

PREVALENCE OF OVERWEIGHT AND OBESITY AMONG THE URBAN HOMEBOUND GERIATRICS

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ABSTRACT

Background: Obesity is a complex multi factorial chronic disease developing from the interactive influences of numerous factors—social, behavioral, psychological, metabolic, and genetic. Obesity invites disability, diseases like atherosclerosis, high blood pressure, stroke, diabetes, bone disorders and premature death. **Objective:** The objective of the study was to check the prevalence of overweight and obesity among the geriatric population, by assessing their nutritional and health status. **Methods:** Subjects (n=100) both males and female equal in number, ranging in age from 60-90 years residing in the urban areas of west Delhi, India were selected. Socio-demographic details and anthropometrical measurements like weight, height, BMI and WHR were assessed. **Results:** Mean weight for males and females (73.1 and 64.3 kg) respectively was found to be higher than the reference weight. Height seems to be decreased with the advancing age among the samples. Mean BMI for females (26.7 kg/m²) was higher than that of the males (25.4 kg/m²). Prevalence of overweight was found to be 48% in males and 36% in females. Prevalence of obesity was higher in females (24%) than males (8%). Mean values for WHR was higher than the cut offs given by WHO among the females, contributing to prevalence of abdominal adiposity. **Conclusion:** Overweight and obesity in the geriatric population has been found to be increasing in the urban settings of India which is a challenging task for healthy India.

Key Words: Elderly, Overweight, Obesity, Male, Female

INTRODUCTION

Aging has been defined as "a series of time related processes that ultimately bring life to a close". Successful aging is said to be multidimensional and has been defined as "encompassing the avoidance of disease and disability, maintenance of cognitive function and physical function and sustained social and productive activity (Sharma, 1999). The elderly population is the fastest growing age group in the world. It has been estimated to reach about two billion worldwide in 2050, most of which will be concentrated in developing countries (Caldwell, 2001).

Improper nutrition is probably one of the major factors causing either directly, or indirectly, poor health in the Indian society. A wide spectrum of problems arises as a consequence of inadequacies in dietary intake, from those associated with under nourishment at one end to complications related to over nourishment and obesity on the other (Rockstein, 1975).

Since, good nutrition is of immense significance during old age, care should be taken that the diets of the elderly are nutritionally adequate and well balanced. With the advancement of age, the energy needs are reduced due to lower BMR; as a result the quantum of food intake is lowered while the requirements of most of the other nutrients remain unaltered. Therefore, it becomes all more important to provide adequate amounts of all nutrients within the decreased energy levels.

Research suggests that obesity and overweight are related to higher risks of disease such as hypertension, diabetes, heart disease and some types of cancer (WHO, 2006). Obesity has been recognized as a global epidemic by World Health Organization. Obesity or excess relative weight is found to be associated with increased risk of disease morbidity and mortality among the urban elderly (Tyagi, 2007).

Indeed, developing countries have exhibited an overall rise in rates of non communicable diseases for which obesity is suspected to be a major risk factor (Caballero and Wang, 2006).

Due to dearth of data available on elderly population in India, the objective of this study was to assess the prevalence of overweight and obesity in the urban male and female geriatric population in India.

METHODOLOGY

Cross sectional study was conducted with an attempt to assess the prevalence of overweight and obesity in geriatric population. The work was carried out in 2010. It was conducted on the home bound elderly residing in the urban area namely Paschim Vihar of West Delhi, India. The area was selected due to ease of approach and good rapport with the samples. Simple random sampling was done to select the samples from the community who were approached by home to home visit. The sample (n=100) consisted of people of age 60 years and above both males (n=50) and females (n=50). They were further categorized into three groups i.e. Young Old (60-74 years of age), Old old (75-84 years of age), and Oldest Old (85 years and above) category. Informed consent was taken from the participants of the study wherein they were told about the purpose of the study.

The tools used for the data collection were General background Performa and Anthropometric indices. Pilot testing of tools was done on 10 males and females so as to remove any ambiguity from the tools. The Performa comprised of a set of general questions related to the demographic, socio-economic and health profile of the sample which were sought through structured interview. Anthropometric measurements included weight, height, BMI, waist, and hip circumference.

Weight was measured to the nearest 100 grams using bathroom scale with subjects in minimal clothing and standing straight with hands on side. The zero error of the machine was checked (Sharma, 2003). Height was measured with the non stretchable fiber glass tape as it is easy to carry and economical in nature. The subjects were made to stand straight barefoot with both the feet together and looking in front. It was measured nearest to 0.1 centimeters. Body Mass Index (BMI) has been recognized as an indicator of overall adiposity and is most established indicator for assessment of adult nutritional status. BMI was calculated as weight in kilograms divided by square of height in meter and cut offs were set of

those established by WHO (2003). Waist to hip circumference ratio (WHR) was used as a measure of abdominal adiposity. It was measured with fiber glass tape to the nearest millimeter. WHR was tabulated as per the WHO guidelines. The data was analyzed on the basis of gender and age (Young old, Old old, and Oldest old). Statistical analysis included frequency, mean, S.D (standard deviation), and S.E (standard error of mean).

RESULTS & DISCUSSIONS

- (i) Sociodemographic details: Age of the subjects ranged from 60-90 years with mean age of 71.6 years for males and 68.1 years for females (Table 1). Age wise it was found that mean age was 67.5, 77, 85.5 years and 65.8, 76, 87.5 years for young olds, old olds and oldest olds males and females respectively.

According to the world estimates by the year 2020, it is estimated that there will be more than 700 million elderly people in the developing world. In India the present population of elderly is about 65 million. In 20 years time, the number is expected to increase to 168 million constituting roughly 9-10% of the population (Census Bureau, 2008). The present study also came across a good number of elderly subjects which has been possible due to rise in this segment of population.

Males were found to be better than their female counterparts in terms of literacy as majority (46%) of them were graduates, followed by (30%) who were postgraduate and rest (24%) completed their education till high school. For females majority (44%) completed their education till high school, followed by 36% who were illiterate, 26% who were graduates and none of them were found to be post graduate. Batra S (2004) also found 22% illiterate respondents in the study in which illiteracy amongst women was very high (30.7%) as compared to males. It was found that as the level of education decreased the percentage of malnourished elderly increased in all the groups. As per age care statistics of Helpage India 73% elderly are illiterate in country which is comparatively higher than the current study (15%), which may be due to high level of literacy in state.

Lack of education on adequate dietary needs can result in poor dietary intake which can be contributed to a major risk factor for increased prevalence of over nourishment.

In terms of occupation majority (94%) of females were found to be housewives with no source of individual income and only six percent were found to be working. For males majority (86%) were retired and the major source of income was pension followed by 14% who were self employed.

For the type of family they were living with, revealed that among males same percentage (50%) lived with joint family and in nuclear family and for females majority (58%) lived in joint family followed by 42% living in nuclear family. Vijayaraghavan et al (2002) revealed majority (75%) of his elderly samples living in nuclear/ extended nuclear families. Similar to the findings majority of urban population was found to be living with their family very few were found to be

living alone. Qualitatively, it was observed that most of urban home bound subjects had paucity of time for the interaction during the study, as they felt burdened by household chores.

On studying the marital status it was found that all of the subjects were married with majority (96% and 80%) of both males and females living with their spouse still alive and four percent and 20% were living without spouse. Batra S (2004) also revealed majority (49.7%) of the elderly samples in the research was married and that percentage of widows and divorcees was more among the females. Qualitatively, those living with their spouses were found to lead a quality life with respect to their health and nutrition and similar was seen in the present study.

Findings on subjects suffering from one or the other health problems revealed that majority (42%) of males considered them to be healthy in comparison to females (28%). Apart from this the rest of the population majorly reported for the health problem of hypertension (17%), diabetes mellitus and hypertension together and diabetes alone (12%), heart disorders (7%), arthritis (5%), asthma (4%) and thyroid problem (3%). Hypertension was found to be more prevalent in females whereas in males diabetes with hypertension together was more common existing health problem. Findings of the present study were seemed to be in conjunction with aforementioned researches. The digestive complaints in the elderly increased with age. These included anorexia, heartburn, diarrhea, chronic constipation. Most of the digestive complaints in the elderly could be attributed to altered mortality and reduced recreation.

Data on physical activity pattern revealed that majority (72%) of males were involved in exercise pattern of half an hour (40%) and one hour (32%) respectively. For females it was 34% for half an hour with only few (16%) for one hour of physical activity. So at large females were not involved in any type of exercise routine.

Table1: Socio Demographic Profile of the Elderly Population

Parameter	Category	Male (N=50) n (%)	Female N=(50) n (%)	Total (%)
Age	YO	30 (60)	41 (82)	71
	OO	18 (36)	7 (14)	25
	OD	2 (4)	2 (4)	4
Literacy	Illiterate	0	15 (30)	15
	Metric	12 (24)	22 (44)	34
	Graduate	23 (46)	13 (26)	36
Occupation	Postgraduate	15 (30)	0	15
	Working	7(14)	3 (6)	10
	Not working	43 (86)	47 (94)	90
Marital Status	Married	48 (96)	40 (80)	88
	Widow	2 (4)	10 (20)	12
Type of family	Joint	25 (50)	29 (58)	54
	Nuclear	25 (50)	21 (42)	46

YO: Young Old, OO: Old Old, ODS: Oldest Old

- (ii) **Anthropometric Assessment:** The results of anthropometry revealed that the mean weight of males and females was 73.1 kg and 64.3 kg respectively, which was higher than the reference weight (Table 2). Age wise in males and female mean weight was found to be 75.4, 69.3, 73 kg and 64.3, 62.9, 68 kg for young olds, old old and oldest old respectively. Smith et al (2006) analyzed the nutritional status of the self neglected old age population and reported drastic weight loss among the population. Present findings are contrary to the findings as the work is on Indian population where lifestyle and food intake pattern is completely different.

Table 2: Age wise and Gender wise Anthropometric Profile of Elderly

Parameters	Males (N=50)			Female(N=50)		
	YO (n=30)	OO (n=18)	ODS (n=2)	YO(n=41)	OO (n=7)	ODS(n=2)
Weight (kg)	-	69.3 ± 1.88	73 ± 2.13	64.3±1.76	62.9±3.66	68.0±1.42
Height (cm)	170.3 ± 1.05	168.5 ± 1.57	172.5 ± 3.90	154.6±0.94	155.0±1.26	153.5±8.16
-	26.1 ± 0.59	24.4 ± 0.63	24.6 ± 0.43	26.9±0.85	24.6±1.37	29.5±3.65
WHR	0.93 ± 0.01	0.89 ± 0.01	0.90 ± 0.01	0.86±0.01	0.84±0.01	0.91±0.01

YO: Young Old, OO: Old Old, ODS: Oldest Old

Mean BMI of subjects was found to be 25.4 and 26.7 kg/m² for males and females respectively. Age wise mean BMI was found to be more in young olds for males and in females it was in oldest olds in comparison to their counterparts. Majority of females (60%) in comparison to males (56%) were found to be over nourished (Table 3). Prevalence of overweight was found to be high (48%) in males than females (36%) and for obesity it was found to be high in females (24%) than males (8%). Age wise prevalence of overweight (Table 4) was found high (48%) in young old elderly than their counterparts and obesity was more in oldest olds (25%). Similar to the present findings were the findings of Tyagi (2007) where a comparative study was conducted between institutionalized & non-institutionalized elderly and was found that chronic energy deficiency (CED) and percentage of obesity was higher among the non-institutionalized senior citizens as compared to institutionalized elderly, and the percentage of obesity was found to be highest among females. Vijayaraghavan et al (2002) in their work on home bound elderly concluded a high prevalence of CED among males than in females whereas high percentage of females suffering from overweight and obesity.

As per waist to hip ratio mean of males and females was found to be 0.91 and 0.86 respectively (Table 2). Majority of female (50%) were found to be at high risk of android obesity whereas male (72%) were at low risk of android obesity (Table 3). Age wise it was found that majority of young old female (42%) were at high risk followed by 30 % who were at moderate risk of android obesity.

Similar findings were observed by a study conducted in Doiwala block of Dehradun where 65.3% of elderly female were in high risk category as compared to only 8.6% males (Saxena et al, 2012.)

Table 3: Nutritional Status of the Elderly

Indicator	Male (N=50) n (%)	Female (N=50) n (%)	Total (%)
BMI			
Underweight (< 18.50 kg/m ²)	0	2(4)	2
Normal (18.50-24.99 kg/m ²)	22(44)	18(36)	40
Overweight (25.00-29.99kg/m ²)	24(48)	18(36)	42
Obese I (30.00-34.99kg/m ²)	4(8)	8(16)	16
Obese II (35.00-39.99kg/m ²)	0	3(6)	3
Obese III (≥40.00kg/m ²)	0	1(2)	1
WHR			
Low risk (Male- 0.95 or below, Female- 0.80 or below)	36(72)	7(14)	43
Moderate risk (Male- 0.96 to 1, Female- 0.81 to 0.85)	8(16)	18(36)	26
High risk (Male 1.0+, Female- 0.85+)	6(12)	25(50)	31

(Male 1.0+, Female- 0.85+)6(12)25(50)31

Table 4: Gender wise and Age wise Nutritional Status of Elderly

BMI	Male (N=50)			Female (N=50)		
	YO (n=30) n(%)	OO (n=18) n (%)	ODS (n=2) n(%)	YO (n=41) n(%)	OO (n=7) n(%)	ODS (n=2) n(%)
Underweight (< 18.50 kg/m²)	0(0)	0(0)	0(0)	2(4)	5(10)	0(0)
Normal (18.50-24.99 kg/m²)	10(20)	10(20)	1(2)	12(24)	1(2)	1(2)
Overweight (25.00-29.99kg/m²)	17(34)	6(12)	1(2)	17(34)	1(2)	0(0)
Obese I (30.00-34.99kg/m²)	3(6)	1(2)	0(0)	6(12)	0(0)	1(2)
Obese II (35.00-39.99kg/m²)	0(0)	0(0)	0(0)	3(6)	0(0)	0(0)
Obese III (≥40.00kg/m²)	0(0)	0(0)	0(0)	1(2)	0(0)	0(0)

YO: Young Old, OO: Old Old, ODS: Oldest Old

CONCLUSION

Present study reflects that prevalence of overweight and obesity is alarmingly increasing in the urban areas of the affluent cities of India. There is a need for implementing community based strategies so as to make our elderly aware of the risk factors of the lifestyle diseases so as to ensure healthy aging. Additional prospective research studies are needed to further assess the relations among dietary patterns, body weight and central fat deposition among the elderly population.

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