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Original Research Article

Knowledge about epidemiological determinants of obesity and its management amongst medical professionals of Marathwada region of Maharashtra, India

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ABSTRACT

Background: Obesity has become a challenge in medical care worldwide. Medical professionals have a significant role to play in preventing and diagnosing weight problems and in providing initial counseling. Health professionals are poorly prepared in weight management, which has an effect on their knowledge and management skills with regard to overweight and obese patients. Hence the present study was carried out to assess the knowledge about epidemiological determinants of obesity and its management amongst medical professionals of Marathwada region of Maharashtra, India.
Methods: A cross-sectional study was carried out during the period of March to April 2019 amongst 110 medical professionals at Department of Community Medicine of IIMSR Medical College, Badnapur, Jalna, Maharashtra, who were actively participated in continued medical education (CME) on obesity and its management where the knowledge of medical professionals were assessed. Data was analysed by using appropriate statistical test whenever necessary.
Results: In this study, the pre-test good knowledge score was 14 (12.7%), which increased to 61 (55.5%) post CME. The pre-test mean score of level of knowledge was 7.41±4.12 and after CME, it was 12.90±5.21 and the mean difference was 5.49, which was statistically highly significant.
Conclusions: As obesity is a public health problem globally, there was marked improvement in the knowledge amongst medical professionals after CME on epidemiological determinants of obesity and its management.

Keywords: Epidemiological determinants, Knowledge, Medical professionals, Obesity

INTRODUCTION

Obesity has become a challenge in medical care worldwide.[1] Obesity is perhaps the most prevalent form of malnutrition, prevalent in both developed and developing countries.[2] Worldwide obesity has nearly tripled since 1975. In 2016, 39% of adults aged 18 and over were overweight and 13% were obese. Most of the world population live in countries where overweight and obesity kills more people than underweight.[3] Obesity may be defined as an abnormal growth of the adipose tissue due to an enlargement of fat cell size (hypertrophic obesity) or an increase in the fat cell number (hyperplasic obesity) or combination of both.[4] The biological basis for weight regain has been documented in the medical literature for over 20 years.[5] Obesity is a sequela to an abnormal obesogenic environment and is best tackled with extensive environmental interventions, supported by appropriate policy and legislation.[6]

Patients who are obese are also at increased risk for many other chronic diseases, including hypertension, diabetes,

ischemic heart disease, gallstones, osteoarthritis and malignancy, as well as physical disabilities.[7] Weight bias has serious consequences at the psychological, medical and social levels.[8] Parameters commonly used to measure overweight and obesity are the Body Mass Index (BMI), Waist Circumference (WC) and Waist-Hip Ratio (WHR).[9] The pandemic of overweight and obesity in developed and developing countries presents a challenge to public health and requires medical intervention, modifications of individual behavior, and environmental changes.[10] Physician-level barriers to obesity care have been extensively explored in the literature. Many of the physician-level barriers relate to clinical knowledge and attitudes towards obese patients including: inadequate training in weight counseling, poor knowledge of the tools needed to diagnose and treat obesity.[11] Secondary as well as primary prevention is an essential part of primary care physicians work in accordance with the current recommendations.[12]

Medical professionals were expected to have sufficient knowledge on the epidemiological determinants, prevention and management of obesity. Therefore, they are expected to play an imperative role in limiting the increasing number of this lifestyle disorder of human and in promoting health education in India. Hence keeping this in mind, the present study was carried out to assess the knowledge regarding epidemiological determinants of obesity and its management amongst medical professionals of Marathwada region of Maharashtra, India.

METHODS

A cross-sectional study was carried out during the period of March 2019 to April 2019 amongst 110 medical professionals at Department of Community Medicine of IIMSR Medical College, Badnapur, District Jalna, Maharashtra, India who were actively participated in one day continued medical education (CME) on obesity and its management where the knowledge of medical professionals were assessed. CME consists of educational activities which serve to maintain, develop, or increase the knowledge, skills and professional performance and relationships that a physician uses to provide services for patients, the public or the profession.

On the day of study i.e., on 19th March 2019 as the CME on obesity and its management was organized by Department of Community Medicine in collaboration with Medical Education Unit (MEU) of IIMSR Medical College as an academic feast. There were total 112 medical professionals (medical personnel's who possess MBBS and above qualification) present and filled the questionnaires, out of which one was returned unfilled and one was incomplete, that's why they were excluded from the final analysis; at final 110 questionnaires were filled complete and included in the study and accordingly data was analyzed. A pre-designed, pre-tested, self-administered questionnaire in English was devised to collect data. The demographic details like age, gender, religion and residence status of the respondents were also recorded.

An 18-item questionnaire was constructed to assess the knowledge as regards to epidemiological determinants, prevention and management of obesity, based upon a review of literature and similar studies conducted elsewhere.[5-7] All questions were close ended. Each correct answer was given 1 score and the range of the score varied between 0 (with incorrect answer) and 18 (for all correct answers). A scoring mechanism was used to understand the overall knowledge level; a score of one was given for each correct response and zero for each wrong response. Respondents with all correct responses get a maximum of 18 points, and higher points indicate good knowledge. Based on total score, knowledge level on obesity was categorized into poor (≤6 points), average (7-12 points), and good (≥13 points). The medical professionals were explained and informed regarding the purpose of the study and the questionnaire was administered to them after obtaining the requisite permission from the head of the institution. The study was approved by the Institutional Ethics Committee. Participants were requested to complete the questionnaire, without discussing it amongst themselves. A pre- and post-test was conducted before commencement and after completion of CME on obesity and its management respectively. Data was entered in Microsoft Excel sheet and analysis of pre and post-test questionnaires was done by using appropriate statistical test whenever necessary.

RESULTS

As Table 1 shows that the demographic characteristics of study population, where more than half (52.7%) of study population was having age between 35-45 years followed by 23-35 years (29.1%). Male participants were more (67.3%) as compare to females (32.7%). Maximum number of study population (65.5%) belongs to Hindu community followed by Muslim (32.7%) and only (1.8%) was Christian. Majority (63.6%) of study population was from urban areas and (36.4%) were from rural areas.

Table 1: Demographic characteristics of the study population (n=110).

Demographic characteristics		N	%
Age (in years)	23-35	32	29.1
	35-45	58	52.7
	45 and above	20	18.2
Gender	Male	74	67.3
	Female	36	32.7
Religion	Hindu	72	65.5
	Muslim	36	32.7
	Christian	02	1.8
Residence	Urban	70	63.6
	Rural	40	36.4

It was seen from Table 2, the distributions of the knowledge score in pre and post-test. In pre-test good knowledge score was 14 (12.7%) and after CME it was increased to 61 (55.5%). There was marked improvement in level of knowledge regarding obesity after CME completion as compare to previous knowledge amongst study population.

It was evident from table 3 that the score of level of knowledge among study population, in pre-test the mean score was 7.41±4.12 and after the completion of cme the mean score increased to 5.49 and it was 12.90±5.21.

This shows that there was significant improvement in knowledge of study population after Continued Medical Education (CME) on different aspects of obesity.

Table 2: Distribution of level of knowledge in pre and post-test amongst study population (n=110).

Level of knowledge	Score	Pre-test N (%)	Post-test N (%)
Poor	0-6	50 (45.5)	07 (6.4)
Average	7-12	46 (41.8)	42 (38.1)
Good	13-18	14 (12.7)	61 (55.5)

Table 3: Mean score of level of knowledge amongst study population.

Level of knowledge	Pre-test	Posttest	Mean difference	Paired t test	P value
Knowledge mean score	7.41±4.12	12.90±5.21	5.49	8.67	0.0001 highly significant

Table 4: Distribution of respondent's knowledge regarding obesity and its management (n=110).

Questions on knowledge regarding obesity and its management	Pre-test		Post-test	
	Correct N (%)	Incorrect N (%)	Correct N (%)	Incorrect N (%)
1. For Asian populations, the normal body mass index range is ---- (18.5- 24.9)*	84 (76.4)	26 (23.6)	110 (100)	00 (00)
2. Obesity is a public health problem worldwide ------ (Yes)*	108 (98.1)	02 (1.9)	110 (100)	00 (00)
3. What is the main cause of obesity epidemic ------ (increased energy quantity/densityand sedentary life style)*	98 (89.1)	12 (10.9)	107 (97.3)	03 (2.7)
4. What is leptin resistance? (lack of leptin release from adipose tissue)*	75 (68.1)	35 (31.9)	100 (90.9)	10 (9.1)
5. What kind of disease is obesity? (Chronic inflammatory)*	87 (79.1)	23 (20.9)	106 (96.4)	04 (3.6)
6. For Asian women, what is the cut- off level of waist circumference to call as abdominal obesity --- (≥80 cm)*	71 (64.5)	39 (35.5)	103 (93.6)	07 (6.4)
7. Onset of puberty in obese children is ------ (Delayed)*	77 (70.0)	33 (30.0)	105 (95.5)	05 (4.5)
8. Commonest cause of obesity in children is ----- (Environmental)*	90 (81.8)	20 (18.2)	105 (95.5)	05 (4.5)
9. Irrespective of co- morbidity, bariatric sugary should be done when BMI is greater than ------- (40)*	78 (70.9)	32 (29.1)	98 (89.1)	12 (10.9)
10. In obese patient, which lung function test value is dangerously affected --- (Functional residual capacity)*	65 (59.1)	45 (40.9)	103 (93.7)	07 (6.3)
11. What is the most dreaded problem while anesthetizing an obese patient ------ (Difficult airway)*	78 (70.9)	32 (29.1)	104 (94.5)	06 (5.5)
12. The best position for obese patient in operation theater is ---- (30 degree Trendelenbergh position)*	70 (63.6)	40 (36.4)	95 (86.4)	15 (13.6)
13. Weight gain recommended in obese pregnant women is ------ (5-9 kg)*	64 (58.1)	46 (41.9)	101 (91.8)	09 (8.2)
14. The only FDA approved anti-obesity drug in India is ---- (Orlistat)*	69 (62.7)	41 (37.3)	102 (92.7)	08 (7.3)
15. Which stage of labour is prolonged in obese pregnant women? (First stage)*	72 (65.4)	38 (34.6)	101 (91.8)	09 (8.2)
16. A healthy diet for an adult should contain at least -------- dietry fiber per day. (60 gms)*	90 (81.8)	20 (18.2)	107 (97.2)	03 (2.8)
17. How many calories an adult should spend by way of physical exercise as part of recommendation at healthy life style (300)*	80 (72.7)	30 (27.3)	106 (96.4)	04 (3.6)
18. Stomach stapling is done for ---------- (Morbid obesity) *	83 (75.5)	27 (24.5)	103 (93.7)	07 (6.3)

(*Correct answers; Figures in parentheses indicate percentages).

As Table 4 shows that comparison between pre and post-test knowledge regarding obesity and its management among study population, in pre-test 84 (76.4%) subjects written correctly range of normal BMI and in post-test all written correctly, obesity is a public health problem worlwide was strongly agreed by 108 (98%) study subjects later on all accepted it as in post-test. There was improvement in knowledge of study subjects regarding main cause of obesity from 98 (89.1%) in pre-test to 107 (97.3%) in post-test. As regards awareness of leptin resistance, 75 (68.1%) individuals knew about it in pre-test and after CME it was 100 (90.9%) answered correctly. In pre-test 87 (79.1%) participants knew obesity is a chronic inflammatory disease and 106 (96.4%) written correctly in post-test. With respect to cut-off level of waist circumference, 71 (64.5%) participants knew the correct value in pre-test and 103 (93.6%) participants answered it correctly in post-test. About 65 (59.1%) individuals knew that functional residual capacity is affected in obese patients and 103 (93.7%) participants knew in post-test. As regards recommended weight gain in pregnant women, 64 (58.1%) participants knew the correct value in pre-test and after CME, 101 (91.8%) participants answered it correctly. Knowledge was also improved regarding cause of childhood obesity, effect on puberty, bariatric surgery, anti-obesity drugs, anesthetic and gynecological aspects of obesity.

DISCUSSION

In the present study, obesity was recognized as public health problem by 108 (98.1%) of study participants. Similarly a study done by Mkhatshwa et al showed that, 97.5% participants were aware that overweight and obesity are public health problems in South Africa.[9] Another study by Metcalf et al found that 92% of physicians agreed with the statement that the obesity is a big health problem among children and adults.[7] A study by Tsai et al also found that obesity was well recognized as a public health problem by 95.7% participants.[5] A study done by Bocquier et al in general practitioners showed that who had taken a CME course and were aware of weight control guidelines felt more effective, probably because this training increased their self-confidence.[10]

In this study, obesity is a chronic inflammatory disease stated by 87 (79.1%) of study participants, similarly a study by Tsai et al also found that 71% participants were aware obesity as chronic illness.[5]

In this study, 84 (76.4%) participants knew the definition of obesity and BMI calculation method. Similarly a study done by Mkhatshwa et al showed that the definition of obesity and BMI calculation method was not known by one third of the participants.[9] A study by Al Ghawai et al found that more than 60% of the participants did not know the classification of overweight and obesity according to BMI in their study.[6] Related with the cause of obesity, 98 (89.0%) participants knew that it was because of increase energy intake and sedentary life style in the present study. Similarly, a study done by Tsai et al found that behavioural factors have high impact in weight regains than biological factors.[5]

Regarding obesity in Asian women, majority 71 (64.5%) participants knew that the cut-off value for the waist circumference is ≥80 cm. Similarly, a study by Sebiney also found that 60.8% study participants correctly identified the waist circumference.[13]

Regarding childhood obesity the commonest cause was environmental stated by 81% participants in this study. Similarly, a study done by Sahoo et al stated that the environmental factors such as school policies, demographics and parents work related demands further influence eating and activity behavior.[14] Another study by Wilding J believes that changes in our environment are responsible for obesity.[15]

In present study, 78 (70.9%) participants were aware that bariatric surgery should be done irrespective of co-morbidity when BMI is greater than 40, as the rate of obesity continues to rise medical personnel must have knowledge about bariatric surgery, physician's knowledge of bariatric surgery could be improved by establishing more opportunities for education, Similarly a study done by Auspitz et al also found that 92.5% of physicians would like to receive more education about bariatric surgery.[16] The concern about health risks associated with obesity has led member states of the World Health Organization (WHO) to adopt a voluntary target to halt the rise in obesity by 2025. The management of obesity generally includes clinical counselling focused on diet, physical activity, behavior change, pharmacotherapy and bariatric surgery.

Limitations of this cross-sectional study was that the findings are from a single medical college and a certain group of population i.e., medical professionals only and as a small sample size; therefore, the findings cannot be generalized to all medical professionals or other healthcare professionals in the country.

CONCLUSION

The present study concluded that there was marked improvement in the knowledge regarding epidemiological determinants of obesity and its management amongst study participants after Continued Medical Education (CME). As obesity is a public health problem globally, there is need of hour to improve the knowledge regarding overweight and obesity amongst medical and paramedical personnel by conducting periodic CMEs, conferences or workshops.

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