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Original Research Article

Knowledge, attitude, and practice towards obesity among the general public in community settings of Tirupati: a cross-sectional study

Srinivas B. R. Moorthy, Harini Subbaiahgari*, Pavani Sibbala, Sravani Kola, Liyakath Kareem

Department of Pharmacy Practice, Sri Padmavathi School of Pharmacy, Tiruchanoor, Tirupati, Chittoor District, Andhra Pradesh, India

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***Correspondence:**
Harini Subbaiahgari,
E-mail: sharini011@gmail.com

ABSTRACT

Background: Obesity and overweight are strongly linked to developing diabetes, hypertension, myocardial infarction, stroke, and endocrine disorders. Knowledge, attitude, and practices of the public are crucial in limiting the burden of obesity in the Indian community. The current study aims to assess the KAP of obesity among the general public of India.
Methods: A community-based cross-sectional survey was conducted in the rural and urban areas of Tirupati city. Adults aged 18 years or above who are willing to participate, were included. A total of 300 subjects were enrolled and data was collected by using a pre-validated questionnaire. Variables like weight, height and KAP scores were obtained. Chi-square tests were used to associate demographics with good KAP towards obesity.
Results: The findings show that more than half of the participants have good knowledge, and a positive attitude, but the practices are not optimal in dealing with obesity and management. Participants' ages more than 40 years, presence of comorbidity, risk factors, and social habits are significantly associated with obesity and overweight. Obese are having good knowledge but normal-weight people are significantly associated with a positive attitude. Participants of normal weight, no risk factor, and no habits were significantly associated with rational practices.
Conclusions: The study concludes that the participants had good knowledge and attitude toward obesity but the participants failed to practice controlling and preventing obesity. However, more efforts are required in creating awareness and educating the general population regarding physical activity, diet, and lifestyle in preventing obesity and its associated complications.

Keywords: Obesity, Overweight, Risk factors, KAP

INTRODUCTION

Globally, obesity is one of the major public concerns that affect clinical, economical, and humanistic outcomes.[1] The prevalence of obesity and overweight was gradually increasing in developing and underdeveloped countries parallel to developed countries.[2] Changes in dietary, sedentary lifestyle, stress and social habits are the major reason for the heightened prevalence in developing countries.[3] Obesity and overweight are strongly linked to developing diabetes, hypertension, myocardial infarction, stroke, respiratory, and endocrine disorders.[4]

Still, India facing control of neonatal deaths, maternal mortality, and infectious diseases. The lifestyle disorders associated with obesity and overweight are going to be an extra burden to the nation.[5] As per NHFS-5 data (2021) the prevalence of obesity in adults in India was found to be 25%.[6] Public awareness about lifestyle modifications, dietary changes, physical activity, coping stress, and

pharmaceutical care interventions to control obesity will play a vital role in fighting chronic disorders.[5]

Knowledge levels, attitudes, and practices (KAP) of the public are crucial in limiting or reducing the burden of obesity in the Indian community.[7] Evidence shows that majority of the KAP studies on obesity are conducted at institutes or hospitals in Indian settings.[1,5,8,9] Exploring the risk factors associated with obesity and KAP levels at the community level is very important to implement intervention strategies to reduce the burden. The current study aims to assess the knowledge, attitude, and practice of obesity among the general public in community settings of Tirupati.

METHODS

A community-based cross-sectional survey was conducted in the rural and urban areas of Tirupati city. The study was approved by the ethics committee of Sri Venkateshwara Institute of Medical Sciences, Tirupati. Adults aged 18 years or above, of both genders who are willing to participate, were included in the study. Whereas, pregnant women and pediatrics were excluded from the study. The study was conducted for a period of six months from January 2021 to June 2021. The study was approved by the ethics committee before the recruitment of the first participant.

Sample size and sampling

The sample size was determined by considering the prevalence of obesity in the adult population. As per NHFS-5 data (2021) the prevalence of obesity in adults in India was found to be 25%.[6]

The sample size was calculated by using Epi-Info 7 statistical software given by the Center for Disease Control, USA. By considering the prevalence of 25%, power of 80%, the margin of error of 5%, and confidence level of 95% the sample size was determined as 288. To reduce the non-response rate, a 300-sample size was fixed for this study. A total of 150 adults from rural and 150 adults from the urban area were selected by using a systematic random sampling technique.

Study tool

The study tool comprises demographics, knowledge towards obesity (8 questions), attitude towards obesity (8 questions), and practice toward obesity (7 questions). Each question was scored on a 100-point Likert scale ranging from 25 (wrong answer) to 100 (perfect answer).

The average of each domain of the questionnaire was subjected to grade the level as poor (25-50), moderate (51-75), and good (76-100). The demographic section contains participants' age, gender, body mass index (BMI), diseases suffering, and social habits. The knowledge questions cover BMI interpretation with obesity, risk of central fat distribution, an association of obesity with cardiovascular, endocrine, and joint disorders, the role of fasting, social habits, and aerobic exercises in dealing with obesity. In the attitude section, questions were framed to draw the opinions of respondents regarding their current weight, and efforts made to control their overweight or obesity. The tool also consists of dietary and physical activity-related questions in attitude sections to get an opinion from the respondents. The practice section comprises questions regarding respondents' adherence to good dietary, lifestyle, physical, and psychological habits in maintaining a healthy weight.

Table 1: Socio-demographics, and clinical characteristics of the study participants.

Variables	N (%)
Age (Mean±SD)	
18-30	159 (53.0)
31-40	54 (18.0)
41-50	45 (15.0)
51-60	32 (10.7)
61-70	10 (3.3)
Gender	
Male	157 (52.3)
Female	143 (47.7)
Weight class and BMI	
Normal weight (18.5-24.9)	123 (41.0)
Over weight (25-29.9)	98 (32.7)
Obese class 1 (30-34.9)	54 (18.0)
Obese class 2 (35-39.9)	17 (5.7)
Obese class 3 (>40)	8 (2.7)
Co-morbidity	
Present	55 (18.4)
Absent	245 (81.6)
Risk factors present	
Absence of exercises	37 (12.3)
Consumption of fried food, sweets, and beverages	42 (14.0)
Absence of good dietary habits	76 (25.3)
Absence of walking	35 (11.7)
None	110 (36.7)
Social habits	
Smoking	60 (20.0)
Alcohol	38 (12.7)
Smoking and alcohol	47 (15.7)
None	155 (51.7)

The tool was subjected to a pilot test among 30 participants and tested for reliability. The Cronbach's alpha value for the study tool was estimated as 0.89.

Data collection

A total of 300 subjects were enrolled in the study. The data was collected by using a pre-validated interview-based questionnaire. Before the collection of the data, all study participants have explained the objectives,

procedure, and outcomes of the study. After getting oral and written informed consent from the participant the interview was conducted by trained data personnel. For every participant, the data collection was started by getting weight and height followed by demographics, knowledge, attitude, and practices responses.

Data analysis

Descriptive statistics like frequency, percentage, mean, and standard deviation were used to represent the demographics, knowledge, attitude, and practices of participants towards obesity. Inferential statistics like the Chi-square test were used to associate demographics with good KAP towards obesity. IBM statistical package for social sciences (SPSS), version 26 was used to analyze the obtained data.

RESULTS

A total of 300 subjects participated in the study. The majority of the participants are aged between 18 and 30 years (159; 53.0%), male (157; 52.3%), normal weight (123; 41.0%), no co-morbidity (245; 81.6%), no risk factor (110; 36.7%), and no social habits (155; 51.7%). The mean age of the study participants was 42±12.6. The demographic and clinical profiles of the study participants were represented in (Table 1). The findings the current show that more than half of the participants are possessed good knowledge, and a positive attitude, but the practices are not optimal in dealing with obesity and its management. The distribution of the responses towards KAP inventories and the level of KAP regarding obesity and its management was represented in (Table 2 and 3). The Chi-square analysis of the study findings revealed that age of more than 40 years, absence of risk factors, and absence of social habits are significantly associated with good knowledge and positive attitude. Obesity people are having good knowledge but normal-weight people are significantly associated with a positive attitude. Participants of normal weight, no risk factor, and no social habits were significantly associated with rational practices. The association of demographics with obesity and its management was represented in (Table 4). The Chi-square analysis of the study findings revealed that age of more than 40 years, presence of comorbidity, risk factors, and social habits are significantly associated with obesity and overweight as represented in (Table 5).

Table 2: Distribution of the KAP towards obesity among study participants (n=300).

Question	N (%)
Knowledge	
Do you know obesity is assessed by BMI (Ans: yes)	241 (80.3)
Does fat accumulation around the abdomen leads to respiratory problems (Ans: yes)	189 (63.0)
Do you think obesity causes heart diseases like heart attack increased blood pressure, and increased cholesterol levels? (Ans: yes)	232 (77.3)
Do you think obesity increases the chance of getting diabetes and osteoarthritis? (Ans: yes)	198 (66.0)
Do you think fasting is a good way to lose weight (Ans: no)	131 (43.7)
Do you think smoking, consuming alcohol, additional sugars in tea /coffee, sweets, fried foods, and stress are risk factors for weight gain? (Ans: yes)	215 (71.7)
Do you think regular aerobic exercises such as jogging, swimming, and playing outdoor sports help in losing weight? (Ans: yes)	249 (83.0)
Attitude	
Do you consider your current weight is healthy (Ans: yes)	186 (62.0)
Do you find it difficult in keeping your weight healthy (Ans: no)	198 (66.0)
Do you consider taking breakfast regularly a part of a healthy lifestyle (Ans: yes)	135 (45.0)
Do you consider taking small and frequent meals to help in weight reduction (Ans: yes)	197 (65.7)
Are you confident that you are not taking additional sugars or fried foods in your diet? (Ans: extremely confident)	141 (47.0)
Do you satisfy with your current physical activity? (Ans: very satisfied)	163 (54.3)
Are you confident that doing physical activities such as jogging, swimming, and sports keep you healthy? (Ans: extremely confident)	194 (64.7)
Do you walk to nearby places rather than using transportation (Ans: yes)	210 (70.0)
Practice	
Do you add additional sugars in your diet? (Ans: never)	168 (56.0)
Do you include cool drinks in your diet? (Ans: never)	282 (84.0)
Do you eat more in response to stress? (Ans: never)	190 (63.3)
How often do you take major meals? (Ans: never)	164 (54.7)
Do you include fruits/salads in your diet? (Ans: daily)	140 (46.7)
What is the frequency of your exercises? (Ans: daily)	138 (46.0)
How long do you exercise in a day? (Ans: ≥20 minutes)	126 (42.0)

Table 3: Distribution of the level of KAP towards obesity among study participants

Level	N (%)
Knowledge	
Good	169 (56.3)
Moderate	101 (33.7)
Poor	30 (10.0)
Attitude	
Positive	152 (50.7)
Negative	148 (49.3)
Practice	
Rational	128 (42.7)
Irrational	172 (57.3)

Table 4: Association of demographics with good KAP towards obesity.

Variable	N (%)	Good knowledge	Chi-square (p value)	Positive attitude	Chi-square (p value)	Rational practice	Chi-square (p value)
Age (years)							
≤40	213 (71.0)	111 (52.1)	4.74 (0.029)	90 (42.2)	19.65 (<0.001)	98 (46.0)	2.9 (0.044)
>40	87 (29.0)	58 (66.7)	Ref	62 (71.3)	Ref	30 (34.5)	Ref
Gender							
Male	157 (52.3)	91 (57.9)	0.23 (0.632)	85 (54.1)	1.31 (0.126)	66 (42.0)	0.01 (0.454)
Female	143 (47.7)	78 (54.5)	Ref	67 (46.8)	Ref	62 (43.3)	Ref
Weight class							
Normal weight	123 (41.0)	32 (26.0)	75.82 (<0.001)	98 (79.7)	68.23 (<0.001)	86 (69.9)	61.42 (<0.001)
Obese or overweight	177 (59.0)	137 (77.4)	Ref	54 (30.5)	Ref	42 (23.7)	Ref
Co-morbidity							
Present	55 (18.3)	34 (61.8)	0.57 (0.449)	30 (54.5)	0.24 (0.313)	25 (45.4)	0.09 (0.377)
Absent	245 (81.7)	135 (55.1)	Ref	122 (49.8)	Ref	103 (42.0)	Ref
Risk factors present							
Present	190 (63.3)	78 (41.0)	47.51 (<0.001)	46 (24.2)	142.2 (<0.001)	26 (13.7)	174.7 (<0.001)
Absent	110 (36.6)	91 (82.7)	Ref	106 (86.4)	Ref	102 (92.7)	Ref
Social habits							
Present	145 (48.3)	50 (34.5)	52.7 (<0.001)	34 (23.4)	81.09 (<0.001)	32 (22.0)	47.06 (<0.001)
Absent	155 (51.7)	119 (76.8)	Ref	118 (76.1)	Ref	96 (61.9)	Ref

DISCUSSION

Nowadays obesity becoming a major health concern in all age groups and in both genders regardless of their economic and societal background.[10] Our study assesses the knowledge, attitude, and practices toward obesity and its management. The study also explores the risk factors associated with obesity and provides preventive strategies for leading a healthy lifestyle. This is the primary study that explores the KAP and risk factors associated with obesity in the general public of India in community settings.

Table 5: Association of demographics and obesity or over-weight among study participants.

Variable	N (%)	Obesity or over-weight	Chi-square (P value)
Age (years)			
<40	213 (71.0)	105 (49.3)	27.23 (< 0.001)
≥40	87 (29.0)	72 (82.7)	Ref
Gender			
Male	157 (52.3)	88 (56.0)	0.46 (0.249)
Female	143 (47.7)	89 (62.2)	Ref
Co-morbidity			
Present	55 (18.3)	48 (87.3)	20.85 (<0.001)
Absent	245 (81.7)	129 (52.6)	Ref
Risk factors present			

Continued.

Variable	N (%)	Obesity or over-weight	Chi-square (P value)
Present	190 (63.3)	146 (76.8)	66.2 (<0.001)
Absent	110 (36.6)	31 (28.2)	Ref
Social habits			
Present	145 (48.3)	124 (85.5)	79.47 (<0.001)
Absent	155 (51.7)	53 (34.2)	Ref

The majority of the participants are aged between 18 and 30 years (159; 53.0%), male (157; 52.3%), normal weight (123; 41.0%), no co-morbidity (245; 81.6%), no risk factor (110; 36.7%), and no social habits (155; 51.7%). These findings were contrasted with various studies conducted in India because the majority of the KAP studies on obesity are focused on students at the educational institute level.[1,4,5,8]

Even though the majority of the public shows good knowledge and a positive attitude in dealing with obesity very less are implementing the strategies for controlling obesity and overweight. This suggests that intensified sensitization programs on obesity and its long-term complication need to be promoted at the public level. These findings are nearly similar to a study conducted in Chhattisgarh, India.[2]

The Chi-square analysis of the study findings revealed that age of more than 40 years, absence of risk factors, and absence of social habits are significantly associated with good knowledge and positive attitude. Obesity people are having good knowledge but normal-weight people are significantly associated with a positive attitude. Participants of normal weight, no risk factor, and no social habits were significantly associated with rational practices. There is a need to develop awareness programs and health campaigns targeting identified risk factors in our study to promote rational practices among the public.[11] Successful intervention for prevention must influence energy balance but must also be sustainable. Changes in diet and physical activity need to be incorporated into new behaviour patterns, as a need for constant reminders or rewards will result in non-sustainability. A permanent change in the environment is the best way to ensure permanent changes. Actions should focus on; enabling people to manage energy balance better in the current environment; modifying the vectors of obesity; and changing the current socio-political environment, which currently rewards the manufacturers of products and processes that contribute to obesity. Effective programs for obesity prevention probably encourage both healthy eating and physical activity rather than rely on separate strategies for eating and activity.[11]

Strengths and limitations

As the study was conducted in a sample of two areas, the findings are limited to only those two community settings. Even though the data was collected by face-to-face interview, there will be a chance of introducing the interviewer or responder to biases in a cross-sectional survey. Anyway, as this is the first study in the community settings of India, it provides a glimpse of respondent's KAP and associated risk factors for obesity to plan sensitization programs.

CONCLUSION

The study concludes that the participants had good knowledge and attitude toward obesity but the participants failed to practice controlling and preventing obesity. However, more efforts are required in creating awareness and educating the general population regarding physical activity, diet, and lifestyle in preventing obesity and its associated complications.

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