1.96 (Confidence interval at 95%), p= prevalence (50%), q=(1-p), d= margin of error (8%). This yielded a sample size of 150 elderly participants who provided informed consent for inclusion.

Data were collected through a structured schedule that include socio-demographic characteristics as well as morbidity patterns. Additionally, semi-structured interviews and case studies were employed to assess multimorbidity and to identify signs and symptoms of various diseases. A comprehensive general physical examination was conducted, including physiological measurements for Blood pressure and diabetes. Blood pressure was measured using a standard mercury sphygmomanometer on the left arm, with participants seated comfortably, and an average of three readings was recorded. Hypertension was defined as systolic blood pressure (SBP) ≥140 mmHg, diastolic blood pressure (DBP) ≥90 mmHg, or current use of antihypertensive medication, classified per Joint National Committee (JNC) criteria: Normal (SBP <120 and DBP <80 mmHg), Prehypertension (SBP 120–139 or DBP 80–89 mmHg), Stage 1 Hypertension (SBP 140–159 or DBP 90–99 mmHg), Stage 2 Hypertension (SBP ≥160 or DBP ≥100 mmHg), and Controlled Hypertension (SBP <140 and DBP <90 mmHg) (Chobanian, 2003). Blood sugar levels were measured using a glucometer, with fasting blood sugar >120

mg/dL or postprandial levels >180 mg/dL indicating diabetes mellitus (Park, 2011). Participants were asked to present all medications and prescriptions along with self-reported illnesses, physical examinations, as well as physiological measurements were taken to identify the diseases.

Collected Data were entered into Microsoft Excel. Percentages were calculated and presented using appropriate tables and diagrams for interpretation.

RESULT

Sociodemographic profile	*Total (%)*
Age	
60-69	41.33
70-79	25.33
80-89	19.33
90 and above	14.00
Sex	
Male	46.66
female	53.33
Family status	
Dependent	9.62
Independent	90.37
Occupation	
Agriculture	84.4
Business	5.18
House wife	10.37
Family type	
Nuclear	51.85
Joint	43.70
extended	4.44
Marital status	
Married	62.96
Widow	23.70
widower	13.33
Education	
No-literate	65.92
Primary	31.11
Secondary	3.70

Sociodemographic profile	*Total (%)*
Risk factor	
Alcohol drinking	14.07
Tobacco chewing	8.88
Smoking	17.03
Narcotics	25.18
Multiple substance use	17.77
Non-consumer	17.03

The sociodemographic profile reveals a diverse group with distinct characteristics. The age distribution shows 41.33% of individuals are aged 60–69, 25.33% are aged 70–79, 19.33% are aged 80–89, and 14% are of 90 year and above. According to Gender-wise, females make up 53.33% of the group which is slightly more than the males (46.66%). In terms of family status, 90.37% live independently, while 9.62% are dependent. Occupationally, 84.4% are engaged in agriculture, 10.37% are housewives, and 5.18% are involved in business. Family structure is predominantly nuclear (51.85%), followed by joint families (43.7%), with extended families being the least common (4.44%). Marital status indicates 62.96% are married, 23.7% are widows, and 13.33% are widowers. Education levels show 65.92% are non-literate, 31.11% have primary education, and only 3.7% have secondary education. Regarding risk factors, 25.18% use narcotics, 17.77% engage in all listed behaviours (alcohol, tobacco, smoking, narcotics), 17.03% smoke, 14.07% consume alcohol and 8.88% chew tobacco whereas 17.03% of elderly are non-consumers of these substances.

Table 2: Pattern of Morbidities Among Elderly People

Type of Morbidity Pattern	*Age Groups*				
	60-69	*70-79*	*80-89*	*≥90*	*Total*
Single Morbidity	12 (19.35%)	8(21.05%)	6(20.69%)	5(23.81%)	31(20.67%)
Double Morbidity	19(30.65%)	13(34.21%)	9(31.03%)	7(33.33%)	48(32%)
Multi Morbidity	31(50%)	17(44.74%)	14(48.28%)	9(42.86%)	71(47.33%)
Total	62(41.33%)	38(25.33%)	29(19.33%)	21(14%)	150

The morbidity pattern across different age groups reveals a significant prevalence of multi-morbidity, affecting 47.33% of the total population (71 out of 150 individuals), followed by double morbidity at 32% (48 individuals) and

single morbidity at 20.66% (31 individuals). Among the age groups 60–69 that comprising of 41.33% (62 individuals) of the total sample shows the highest multi-morbidity rate at 50% (31 individuals), with 30.65% (19 individuals) having double morbidity and 19.35% (12 individuals) with single morbidity. The 70–79 age group, representing 25.33% (38 individuals), has 44.74% (17 individuals) with multi-morbidity, 34.21% (13 individuals) with double morbidity, and 21.05% (8 individuals) with single morbidity. In the 80–89 group, which constitutes 19.33% (29 individuals), multi-morbidity affects 48.28% (14 individuals), double morbidity 31.03% (9 individuals), and single morbidity 20.69% (6 individuals). For those aged 90 and above that comprising up 14% (21 individuals), multi-morbidity is lowest at 42.86% (9 individuals), with double morbidity at 33.33% (7 individuals) and single morbidity at 23.81% (5 individuals). Overall, multi-morbidity consistently dominates across all age groups, particularly in the younger 60–69 age group while single morbidity is least common.

Table 3: List of Morbidities

Morbidity Pattern	*Male (N=70)*	*Female (N=80)*	*Total (N=150)*
Hypertension	55(56.12%)	43(43.87%)	98(65.33%)
Diabetes	40(44.94%)	49(55.05%)	89(59.93%)
Osteoarthritis	61(53.04%)	54(46.95%)	115(76%)
Hearing Loss	51(61.44%)	32(38.55%)	83(55.33%)
Eye Problem	52(55.31%)	42(44.68%)	94(62.66%)
Mental Disorder	11(57.89%)	8(42.10%)	19(12.66%)
Heart Disease	8(57.14%)	6(42.85%)	14(9.33%)
Liver Disease	6 (75%)	2 (25%)	8(5.33%)
Paralysis	4(44.44%)	5(55.55%)	9(6%)
Acidity	25(49.01%)	26(50.98%)	51(34%)
Respiratory Diseases	5(71.42%)	2(28.57%)	7(4.66%)
Constipation	7(63.63%)	4(36.36%)	11(7.33%)
Dental Problem	13(54.16%)	11(45.83%)	24(16%)
Total Morbidities	**338(54.34%)**	**284(45.65%)**	**622**

The morbidity profile of 150 individuals, comprising 70 males and 80 females, reveals a total of 622 morbidities, with males 54.34% (338 cases) and females 45.65% (284 cases). Osteoarthritis is the most common morbidity, impacting 76% (115 individuals), with males at 53.04% and females at 46.95%, Followed by Hypertension affecting 65.33% (98 individuals) which was slightly higher in males

(56.12%) than females (43.87%),Followed by Eye problems affecting 62.66% (94 individuals) males showing higher rates 55.31% than females (44.68%) followed by Diabetes that affects 59.93% (89 individuals), with a higher prevalence in females (55.05%) than males (44.94%), hearing loss affecting 55.33% (83 individuals) with males showing higher rates 61.44% than females (38.55%). Less frequent conditions include mental disorders (12.66%, 19 individuals), heart disease (9.33%, 14 individuals), liver disease (5.33%, 8 individuals), and paralysis (6%, 9 individuals), with males generally more affected, except for paralysis, where females have a slight edge (55.55% vs. 44.44%). Acidity is reported in 34% (51 individuals), with near-equal gender distribution. Respiratory diseases (4.66%, 7 individuals), constipation (7.33%, 11 individuals), and dental problems (16%, 24 individuals) are less common, with males showing higher rates for respiratory diseases and constipation, while dental problems are nearly evenly distributed. Overall, the data indicates a substantial burden of chronic conditions, with males experiencing a slightly higher morbidity load.

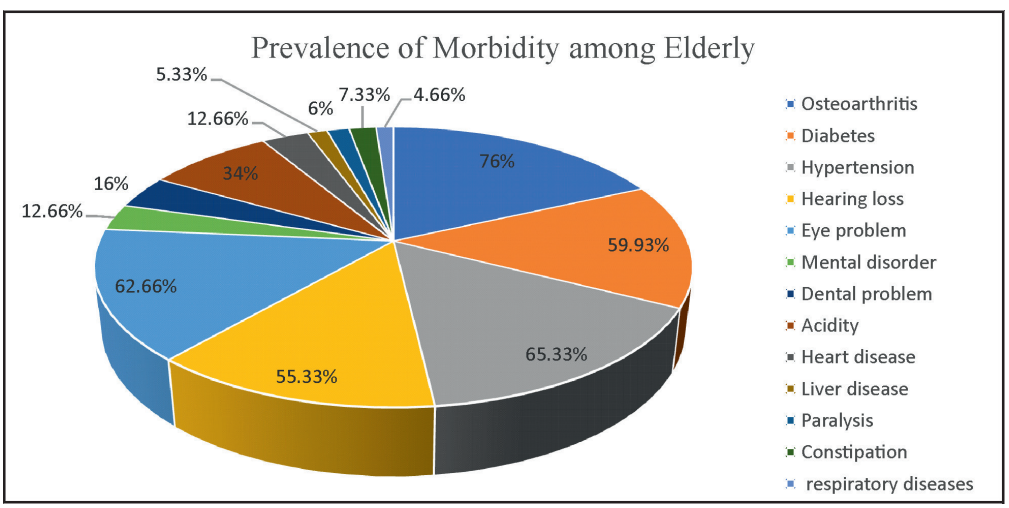


Chart 1: Prevalence of Morbidity among Elderly

Table 4: Distribution of elderly according to their self-reported general health status

Self-reported Health Status	*n (%)*
Good	33(22%)
Moderate	98(65.33%)
Bad	19(12.66%)

From the above table, it was found that in a sample of 150 individuals reporting their health status, the majority, 98 people or 65.33%, described their health as Moderate, making it the most prevalent condition. Meanwhile, 33 (22%) reported good health, and a smaller group of 19(12.66%) indicated Bad health, representing the least common status. This distribution highlights a predominance of moderate health perceptions among the groups.

Table 5: Distribution of elderly population according to their health-seeking behaviors

Variable	*n (%)*
Preference of system of medicine of elderly (n=130)	
Allopathy	34(26.15%)
Homeopathy	23(17.69%)
Ayurvedic	21(16.15%)
Both Ayurvedic and homeopathy	15(11.53%)
Both Allopathy and Ayurvedic	15(11.53%)
Both Allopathy and homeopathy	11(8.46%)
All (Allopathy, Ayurvedic, Homeopathy)	6(4.61%)
Faith healer medication	5(3.84%)
Type of health facility used by elderly (n=125)	
Government hospital	58(46.4%)
Private hospital	49(39.2%)
Self-medication	18(14.4%)
Reasons for not seeking treatment (n=20)	
Not aware about their own morbidity	6(30%)
Lack of money	3(15%)
Distance of health facility	5(25%)
No one to take him/her to hospital	6(30%)

In a study of 150 elderly individuals, 20 did not receive any treatment, leaving 130 who reported preferences for medical systems. Among them, Allopathy was the most favoured, chosen by 34 (26.15%), followed by Homeopathy at 23 (17.69%) and Ayurvedic medicine at 21 (16.15%). While 15 (11.53%) using both Ayurvedic and Homeopathy, 15 (11.53%) using both Allopathy and Ayurvedic, 11 (8.46%) individuals using both Allopathy and Homeopathy. Whereas, only 6 (4.61%) used all three systems (Allopathy, Ayurvedic, Homeopathy) and only 5 (3.84%) relied on faith healer medication. Among 125 individuals, health facility usage showed 58 (46.4%) visiting government hospitals, 49 (39.2%) attending private hospitals,

and 18 (14.4%) practicing self-medication. For the 20 who did not seek treatment, reasons included unawareness of their own morbidity and lack of someone to accompany them, each reported by 6 (30%), distance to health facilities by 5 (25%), and lack of money by 3 (15%). This highlights diverse medical preferences and significant barriers to healthcare access among the elderly.

DISCUSSION

The study reveals that the majority of the elderly population were in the 60–69 age group, comprising 41.33% of the sample, which aligns with findings by Karmakar et al. (2017). Multimorbidity is more prevalent (47.33%), followed by double morbidity (32%) and single morbidity (20.66%) which was almost same as the study of Patel et al. (2023) reported a higher prevalence of multimorbidity (32.1%) whereas lower single morbidity (30.3%) among older adults in India. Osteoarthritis is highly prevalent at 76%, surpassing the rates observed by George et al. (2017). Hypertension affects 65.33% of the sample, a higher rate than reported by Pathak et al. (2022). Eye problems, with a prevalence of 62.66%, are less common compared to findings by Kaur et al. (2019). Diabetes prevalent with 59.93%, slightly higher than reported by Modeer et al. (2013). Hearing loss is significantly more prevalent at 55.33% compared to studies by Pathak et al. (2022), Kaur et al. (2019), and Karmakar et al. (2017). Acidity, affecting 34% of the sample, is less prevalent than in Karmakar et al. (2017), while dental problems (16%) are more common than reported by Banjare et al. (2014). Mental disorders, with a prevalence of 12.66%, are less prevalent than the findings of Saliva (2013). Heart disease prevalence (9.33%) exceeds that reported by George et al. (2017). Constipation, at 7.33%, is slightly less prevalent than in Pathak et al. (2022), while paralysis (6%) matches the prevalence noted by Banjare et al. (2014). Liver disease prevalence (5.33%) is lower than in Banjare et al. (2014), and chronic bronchitis (4.66%) is significantly less prevalent than reported by Karthik et al. (2020). The study also indicates a higher morbidity burden among males (54.34%) compared to females (45.65%), which contrasts with Pathak et al. (2022), who found near-equal morbidity distribution across genders. In this study of 150 elderly individuals in Odisha, where 20 (13.3%) received no treatment, 130 individuals approached medical system with Allopathy favoured by most of the people 34 (26.15%) while 5 (3.84%) relied on faith healer medication. This is contrasts with global trends, where allopathic or biomedical systems

Table 6: Comparison with other Studies

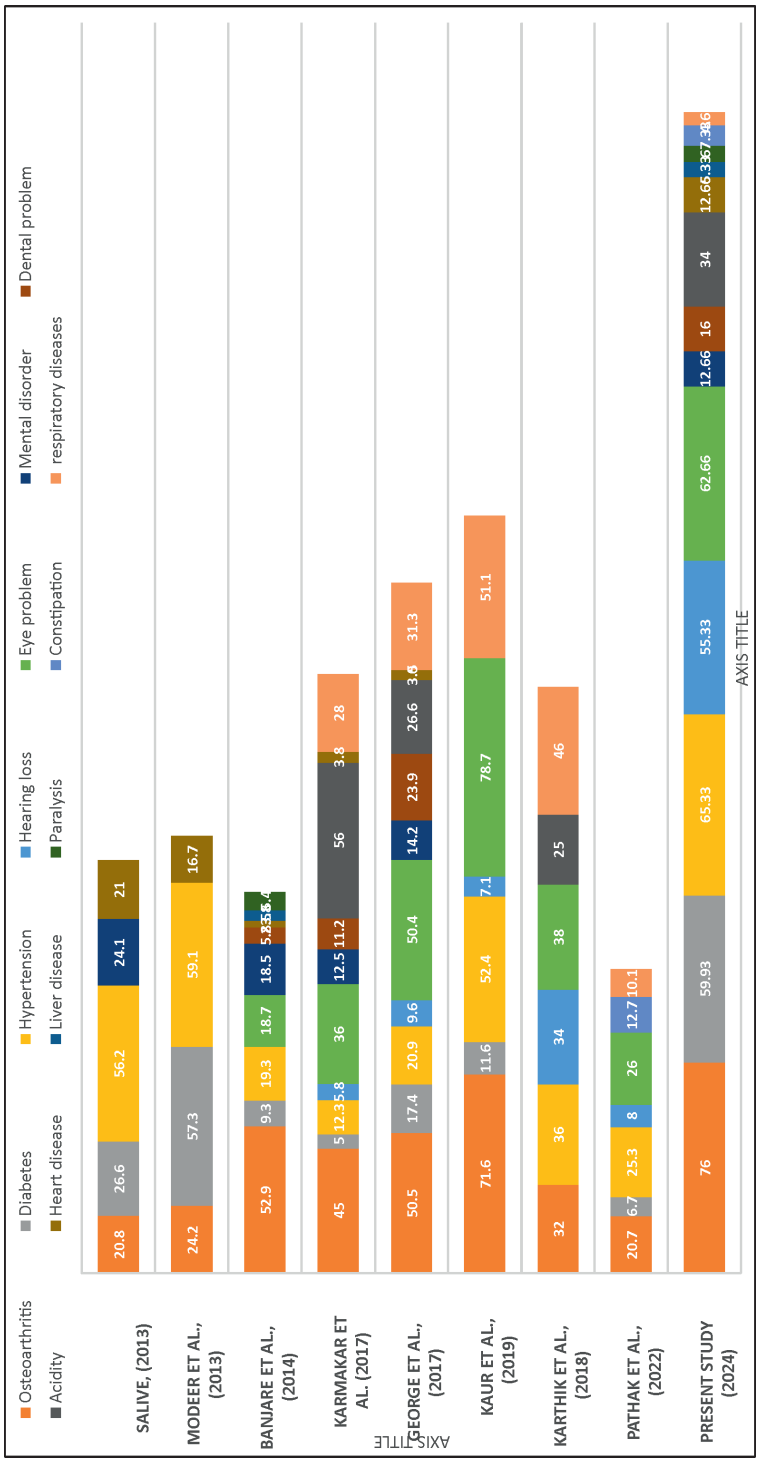
Morbidities name	*Present study (2026)*	*Pathak et al., (2022)*	*Karthik et al., (2018)*	*Kaur et al., (2019)*	*George et al., (2017)*	*Karmakar et al., (2017)*	*Banjare et al., (2014)*	*Modeer et al., (2013)*	*Salive, (2013)*
Osteoarthritis	76%	20.7%	32%	71.6%	50.5%	45%	52.9	24.2	20.8%
Diabetes	59.93%	6.7		11.6	17.4	5%	9.3	57.3	26.6%
Hypertension	65.33%	25.3	36	52.4	20.9%	12.3%	19.3	59.1	56.2%
Hearing loss	55.33%	8%	34%	7.1	9.6%	5.8%			
Eye problem	62.66%	26	38%	78.7%	50.4%	36%	18.7		
Mental disorder	12.66%				14.2%	12.5%	18.5		24.1%
Dental problem	16%				23.9%	11.2	5.8		
Acidity	34%		25%		26.6%	56%			
Heart disease	12.66%				3.5%	3.8%	2.5	16.7	21%
Liver disease	5.33%				-		3.8		
Paralysis	6%				-		6.4		
Constipation	7.33%	12.7			-				
Respiratory diseases	4.66%	10.1	46%	51.1%	31.3%	28%			

dominate elderly care. For instance, in OECD countries, elderly care preferences to family-provided or integrated primary care models, with minimal traditional alternatives (Fujisawa & Hashimoto, 2023; Schoen et al., 2025), and in the U.S. allopathic treatment is predominant utilize by elderly with limited use of non-conventional systems same as that of AYUSH (Schneider et al., 2024; Tikkanen et al., 2024). In the present study, 58(46.4%) participants preferred government hospitals followed by private 49(39.2%) and self-medication (14.4%). These findings are somehow similar to those in many low- and middle-income countries (LMICs) where government health facilities are widely used because they are affordable and accessible (OECD,2023; Schoen et al., 2023). However, this differs from high-income countries like USA and other OECD countries where elderly populations mainly use private or insurance based allopathic healthcare services while self-medication is less common (Reinhardt,2013; KFF,2025). Among 20 untreated participants, the main reason for not seeking treatment were lack of awareness (30%), lack of companionship (30%), distance (25%) and financial constrains (15%). Almost Similar barriers like transportation problems, lack of family support, economic difficulties, lack of awareness, age related as well as technology related challenges have also been reported in other countries (Low et al.,2022; Fitzpatrick et al., 2006; Ark et al., 2025; WHO, 2025).

The above table compares the prevalence of 13 morbidities across the present study (2026) and eight referenced studies: Pathak et al. (2022), Karthik et al. (2018), Kaur et al. (2019), George et al. (2017), Karmakar et al. (2017), Banjare et al. (2014), Modeer et al. (2013), and Salive (2013). The present study shows high prevalence of osteoarthritis (76%), hypertension (65.33%), and eye problems (62.66%), exceeding most studies except Kaur et al. (2019) for eye problems (78.7%). Diabetes (59.93%) and hearing loss (55.33%) are also elevated, with diabetes close to Modeer et al. (2013) (57.3%). Less common conditions include mental disorders (12.66%), heart disease (12.66%), dental problems (16%), acidity (34%), constipation (7.33%), paralysis (6%), liver disease (5.33%), and respiratory diseases (4.66%), which is much lower than the findings of Karthik et al. (2018) (46%) and Kaur et al. (2019) (51.1%).

CONCLUSION

The study in Belpada block, Bolangir district, reveals a significant burden of chronic morbidities among the elderly, with osteoarthritis, hypertension, eye problems,



(Comparison of the present study with other studies)

diabetes, and hearing loss emerging as the most prevalent diseases which were severely impacting their well-being. Males exhibit a higher morbidity prevalence than females, likely by the lifestyle factors such as alcohol, tobacco, and smoking that contribute to the complexity of multi-morbidities. While Allopathy and government hospitals are the preferred choices for treatment whereas some of the elderly individuals do not seek care due to unawareness, lack of companionship, distance to facilities as well as financial constraints. These findings highlight an urgent need for targeted healthcare interventions including community-based screening programs, targeted lifestyle modification initiatives, and strengthened primary health care services to address the chronic disease burden and improve the quality of life of the elderly people in this region.

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