

## ORIGINAL ARTICLE

## Nutritional status and self-reported morbidity pattern of urban elderly in Hyderabad city: A preliminary study

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### Abstract

**Background:** Ageing is a natural phenomenon associated with physiological and functional decline in the body, which makes elderly people vulnerable to malnutrition and age-related morbidity. Hence, this study was undertaken to assess nutritional status and morbidity pattern of urban elderly. **Aims & Objectives:** To assess the nutritional status and the morbidity status of urban elderly. **Material and methods:** A community based cross-sectional study was conducted among the urban elderly in Hyderabad. A total of 261 individuals of  $\geq 60$  years were recruited for this study. Anthropometric measurements were measured to assess nutritional status. Pre-tested questionnaire was used to collect information on demographic particulars and self-reported morbidity profile. Data are presented as mean  $\pm$  standard error and significance level was considered at  $p < 0.05$ . **Result:** The mean height and weight were 160.49 Cm  $\pm$  0.55 and 66.59 Kg  $\pm$  0.68, respectively while the mean BMI was 25.83 Kg/m<sup>2</sup>  $\pm$  0.22. The prevalence of overweight and obesity among urban elderly was 46.0% and 31.4 %, respectively. The prevalence of central and truncal obesity was 60.1% and 84.6% respectively. The prevalence of morbidities such as poor vision, hypertension, joint pains, diabetes, cataract and hyperacidity was 86.1%, 63.2%, 49.4%, 48.3%, 36% and 32.2% respectively. There was a significant ( $p < 0.05$ ) gender difference among BMI, central obesity, CVDs, joint pains and osteoarthritis. **Conclusion:** In general, the prevalence of NCDs such as obesity, hypertension and diabetes are significant public health concern among urban elderly. Therefore, primordial and primary preventive measures should be adopted during adolescence and early adulthood for the prevention and control of NCDs during the period of ageing.

### Keywords

Elderly; Urban; Nutrition; Morbidity; BMI

## Introduction

In the twentieth century, the proportion of elderly population is increasing all over the world due to increase in life expectancy and lower infant mortality (1). The proportion of elderly people is increasing much faster in developing countries than in developed countries (1). In India, according to the Census 2011, there has been an increase in elderly population (aged 60 years or above) from 77 million (7.7%) in 2001 to 104 million which was 8.6% of total population (2,3). This increase in aging of population is associated with various health and age related problems. Nutrition is an important aspect contributing to health and functional ability of elderly. Ageing is associated with physiological and functional decline/changes in the body, which make elderly people vulnerable to malnutrition (4) and the magnitude of malnutrition among the elderly is under-reported in India.

Further, malnutrition or poor nutritional status make elderly susceptible to various morbidities and which in turn leads to high rate of mortality (5,6). The possible risk factors for malnutrition in elderly are mainly due to reduced food intake (loss of appetite), poor dental health, difficulty in swallowing due to oral health, digestive disorders and chronic diseases (7,8). The commonly observed general morbidities are poor vision, hearing impairment, joint pains etc. (5,9). Hence, evaluation of health and nutritional status of geriatric population is very important to enable to undertake appropriate interventions measures for the prevention and control various health and nutritional problems of the elderly.

Nutritional status of elderly can be assessed by various simple and non-invasive screening methods and one among them is anthropometric method. The use of anthropometry as an indicator of nutritional and health status of older adults has been used extensively (10,11,12,13). Although, there are studies on nutritional status of the elderly using anthropometric measurements and diet survey, majority of these studies are restricted to rural India (10,11,12,13); whereas the other studies assessed nutritional status of elderly using Mini Nutritional Assessment (MNA) was restricted to urban India (14,15,16). Similarly, several studies on morbidity profile of elderly both in urban, (9); urban slum (17) and rural areas of India (14).

However, nutritional status combined with morbidity profile in urban elderly of south India

particularly in Hyderabad city is not readily available. Therefore, the aim of the study is to assess the nutritional status and morbidity profile of elderly living in Hyderabad.

## Aims & Objectives

1. To study the nutritional status of urban elderly
2. To study the morbidities profile among urban elderly

## Material & Methods

**Study design:** A community based, cross sectional study was conducted in randomly selected six urban areas of Hyderabad. This study was approved by the Institutional Human Ethics Committee (IHEC) of National Institute of Nutrition; Hyderabad and written informed consent was taken from each participant during the study.

**Inclusion criteria:** People aged 60 years and above and residing in Hyderabad city for more than 5 years and willing to participate in the study were included.

**Exclusion criteria:** People aged below 60 years, period of residency less than 5 years, not willing to participate in the study and bed ridden/critically ill were excluded from the study.

**Sample size:** The sample size was calculated based on the proportion of elderly population in urban area as 31% (3), with 95% confidence interval (CI), and relative precision of 20%, the sample size arrived was 213. However, we had recruited 261 subjects.

**Study tools:** Weighing scale (Seca, 876), anthropometric rod, measuring tape (Seca, 201). Demographic and self-reported general morbidity profile was collected using pre tested questionnaire and medical records/history.

**Anthropometric measurements:** Anthropometric measurements such as height was measured using the anthropometric rod with the accuracy of 0.1 cm; weight was measured with minimum clothing using SECA digital weighing scale with the accuracy of 0.1kg and body mass index (BMI) was calculated by dividing weight in Kg with the square of height in meters. Waist-circumference (WC) and hip circumference (HC) were measured using SECA (201) measuring tape and waist hip ratio (WHR) was calculated. WHO Asian cutoffs were used for assessing the prevalence of CED, Normal, Overweight and Obesity (18). Central obesity was assessed by waist  $\geq 90$  cm in male and  $\geq 80$  in female (19).

**Statistical analysis:** Statistical analysis was performed using the Statistical Package for Social

Science (SPSS, 2005, version 19.0, Chicago). Data are presented as mean  $\pm$  SE or number (%). Mean values of age, anthropometric measurements (height, weight, WC, HC, WHR, and BMI) across the gender were compared by t test.  $p < 0.05$  is considered as level of significance.

## Results

A total of 261 elderly (173 males and 88 females), were recruited for the study. The mean age of the study participants was  $66.67 \pm 0.351$  years. The majority (39.8%) of the study subjects were in the age group of 60–64 years, followed by 65–69 years (31.4%) and  $\geq 70$  years (28.7%) (Table 1). The mean anthropometric measurements of the study subjects were presented in (Table 2). There were consistent gender differences in the mean anthropometric measurements. The mean height, weight were significantly ( $p < 0.001$ ) high, but the mean BMI was significantly ( $p < 0.001$ ) low in elderly males compared to females. The mean HC was significantly ( $p < 0.001$ ) high in female elderly, whereas the mean WHR is high in elderly male subjects.

**Nutritional status based on the anthropometric measurements:** The nutritional status of urban elderly is presented in the (Table-3). The prevalence of chronic energy deficiency was very low among urban elderly (1.9%), but it was higher in males (2.3%) than the females (1.1%). The prevalence of overweight and obesity among urban elderly was 46.0% and 31.4% respectively. Whereas the prevalence of overweight was relatively high (49.7%) in males compared to females (38.6%) and obesity was high in female elderly (45.5%) compared to males (24.3%) (Table 3). Interestingly, as advancing the age the prevalence of obesity was significantly ( $p < 0.002$ ) decreased from 44.6% in 60-64 years, 31.7% in 65-69 years to 17.3% in  $> 70$  years age group elderly.

The overall prevalence of central/abdominal obesity among urban elderly was 61.0% and the prevalence was significantly ( $p < 0.01$ ) high (67.4%) in elderly males when compared to females (47.7%). The overall prevalence of truncal obesity among urban elderly was 84.6% and this prevalence was marginally high (87.2%) in elderly men when compared to elderly women (82.6%).

**General morbidity:** The prevalence of morbidity pattern of urban elderly according to the age and gender is presented in (Table 4). The system wise morbidities show that, hypertension (63.2%) was

major among the CVD morbidities, whereas, diabetes was another major morbidity found in 48.3% of urban elderly. Hyper acidity (32.2%) and constipation (19.5%) was the major GIT problems. Asthma (9.2%) was the major morbidity of Respiratory problems. Among musculoskeletal disorders, joint pains (49.4%) and osteoarthritis (16.9%) were the major morbidities. Poor vision (86.1%) and cataract (36%) were the major morbidities among eye complications. Within CNS, dementia (18%) and depression (5.7%) were the major morbidities, and urinary inconstance was found in 10.8% of the elderly subjects.

The prevalence of Angina was significantly ( $p < 0.029$ ) high in elderly male, whereas the prevalence of joint pains, osteoarthritis were significantly ( $p < 0.012$ ) high in female elderly. The age wise distribution of morbidity profile was presented in (Table 5). The prevalence of cataract increased significantly ( $p < 0.001$ ) with advancing the age. The prevalence of constipation, diminished vision, dementia and urinary inconstance are also increasing with advancing the age but not significant. Whereas prevalence of hyper acidity, angina, joint pains, osteoarthritis, were increasing from 60-64 years age group to 65-69 years and there after prevalence decreased.

## Discussion

Nutrition is an important determinant of health in elderly as they have an increased risk for malnutrition compared with other adult populations. In the present study, nutritional status of urban elderly was determined by using anthropometric measurements and BMI. The prevalence of CED in the present urban elderly is very low (1.9%) and the prevalence of overweight and obesity was 46% and 31.4% respectively. Though there are very limited studies on nutritional status of urban elderly in India using anthropometric measurements, these results are comparable with recent hospital-based study reported in Delhi, where the prevalence of obesity was 34% in men and 40.3% in women (20), and also well correlated with recent study conducted from Puducherry where the reported prevalence of CED was 1.6% and overweight was 41.4% (21).

However, the overall prevalence of CED (1.9%) in the present study is very low when compared to the earlier reported CED or under nutrition (24.7% to 53.5%) in various rural areas of India (8,10,11,12, 13). In the other way, the overall prevalence of

overweight and obesity (77.4%) was very high when compared to the reported prevalences (3.4% to 18%) from various rural areas of India (8,10,11,12), but this prevalence in Puducherry was 37.6% (13). The prevalence of central obesity/abdominal obesity (60.1%) and truncal obesity in urban elderly (84.6%) is high compared to a recent report from rural area of India (8) where the prevalence of abdominal obesity and truncal obesity were 27.6% and 72.4% respectively.

Nevertheless, the reported prevalence of malnutrition based on MNA, among urban elderly varies from 14% to 19.47% and at the risk of malnutrition is from 24.73% to 55% (15,16,22). Although BMI is one of the parameters in MNA for assessing nutritional status in elderly, the scoring pattern is associated with other indicators also (23). Hence, it is difficult to compare nutritional status of our present results with data developed with MNA.

Apart from the malnutrition, elderly are vulnerable to several morbidities. Although there are some studies on morbidity profile of urban elderly in India, only few morbidities of the present study was correlated with earlier studies. The reported prevalence of hypertension (63.2%), diabetes (48.3%) and cataract (36.01%) in the present study was high compared to the other study reported from six states of urban India (24) and urban slum in Assam (17) and in rural areas of western Uttar Pradesh (25). The prevalence of hypertension in the present study was high compared to reported prevalence (10.6%) from primary health center in rural Haryana (26). However, the prevalence of osteoarthritis (16.9%) was comparable but the prevalence of angina (11.9%), asthma (9.2%) and stroke (2.7%) in the present study was low compared to the other study reported from six states of urban India (24).

The prevalence of poor vision, urinary tract problems/ urinary incontinence (10.2%) in the present study is comparable with the recent reports (14,17,27). The prevalence of CVD in the present study was well correlated with a recent report on elderly from old age homes of Chennai (28). The variations in prevalence of these morbidities between the studies could be due to various demographic, social and regional characteristics.

## Conclusion

The high prevalence of overweight/obesity, central obesity and truncal obesity are major public health nutrition problems in Indian urban elderly. In addition, high prevalence of morbidities such as diabetes, hypertension, joint pains, hyperacidity, constipation, dementia, osteoarthritis and CVDs are major morbidities in urban elderly which requires appropriate measures to overcome these nutritional health problems.

## Authors Contribution

PS: Designing the study, manuscript writing; SS; UP; BB: Data collection, NA: Designing the study and critical review of the paper, BV: Data compilation and analysis.

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## References

1. World Population Ageing 2015. United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Ageing 2015 (ST/ESA/SER.A/390). Published by the United Nations. Copyright © United Nations, 2015.
2. Census of India 2011. <http://www.censusindia.gov.in/2011Census/pes/Pesreport.pdf>
3. Elderly in India-Profile and programmes 2016. [http://mospi.nic.in/sites/default/files/publication\\_reports/ElderlyinIndia\\_2016.pdf](http://mospi.nic.in/sites/default/files/publication_reports/ElderlyinIndia_2016.pdf).
4. Amarya S, Singh K, Sabharwal M. Changes during aging and their association with malnutrition. *Journal of Clinical Gerontology & Geriatrics* 6 (2015) 78e84.
5. Joshi K, Kumar R, Avasthi A. Morbidity profile and its relationship with disability and psychological distress among elderly people in Northern India. *Int J Epidemiol.* 2003; 32(6):978-987.
6. Sullivan DH, Morley JE, Johnson LE, Barber A, Olson JS, Stevens MR, Yamashita BD, Reinhart SP, Trotter JP, Olave XE. The GAIN (Geriatric Anorexia Nutrition) registry: the impact of appetite and weight on mortality in a long-term care population. *J Nutr Health Aging.* 2002;6(4):275-81. PubMed PMID: 12486448. [PubMed].
7. Raynaud-Simon A, Revel-Delhom C, Hebuterne X. Health Program FHHA (2011) Clinical practice guidelines from the French Health High Authority: nutritional support strategy in protein-energy malnutrition in the elderly. *Clin Nutr* 2011; 30:312-319.
8. Gupta A, Kapil U, Khandelwal R, Khenduja P, Sareen N, Pandey RM, Upadhyay AD. Prevalence and risk factors of underweight, overweight and obesity among a geriatric population living in a high-altitude region of rural Uttarakhand, India. *Public Health Nutr.* 2018 Jul;21(10):1904-1911. doi:

10.1017/S1368980018000447. Epub 2018 Mar 15. PubMed PMID: 29540252. [\[PubMed\]](#).

9. Joseph N, Nelliyanil M, Nayak SR, Agarwal V, Kumar A, Yadav H, Ramuka G, Mohapatra KT. Assessment of morbidity pattern, quality of life and awareness of government facilities among elderly population in South India. *J Family Med Prim Care*. 2015; 4(3):405-410.

10. Arlappa, N, Balakrishna N, Kumar S, Brahmam GNV, Vijayaraghavan K. Diet and Nutritional Status of the Elderly in Rural India, *Journal of Nutrition For the Elderly*, 2003; 22 (4), 35-52.

11. Arlappa N, Rao KM, Venkaiah K, Brahmam GN, Vijayaraghavan K. Nutritional parameters and chronic energy deficiency in older adults of desert areas of western Rajasthan, India. *J Nutr Elder*. 2009 Jan-Mar;28(1):61-71. doi: 10.1080/01639360802633987. PubMed PMID: 19234995. [\[PubMed\]](#).

12. Arlappa N, Venkaiah K, Rao KM, Reddy ChG, Kumar SS, Ravindranath M, Brahmam GN, Vijayaraghavan K. Prevalence of chronic energy deficiency in rural-dwelling older Indian adults during a period of severe drought. *J Nutr Elder*. 2009; 28(3):301-312.

13. Kalaiselvi S, Arjumand Y, Jayalakshmy R, Gomathi R, Pruthu T, Palanivel C. Prevalence of under-nutrition, associated factors and perceived nutritional status among elderly in a rural area of Puducherry, South India. *Arch Gerontol Geriatr*. 2016; 65:156-160.

14. Kritika, Deep Shikha, Jayanti Semwal, Shaili Vyas, Ruchi Juyal, Hem Chandra Sati. Nutritional status and associated comorbidities among the elderly in Doiwala block, Dehradun. *Indian Journal of Community Health*, 2014, 26 (S2), 197-203.

15. Agarwalla R, Saikia AM, Baruah R. Assessment of the nutritional status of the elderly and its correlates. *J Family Community Med*. 2015 Jan-Apr;22(1):39-43. doi: 10.4103/2230-8229.149588. PubMed PMID: 25657610; PubMed Central PMCID: PMC4317993. [\[PubMed\]](#).

16. Mathew AC, Das D, Sampath S, Vijayakumar M, Ramakrishnan N, Ravishankar SL. Prevalence and correlates of malnutrition among elderly in an urban area in Coimbatore. *Indian J Public Health*. 2016 Apr-Jun;60(2):112-7. doi: 10.4103/0019-557X.184542. PubMed PMID: 27350704. [\[PubMed\]](#).

17. Barua K, Borah M, Deka C, Kakati R. Morbidity pattern and health-seeking behavior of elderly in urban slums: A cross-sectional study in Assam, India. *Journal of Family Medicine and Primary Care*, 2017; 6: (2): 345-350.

18. WHO/IASO/IOTF. The Asia-pacific perspective redefining obesity and its treatment. Health communication Australia, 2000.

19. WHO, 2008. Waist Circumference and Waist–Hip Ratio: Report of a WHO Expert Consultation Geneva, 8–11 December 2008 WHO Expert Consultation.

20. Singh P, Kapil U, Dey AB. Prevalence of overweight and obesity among elderly patients attending a geriatric clinic in a tertiary care hospital in Delhi, India. *Indian J Med Sci* 2004; 58:162-163.

21. Rajkamal R, Singh Z, Stalin P, Muthurajesh E, 2015. Prevalence and determinants of overweight and obesity among elderly population in an urban area of Puducherry. *Int J Med Sci Public Health*. 2015; 4(3):369-372.

22. Vedantam A, Subramanian V, Rao NV, John KR. Malnutrition in free-living elderly in rural south India: prevalence and risk factors. *Public Health Nutr*. 2010; 13(9):1328-1332.

23. Cohendy R, Rubenstein LZ, Eledjam JJ. The Mini Nutritional Assessment-Short Form for preoperative nutritional evaluation of elderly patients. *Aging (Milano)*. 2001; 13(4):293-297.

24. AkhileshYadav, Jang Bahadur Prasad1, Chander Shekher1, MinakshiVishvakarma. A study of morbidity pattern among elderly population in urban India. *Journal of Social Health and Diabetes*, 2017; 5 (2), 100-106.

25. Kumar R, Shiv Prasad B, Srivastava A. Morbidity pattern of geriatric population in rural areas of western Uttar Pradesh. *Int J Med Sci Public Health*. 2016; 5(3):430-433.

26. Kant S, Lohiya A, Ahamed F, Abdulkader RS, Singh AK, Silan V. Comparative morbidity profile of patients attending an Ayurveda clinic and a modern medicine clinic of a primary health center in rural Haryana, India. *J Family Med Prim Care*. 2018 Mar-Apr;7(2):374-379. doi: 10.4103/jfmpc.jfmpc\_347\_17. PubMed PMID: 30090780; PubMed Central PMCID: PMC6060926. [\[PubMed\]](#).

27. Thakur R, Banerjee A, Nikumb V. Health problems among the elderly: a cross-sectional study. *Ann Med Health Sci Res*. 2013 Jan;3(1):19-25. doi: 10.4103/2141-9248.109466. PubMed PMID: 23634324; PubMed Central PMCID: PMC3634218. [\[PubMed\]](#).

28. Anitha Rani M, Palani G, Sathiyasekaran BWC. Morbidity Profile of Elders in Old Age Homes in Chennai. *National Journal of Community Medicine*, 2012, 3(3), 458-464

**Tables**

**TABLE 1 DEMOGRAPHIC PARTICULARS OF THE ELDERLY STUDY SUBJECTS**

Variable	Number (n)/ mean ± SE	Percentage
<b>Total number of subjects</b>	261	100
<b>Male</b>	173	66.3
<b>Female</b>	88	33.7
<b>Age (years)</b>		
60-64 Years	104	39.8
65-69 Years	82	31.4
≥70 Years	75	28.7

**TABLE 2 ANTHROPOMETRIC MEASUREMENTS OF THE ELDERLY STUDY SUBJECTS**

Variable	Male		Female		Total		p values
	mean	n	mean	n	men	n	
Height(Cm)	164.7±0.49	173	152.1±0.74	88	160.49±0.55	261	0.001
Weight(Kg)	68.6±0.80	173	62.7±1.1	88	66.59±0.68	261	0.001
BMI (Kg/m <sup>2</sup> )	25.2± 0.25	173	27.03±0.42	88	25.83±0.22	261	0.001
WC(Cm)	92.9± 0.73	173	89.2±0.99	86	91.63±0.60	258	0.004
HC(Cm)	95.8± 0.73	173	102.6±0.98	86	98.13±0.62	258	0.001
WHR	0.97± 0.005	172	0.86± 0.007	86	0.93±0.005	258	0.001

Values are mean ± SE, n=number in parentheses.

**TABLE 3 DISTRIBUTION OF BMI, WC AND WHR ACCORDING TO THE WHO CRITERIA: NUTRITIONAL STATUS OF URBAN ELDERLY ACCORDING TO THE ANTHROPOMETRY**

Variable	Male, n (%)	Female, n (%)	Total, n (%)	p Value
<b>BMI (kg/m<sup>2</sup>)</b>				
<18.5 (CED)	4(2.3)	1(1.1)	5(1.9)	0.01
18.5-22.9 (Normal)	41(23.7)	13(14.8)	54(20.7)	
23.0-27.5 (Over weight)	86(49.7)	34(38.6)	120(46.0)	
≥27.5 (Obesity)	42(24.3)	40(45.5)	82(31.4)	
<b>WC (Cm)</b>				
<90/<80 (Normal)	56(32.4)	45(52.3)	101(38.6)	0.01
≥90/≥80 (Central obesity)	116(67.4)	41(47.7)	157(60.1)	
<b>WHR</b>				
<0.90/<0.80 (Normal)	22(12.8)	15(17.4)	37(14.1)	0.206
≥0.9/≥0.8 (Truncal obesity)	150(87.2)	71(82.6)	221(84.6)	

BMI: Body mass index; WC: Waist circumference; WHR: Waist-to- hip ratio

**TABLE 4 THE SYSTEM WISE GENERAL MORBIDITY PATTERN OF URBAN ELDERLY**

Variable, n=261	Male, n (%)	Female, n (%)	Total, n (%)	p values
<b>GIT Problems; Hyper acidity</b>	51(29.5)	33 (37.5)	84 (32.2)	0.190
Peptic ulcer	6 (3.5)	3 (3.4)	9 (3.4)	0.980
Hemorrhoids	7 (4.0)	3 (3.4)	10 (3.8)	0.800
Constipation	37 (21.4)	14 (15.9)	51 (19.5)	0.291
<b>Respiratory problems; Chronic cough</b>	9(5.2)	3 (3.4)	12 (4.6)	0.513
Asthma	16 (9.2)	8 (9.1)	24 (9.2)	0.967
<b>Cardio Vascular Diseases; n=206; CAD/ Angina</b>	26 (15.0)	5 (5.7)	31 (11.9)	0.029
Hypertension	109 (63)	53 (63.6)	165 (63.2)	0.920
Heart failure	3 (1.7)	1(1.1)	4 (1.5)	0.710
Stroke	3 (1.7)	4 (4.5)	7 (2.7)	0.184
<b>Musculoskeletal problems; Joint pains</b>	64 (37.0)	65 (73.9)	129 (49.4)	0.000
Osteoarthritis	22 (12.7)	22 (25.0)	44 (16.9)	0.012
Fractures	13 (7.5)	7 (8.0)	20 (7.7)	0.770
<b>Eye Problems; n=259; Diminished vision</b>	151 (87.3)	72 (81.8)	223 (86.1)	0.153
Cataract	67 (38.7)	27 (30.7)	94 (36.01)	0.200
Glaucoma	1 (0.6)	3 (3.4)	4 (1.5)	0.078
<b>CNS; Hemiplegia</b>	3 (1.7)	1 (1.1)	4 (1.5)	0.710
<b>Dementia</b>	31 (17.9)	16 (18.2)	47 (18)	0.958
<b>Depression</b>	8 (4.6)	7 (8.0)	15 (5.7)	0.274
<b>Urinary Tract Problems; Urinary inconstance</b>	14 (8.1)	13 (14.8)	27 (10.3)	0.094
<b>BPH</b>	15 (8.7)	0	15 (5.7)	NA
<b>Liver problems; Gallbladder stones</b>	3 (1.7)	2 (2.3)	5 (1.9)	0.764
<b>Kidney related problems; Renal calculi</b>	2 (1.2)	3 (3.4)	5 (1.9)	0.209
<b>Diabetes</b>	95 (54.9)	41 (46.6)	136 (48.3)	0.203

COPD: Chronic Obstructive Pulmonary Disease; CAD: Coronary Artery Disease, CNS: Central Nervous System; BPH: Benign Prostatic Hyperplasia, NA: Not applicable, N: number in parentheses.

**TABLE 5 THE PREVALANCE OF GENERAL MORBIDITY ACCORDING TO THE AGE AND GENDER**

Variable, n=261	Age groups (Years)		
	60-64	65-69	≥70
<b>GIT Problems; Hyper acidity</b>	33 (21.7)	28 (34.1)	23 (30.7)
Peptic ulcer	3 (2.9)	4 (4.9)	2 (2.7)
Hemorrhoids	1 (1.0)	6 (7.3)	3 (4.0)
Constipation	14 (13.5)	19 (23.2)	18 (24.0)
<b>Respiratory problems; Chronic cough</b>	4(3.8)	5 (6.1)	3 (4.0)
Asthma	7 (6.7)	10 (12.2)	7 (9.3)
<b>Cardio Vascular Diseases; n=260 CAD/ Angina</b>	9 (8.7)	12 (14.6)	10 (13.3)
Hypertension	64 (61.5)	53 (64.6)	48 (64.0)
Heart failure	0	3 (3.7)	1 (1.3)
Stroke	2 (1.9)	3 (3.7)	2 (2.7)
<b>Musculoskeletal problems; Joint pains</b>	62 (59.6)	31 (37.8)	36 (48.0)
Osteoarthritis	16 (15.4)	15 (18.3)	13 (17.3)
Fractures	8 (7.7)	9 (11.0)	3 (4.0)
<b>Eye Problems; n=259; diminished vision</b>	84 (80.8)	72 (87.8)	67 (89.3)
Cataract	23 (22.1)	30 (36.6)	41 (54.7)
Glaucoma	1 (1.0)	2 (2.4)	1 (1.3)
<b>CNS; Hemiplegia</b>	1 (1.0)	2 (2.4)	1 (1.3)
<b>Dementia</b>	18 (17.3)	15 (18.3)	14 (18.7)
<b>Depression</b>	7 (6.7)	6 (7.3)	2 (2.7)
<b>Urinary Tract Problems; Urinary inconstence</b>	7 (6.7)	10 (12.2)	10 (13.3)
<b>BPH</b>	3 (2.9)	7 (8.5)	5 (6.7)
<b>Liver problems; Gallbladder stones</b>	1 (1.0)	3 (3.7)	1 (1.3)
<b>Kidney related problems; Renal calculi</b>	2 (1.9)	3 (3.7)	0
<b>Diabetes</b>	50 (48.1)	40 (48.8)	46 (61.3)

*COPD: Chronic Obstructive Pulmonary Disease; CAD: Coronary Artery Disease.  
CNS: Central Nervous System; BPH: Benign Prostatic Hyperplasia.*