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Original Research Article

Prevalence of obesity among elderly residing in an urban area of Belgaum

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ABSTRACT

Background: The elderly population is the fastest growing age group in the world. This demographic transition has important changes in quality of life in this population, given that longevity may be accompanied by non-communicable diseases, functional reduction, increased dependence, and social isolation, which can bring weight gain in the elderly. Among the elderly there is a loss of the lean body mass and increased body-fat percentage. It is a major risk factor for non-communicable diseases and mortality. The objectives of the present study were to estimate the prevalence of obesity among urban elderly using different measurement methods.
Methods: It was cross-sectional study conducted between 1st January to 31st December 2013 in 700 individuals aged 60 years and above. The study participants, permanent residents of Ashok Nagar Urban field practice area, were selected using a simple random technique. Obesity was assessed by using WHO Asia-Pacific Guidelines for body mass index (BMI) and WHO waist circumference (WC) guidelines. Data was analyzed by using percentages and kappa statistics.
Results: Prevalence of obesity according to BMI criteria was 38.1% and 43.0% among men and women respectively. Measurement of WC showed that 17.4% of men and 46.8% of women suffered from central obesity. There was slight agreement between obesity criteria and central obesity.
Conclusions: The study highlights the problem of obesity in urban elderly. The prevalence of obesity in elderly was slightly higher, with predominance in women. An ageing population together with social, economic and lifestyle changes have led to dramatic increase in obesity.

Keywords: Elderly, Obesity, Body mass index, Waist circumference, Urban

INTRODUCTION

The geriatric population is defined as population aged 60 years and above.[1] Globally, there are an estimated 605 million people aged 60 years and above.[2] Ageing is natural, inevitable biological phenomenon. This demographic transition has important changes in quality of life in this population, given that longevity may be accompanied by non-communicable diseases, functional reduction, increased dependence, and social isolation, which can bring weight gain in the elderly.[3]

In general, body mass index (BMI) is a common assessment method for obesity in older adults. In elderly there is loss of the lean body mass and increased body-fat percentage. These changes are due to height loss, kyphosis, and relaxation of abdominal muscles and decreased elasticity of skin. Thus cut off applied to adults might have to be reconsidered in elderly population. Furthermore, BMI cannot make a discrepancy between

fat and muscle mass. The reliability of BMI as an index of obesity is thus questionable, and therefore, other anthropometric indices like WC (waist circumference), waist-hip ratio and sagittal abdominal diameter are proposed to determine the degree of fatness in the elderly.[4,5]

The elderly population is rapidly growing in many developed and developing countries, which has an important health implication in terms of health promotion and treatment targets. Hence the present study was planned to estimate the prevalence of obesity in elderly using different measurement methods.

METHODS

A community based cross-sectional study conducted in elderly residing in the urban field practice area of J. N. M. C., Belgaum from January to December 2013. According to 2001 census 7.2% of total population comprises of elderly so out of 1950, 700 study participants were selected using simple random technique method. After obtaining informed consent, information was collected by using pretested, pre structured proforma regarding socio-demographic and lifestyle factors by interview method by house to house visits. Weight, height and WC were measured using standardized instrument. Obesity was assessed by WHO Asia-Pacific guidelines for BMI i.e., >25 kg/m^2 and WC more than 102 cm in male and more than 88 in female according to WHO waist circumference guidelines.[5] Ethical clearance was obtained from JNMC Institutional Ethics Committee of Human Subjects Research.

Statistical analysis

Data was analyzed and summarized using percentages. Chi-square test was used to find the association between various socio-demographic variables and obesity. Kappa statistics was used to know the agreement between two obesity indices.

RESULTS

In our study, 457 (65.3%) participants belonged to 60-69 years age group. Among them 339 (48.5%) were males and 361 (51.5%) were females. Out of the total, 368 (52.6%) were Hindus and 270 (38.6%) were Muslims. Among females 275 (76.2%) were housewives and among males 80 (23.6%) were unemployed. Maximum number of study participants belonged to class III 332 (47.4%) and class IV 202 (28.9%) respectively.

According to WHO-Asia-Pacific guidelines (BMI>25 kg/m^2), 129 (38.1%) males and 155 (43.0%) females were obese (Figure 1). Among obese participants 256 (41.2%) had morbidity. Association between socio-demographic and lifestyle factors like sex, religion, occupation, education, socioeconomic status, physical activity, alcohol consumption and use of tobacco were not found to be statistically significant (p>0.05) but there was statistically significant association between obesity and age (p=0.032) (Table 1).

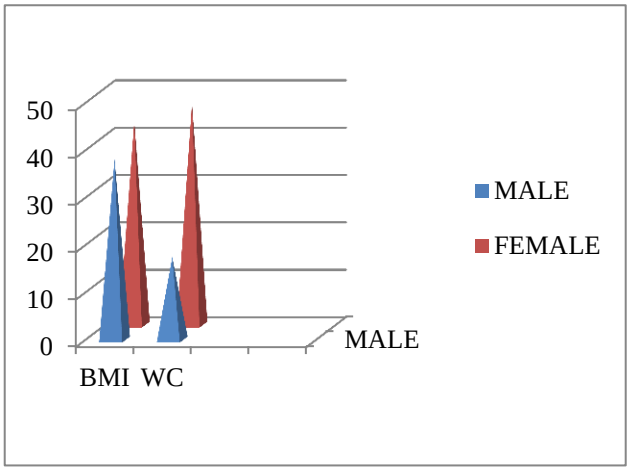

Figure 1: Distribution of study participants according different criteria for assessment.

Out of total, 228 (32.6%) had central obesity as per WHO guidelines for WC. Among the total participants 169 (46.8%) females and 59 (17.4%) males had central obesity (Figure 1). There was statistically significant (p<0.05) association between obesity and factors like sex, occupation, education, alcohol consumption and smoking habit. Among participants with central obesity, 209 (33.6%) of them had morbidity (Table 1).

Table 1: Association between socio-demographic factors and obesity in elderly population (n=700).

Socio-demographic factor		Total	Obesity BMI (%)	Obesity WC (%)
			N (%)	N (%)
Age (in years)	60-69	457	190 (41.6)	147 (32.2)
	70-79	215	83 (38.6)	66 (28.9)
	>80	28	11 (39.3)	15 (53.6)
	P value		0.032*	0.183
Religion	Hindu	368	156 (42.4)	125 (41.3)
	Muslims	270	96 (35.6)	86 (31.9)
	Others	62	32 (51.6)	17 (27.4)
	P value		0.201	0.584

Continued.

Socio-demographic factor		Total	Obesity BMI (%)	Obesity WC (%)
			N (%)	N (%)
Occupation	Employed	331	238 (72.0)	67 (20.2)
	Unemployed	91	28 (30.8)	31 (34.1)
	Housewives	278	118 (42.4)	130 (46.8)
	P value		0.078	0.000*
Literacy status	Illiterate	86	33 (38.4)	39 (45.3)
	Primary school	277	120 (43.3)	98 (35.4)
	High school	238	92 (38.7)	66 (27.7)
	PUC or diploma	53	23 (43.4)	16 (30.2)
	Graduate and postgraduate	46	16 (34.8)	9 (19.6)
	P value		0.811	0.002*
Socio-economic status	Class I	22	10 (45.5)	3 (13.6)
	Class II	126	56 (44.4)	34 (27.0)
	Class III	332	133 (40.1)	113 (34.0)
	Class IV	202	75 (37.1)	72 (35.6)
	Class V	18	10 (55.6)	6 (33.3)
	P value		0.675	0.016
Physical activity	Yes	448	143 (32.0)	174 (38.8)
	No	252	85 (33.7)	110 (43.7)
	P value		0.734	0.178
Tobacco smoking	Yes	160	71(44.4)	28(17.5)
	No	540	213(39.4)	200(37.0)
	P value		0.094	0.000*
Use of smokeless tobacco	Yes	223	192 (40.3)	162 (36.0)
	No	477	92 (41.3)	66 (29.6)
	P value		0.987	0.947
Alcohol consumption	Yes	99	36 (36.4)	20(20.2)
	No	601	248 (41.3)	208 (34.6)
	P value		0.672	0.003*
Morbidity	Yes	622	256 (41.2)	209 (33.6)
	No	78	28 (35.9)	19 (24.4)
	P value		0.458	0.117

*: Statistically significant ($p<0.05$).

The Kappa statistics was used to find out agreement between BMI and WC which showed slight agreement in the present study ($k=0.054$, $p=0.026$).

DISCUSSION

In the present study prevalence of obesity was found to be high among female participants, who belonged to lower socioeconomic class and who were educated. These findings are similar to studies conducted among Korean and Italian elderly population.[3,6,8] Higher prevalence of obesity among females may be due to biological gender differences, menopause changes, reduced metabolic activity which may accelerate the development of female obesity.[3,6-8]

In our study elderly who currently smoked and who exercised had a lower proportion of obesity than non-smokers and those who were physically inactive. Another study conducted in Italy on elderly also showed lower prevalence of obesity among current smokers and in those who were physically active.[3]

In present study different measurement methods were used to assess obesity and these criteria showed slight agreement where as a study conducted in Italy revealed greatest degree of agreement between BMI and WC.[3] Although BMI is the anthropometric measure most often used to assess obesity, waist circumference has been gaining ground to assess obesity, especially after the European prospective investigation into cancer and nutrition which showed that WC had higher correlation with morbidity and mortality than BMI.[9]

Our study showed statistically significant association between socio-demographic and lifestyle factors with WC, whereas these factors were not found to be statistically associated with BMI. In addition to this elderly with normal BMI may accumulate abdominal fat therefore; caution should be exercised while choosing method to assess obesity in elderly. Frequent monitoring, with longitudinal assessments and obesity prevention is of outmost importance to avoid comorbidities and improve quality of life of elderly people.

CONCLUSION

The study highlights the problem of obesity in urban elderly. The prevalence of obesity in elderly is slightly higher with predominance in women. An ageing population together with social, economic and lifestyle changes have led to dramatic increase in obesity. Many studies which have aimed to determine the cut-off points for obesity in elderly are based on mortality risk, which may not be best criteria for this population. The important thing is to assess obesity at an early stage to reduce morbidity.

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REFERENCES

1. Park K. Park's Textbook of Preventive and Social Medicine. 21st ed. Jabalpur, India: Banarasidas Bhanot Publishers; 2011: 489-497.
2. Caldwell JC. Population health in transition. Bull World Health Organ. 2001;79(2):159-60.
3. Dutra MC, Uliano EJM, Machado DFGP, Martins T, Vinholes DB, Trevisol FS, et al. Obesity prevalence among elderly people using different measurement methods: a population based study. Int J Dis Disorder. 2013;2:24-32.
4. Mc Tigue, Hess R, Ziouras J. Obesity in older adults: systemic review of the evidence for diagnosis and treatment. Obesity (Silver Spring). 2006;14(9):1485-97.
5. World health organization. Physical status; use and interpretation of anthropometry. Geneva; Switzerland: World health organization; 1995: Technical Report Series No. 854.
6. Inelmen EM, Sergi G, Coin A, Miotto F, Peruzza S, Enzi G. Can obesity be risk factor in elderly people? Obes Rev. 2003;4:147-55.
7. O'sullivan AJ. Does estrogen allow women to store fat more efficiently? A biological advantage for fertility and gestation. Obes Rev. 2009;10(2):168-77.
8. Kim IH, Chun H, Kwon JW. Gender differences in the effect of obesity on chronic diseases among the elderly Koreans. J Korean Med Sci. 2011;26;250-7.
9. Pischon T, Boeing H, Hoffmann K, Bergmann M, Schulze MB, Overvad K, et al. General and abdominal adiposity and risk of death in Europe. N Engl J Med. 2008;359(20):2105-20.

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