Research Article

Obesity among health care assistants: Prevalence and association of prevalence

Shubhangi Jadhav and Suchita Sawant

Bombay Hospital College of Nursing, Mumbai, Maharashtra, India

Abstract

Introduction The term "obesity" is used to describe the health condition of anyone significantly above his or her ideal healthy weight. Being obese puts you at a higher risk for health problems such as heart disease, stroke, high blood pressure, diabetes and more. **Objective** 1) To assess prevalence of obesity among the healthcare assistants working in private hospitals of Mumbai. 2) To find out the association of prevalence of obesity with selected demographic variables among health care assistants working in private hospitals of Mumbai. **Materials and Methods:** The study was done in a private hospital with descriptive exploratory approach. Total 100 health care assistants were enrolled in the study. The risk factors for the obesity and bio-physiological parameters were assessed to assess the prevalence of obesity. **Results:** The results noted within 69% are males and 31% are female. Out of 100 participants 16% are educated up to 5th std and 84% educated more than 5th std 13% participants having income up to 15000/ and 36% participants between 16000/ to 19000/ and 52% are having income between 20000-30000/38% participants are staying in joint family and 62% staying in nuclear family. Further, 48% were overweight, 10% were class I obese and very few that is 2% and no one in class III obesity. According WHR 58% were in high health risk for heart disease. There are lots of risk factors associated with obesity and lots of diseases like diabetes, heart disease are associated with obesity. **Conclusion:** There is no association of BMI with age, gender, education and type of family were found.

Keyword: Obesity, Health, Association, BMI.

*Corresponding author: Mrs. Shubhangi Jadhav,** Bombay Hospital College of Nursing, Mumbai, Maharashtra, India. Email: shubhrish2004@gmail.com

1. Introduction

According to the World Health Organization (WHO), obesity is one of the most common, yet among the most neglected, public health problems in both developed and developing countries [6]. Overweight and obesity are rapidly increasing in countries like India.

Obesity is a leading risk factor for many adverse health outcomes including type 2 diabetes, hypertension, dys-lipidemia, coronary heart disease, and certain types of cancer1 No significant change in the prevalence of adult obesity was found between 2003–2008 and 2009-2010 in the National Health and Nutrition Examination Survey (NHANES) [2]. Given the large disease burden of obesity and its high prevalence, it is crucial to continuously monitor the prevalence of obesity in the metropolitan city specially. This study provides small estimates of obesity among health care assistants working in private hospital in Mumbai. The prevalence measures are based on BMI, a function of weight and height, rather than on body fatness. BMI has been found to be closely associated with percentage body fat measured by dual X-ray absorptiometry [3]. In part because we know relatively little about the precise causes of the trends previously observed, it is hard to predict the future trends in obesity. These obesity predictions in effect assume that the causal factors for obesity will continue to rise with time or will have an increasing effect over time, and therefore calendar time itself is a reasonable predictor of future obesity prevalence [4]. Data from the Health Survey for England showed that for men the prevalence of obesity was 22.2% in 2005 and 22.1% in 2009; comparable figures for women were 23.0% and 23.9% [5].

According to the WHO World Health Statistics Report 2012, globally one in six adults is obese and nearly 2.8 million individuals die each year due to overweight or obesity [7].

Due to the increased risk of morbidity and mortality, obesity is now being recognized as a disease in its own right. Additionally, obesity is strongly associated with other metabolic disorders including diabetes, hypertension, dyslipidemia, cardiovascular disease and

even some cancers. The risk for these disorders appears to start from a body mass index (BMI) of about 21 kg/m[7]. Obesity is generally classified as generalized obesity (GO) and abdominal obesity (AO). Individuals with obesity have higher rates of mortality and morbidity compared to non obese individuals [8]. India, with 1.2 billion people is the second most populous country in the world and is currently experiencing rapid epidemiological transition. Under-nutrition due to poverty which dominated in the past is being rapidly replaced by obesity associated with affluence. Industrialization and urbanization also contribute to increased prevalence of obesity. Studies from different parts of India have provided evidence of the rising prevalence of obesity [9].

Asian Indians have a greater predisposition to abdominal obesity and accumulation of visceral fat and this has been termed as "Asian Indian phenotype [10, 11].In countries like India, the rise in obesity prevalence could be attributed to the increasing urbanization, use of mechanized transport, increasing availability of processed and fast foods, increased television viewing, adoption of less physically active lifestyles and consumption of more "energy-dense, nutrient-poor" diets [12]. India is gaining weight. Traditionally known for malnutrition, Indians now report more and more frequently with overweight, obesity, and their consequences. Indians exhibit unique features of obesity: Excess body fat, abdominal adiposity, increased subcutaneous and intra-abdominal fat, and deposition of fat in ectopic sites (such as liver, muscle, and others). Obesity is a major driver for the widely prevalent metabolic syndrome and type-2 diabetes mellitus (T2DM). Although this phenomenon is a global one, India is unique in that it has to grapple with both over- and under nutrition at the same time [13].

Earlier, developing countries, including India, had focused scarce public health resources primarily on the high prevalence of under nutrition. However, these nations are currently facing the double burden of under nutrition as well as over nutrition. Data regarding the nutritional status of adults, as determined by body mass index (BMI), indicate that 50% of Indian adults suffer from different types of chronic energy deficiency, in that they have a $BMI < 18.5$ kg/m^2. In the same survey, it was observed that the BMI values were similar in men and women; however, there were more overweight/obese ($BMI \geq 25$ kg/m^2) women (6.6%) than men (3.5%). In certain regions, obesity and consequent diseases are posing an enormous public health problem [14].

According to the National Family Health Survey (NFHS), the percentage of ever-married women aged 15-49 years who are overweight or obese increased from 11% in NFHS- 2 to 15% in NFHS-3. Under nutrition is more prevalent in rural areas, whereas overweight and obesity are more than three times higher in urban areas. This may be due to lesser physical activity in the urban areas. Furthermore, under nutrition and overweight/obesity are both higher for women than men15 The Jaipur Heart Watch (JHW) was a combination of multiple cross-sectional epidemiologic studies, performed in India in rural and urban locations. From these cohorts, subjects aged 20-59 years (men 4102, women 2872) were included. The prevalence of various risk factors: Smoking/tobacco use, overweight/obesity ($BMI \geq 25$ kg/m^2) truncal obesity ($WHR \geq 0.95$ men, ≥ 0.85 women), hypertension, dyslipidemias, metabolic syndrome, and diabetes was determined [16]. Low levels of physical activity, watching television, and consuming junk foods are associated with a higher prevalence of overweight. Thus, participation in household activities and regular physical exercise could help in lowering the prevalence of overweight. Therefore, the role of physical activity, games, and sports should be emphasized, and facilities should be provided for outdoor games in schools, with compulsory hours of sports and games. There is an urgent need to educate the urban community on the aspects of healthy food habits and desired lifestyles to prevent overweight/obesity and its associated ill effects [17].

2. Method

A cross sectional survey was conducted in one of the private hospital of Mumbai. Total 100 samples recruited in the study. Non-probability convenient sampling method was used. A detailed history of the participants were collected regarding the risk factors of the obesity like any health conditions, medication, food habits, exercises, family history etc.

Data collection procedure

Detailed demographic information was obtained from the study participants. The data related risk factors were collected through interviewer administered questionnaires. Physical activity was assessed by documenting the time spent for doing exercise and watching TV. After filling the questionnaire bio-physiological measurements such as height, weight, hip and waist circumference were measured. Body Mass Index (BMI) and Waist Hip Ratio (WHR) was calculated as per the WHO guidelines. The respondents were classified as overweight and obese if their BMI was 23–24.9 and ≥ 25, respectively. Central/abdominal obesity was defined as a WHR ≥ 0.90 for males and 0.85 for females and also as per the WHR the health risk level of the participants were obtained.

Data analysis and interpretation

Data analyzed using descriptive statistics such as frequency and percentage. Frequencies of different categorical variable were calculated. 't' test is used to determine the association between the BMI, WHR and selected demographic variable. (p 0.005)

3. Results

Total 100 health care assistants were enrolled in the study. Out of 100 participants 16% are educated up to 5th std. and 84% educated more than 5th std.13% participants having income up to 15000/ and 36% participants between 16000/ to 19000/ and 52% are having income between 20000-30000/. 38% participants are staying in joint family and 62% staying in nuclear family.

The mean age was 48.92yrs, 69% were male and 31% were females. Mean height of the subject was 159.03cm and mean weight of the subject was 64.78kg. The mean BMI was 25.7kg/m^2. Among the study subjects 40% were having ideal body weight with normal BMI, 48% were overweight, 10% were obese class I and only 2% were obese class II. 97.41cm and waist circumference was 99.27cms. The mean hip circumference was 97.41cm and the mean waist circumference was 99.27cm. The mean WHR was 1.009. The health risk involved as per the WHO health risk criteria, 10% mild, 30% moderate, 58% high and 2% very high health risk. Males were having more likely central obesity. Majority of the participants were staying in a nuclear family (63%). Family history of obesity was present among 47%. (21% father, 17% mother, 9% uncle). 42% are vegetarian, 47% prefer outside food and they do not carry homemade food to office. 37% having Diabetes Mellitus, 12% having osteoarthritis of the knees, 10% were diagnosed with hypothyroidism. Tobacco and alcohol consumption is also observed among few participants. Only 34% of participants exercise regularly. The mean duration of watching TV among the subjects was 1.8hrs per day.

The association of BMI, WHR with gender, education and type of family was found non-significant.(p 0.005)

Table No-1: Classification of subject's w.r.t. BMI as per the WHO criteria

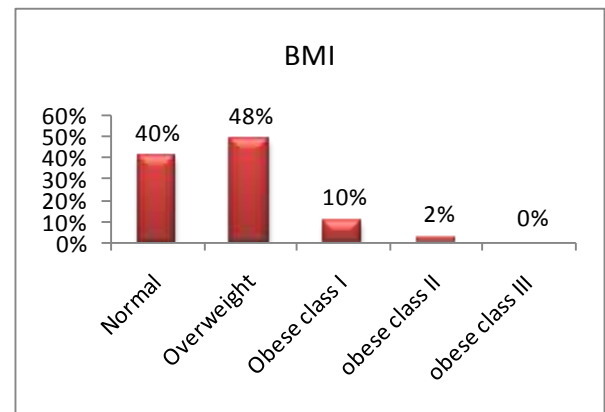| BMI	Freq	%
Normal (18-25)	40	40
Overweight (25-30)	48	48
Obese class I (30-35)	10	10
Obese class II (35-40)	2	2
Obese class III (>40)	0	0

Figure No 1.
Table 1 and figure 1 depicts 40 (40%) are of normal BMI, 48 (48%) are of overweight, 10 (10%) are of obese class I, 2 (2%) are of obese class II, and 0 (0%) is obese class III

Table No 3: Classification of sample with relation to WHR as per WHO criteria for health risk

n=100

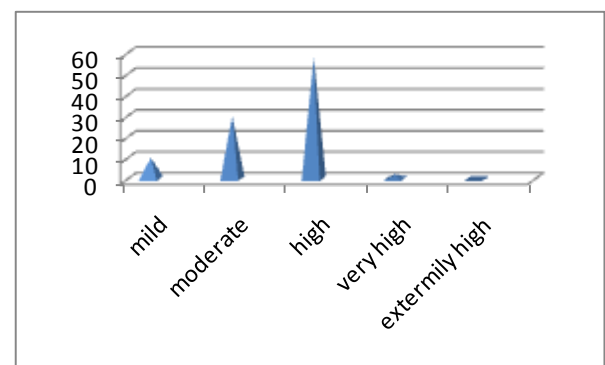| WHR(health risk) waist circumference (men > 102cm Women > 88cm)	frequency	%
Mild	10	10
Moderate	30	30
High	58	58
Very high	2	2
Extremely high	0	0

Figure 2:
Classification of sample with relation to health risk related to WHR as per WHO criteria

Table no 6: & fig no: 8 shows that out of 100 sample paricipants, 10 (10%) are mild, 30 (30%) are moderate, 58 (58%) are in high, 2 (2%) are very high and extremely high is zero.

4. Discussion

In present study the overall prevalence of obesity among the health care assistants 48 (48%) are of overweight, 10

(10%) are of obese class I, 2 (2%) are of obese class II, and 0 (0%) is obese class III. These results are consistent with the study conducted in Ghana among 158 health care workers; the prevalence of overweight/obesity was 42.2% (females) and 32.9% in males. This may be explained by the fact that HCWs usually are concerned about the care of their patients to the neglect of their own health and the irregular and long hours they work. [18] The mean BMI is 25.77 which is lower (24.57) than that of another study conducted by Shantanu Sharma et al. and also 52% were overweight and 12% were obese which is almost similar to the present study findings.[19]

Out of 100 participants 78% are not doing any form of exercise and remaining 22% are doing adequate physical activity daily. These results are consistent with the study carried out by Iwuala et al. out of 300 health care workers only 20.8% had adequate physical activity. [20]

High rates of obesity in the health workforce, which is still grossly inadequate in developing countries, will translate to reduced productivity, contributed to by absenteeism and work related injuries. Furthermore, the burden of obesity associated NCDs such as diabetes, hypertension, cardiovascular disorders, all of which increase morbidity and mortality among these HSPs is likely to be high. This can lead to problems with long term retention of health workers who are already in short supply in developing countries, as obesity has been shown to be a factor in early retirement [21.] Health care assistants are one of the important group of workers in health care setting and are perceived as role model of healthy behavior in the society. Thus obesity is a source of concern for long term health worker retention, especially in developing health systems where the health workforce is inadequate. The limitations of this study include the cross sectional study design as well as its setting in an urban, tertiary health care facility. Hence, the results may not be generalized to health care assistants in rural or semi urban locations.

Conclusions

The high burden of overweight and obesity among health care assistants in this study seeks the attention and call for concern and action. Workplace health promotion programs focusing on availability of healthy food choices and opportunities for increased physical activity should be established to encourage long term health worker retention

Reference

1. NIH, NHLBI Obesity Education Initiative, "Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, the Evidence Report" October 2013,
2. Flegal, K. M., Carroll, M. D., Kit, B. K., & Ogden, C. L. (2012). Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. Jama, 307(5), 491-497.
3. An, R. (2014). Prevalence and trends of adult obesity in the US, 1999–2012. ISRN obesity, 2014.
4. Flegal, K. M., Carroll, M. D., Kit, B. K., & Ogden, C. L. (2012). Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. Jama, 307(5), 491-497.
5. Health Survey for England, 2009: trend tables. National Health Service Information Center. January 4, 2012
6. World Health Organization. (2000). Obesity: preventing and managing the global epidemic (No. 894). World Health Organization.
7. Geneva: WHO; 2012. [November 28, 2012]. World Health Organization (WHO). World Health Statistics 2012.
8. Geneva: Switzerland, WHO; 2009. World Health Organization (WHO). Global health risks: mortality and burden of disease attributable to selected major risks.
9. Mohan, V., & Deepa, R. (2006). Obesity and abdominal obesity in Asian Indians. The Indian journal of medical research, 123(5), 593-6.
10. Joshi, S. R. (2003). Metabolic syndrome-Emerging clusters of the Indian phenotype. Journal-Association of Physicians of India, 51, 445-446.
11. Deepa R, Sandeep S, Mohan V. Abdominal obesity, visceral fat and type 2 diabetes- Asian Indian phenotype. In: Mohan V, Rao GHR, editors. Type 2 diabetes in South Asians: epidemiology, risk factors and prevention. New Delhi, India: Jaypee Brothers Medical Publishers (P) Ltd; 2006. pp. 138–52.
12. Pradeepa, R., Anjana, R. M., Joshi, S. R., Bhansali, A., Deepa, M., Joshi, P. P., & Subashini, R. (2015). Prevalence of generalized & abdominal obesity in urban & rural India-the ICMR-INDIAB Study (Phase-I) [ICMR-INDIAB-3]. Indian Journal of Medical Research, 142(2), 139.
13. Kalra, S., & Unnikrishnan, A. G. (2012). Obesity in India: The weight of the nation. Journal of Medical Nutrition and Nutraceuticals, 1(1), 37.
14. Pednekar, M. S., Hakama, M., Hebert, J. R., & Gupta, P. C. (2008). Association of body mass index with all-cause and cause-specific mortality: findings from a prospective cohort study in Mumbai (Bombay), India. International journal of epidemiology, 37(3), 524-535.
15. http://www.nfhsindia.org/nfhs3.html. Accessed on 6 March, 2017
16. Gupta R, Gupta VP. Obesity is major determinant of coronary risk factors in India: Jaipur Heart Watch studies. Indian Heart J 2008;60:26-33
17. Unnikrishnan, A. G., Kalra, S., & Garg, M. K. (2012). Preventing obesity in India: Weighing the options. Indian journal of endocrinology and metabolism, 16(1), 4.
18. Kasu, E. S., Ayim, A., & Tampouri, J. (2015). Prevalence of obesity among health workers in Kadjebi District of Ghana. Health Care, 5(2).
19. Sharma, S., Anand, T., Kishore, J., Dey, B. K., & Ingle, G. K. (2014). Prevalence of modifiable and non-modifiable risk factors and lifestyle disorders among health care professionals. Astrocyte, 1(3), 178.
20. Iwuala, S. O., Sekoni, A. O., Olamoyegun, M. A., Akanbi, M. A., Sabir, A. A., & Ayankogbe, O. O. (2015). Self-Reported Physical Activity among Health Care Professionals in South‑West Nigeria. Nigerian journal of clinical practice, 18(6), 790-795.
21. Houston, D. K., Cai, J., & Stevens, J. (2009). Overweight and obesity in young and middle age and early retirement: the ARIC study. Obesity, 17(1), 143-149.
22. Sydney: Health Communications; 2000. WHO/IASO/ITO: The Asia-Pacific Perspective: Redefining Obesity and its Treatment.