TO ASSESS THE STATUS OF BODY WEIGHT AND HYPERTENSION IN THE SUBJECTS WITH DIABETES: A SOCIAL AWARENESS

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ABSTRACT

Background- A number of diseases have been linked to obesity and obesity is a condition which can be prevented or controlled if there is awareness about it, hence this study is planned to know the awareness in the rural population about causes, consequences and strategies to prevent and control and benefits of increasing awareness about obesity.

Objective-we explored the awareness regarding causes, consequences and preventive measures of obesity among 100 obese patients 40-70 years with different mean levels of body mass index (BMI) in the patients who were visiting a rural tertiary health care set up.

Materials and Methods- A type of case control study was conducted on a total of 200 subjects out of which, 100 were obese subjects and remaining 100 were healthy controls after getting their consent. The obese subjects in this group were inquired about their awareness regarding various aspects of obesity

Results: The mean age of cases was 54.11±6.23. Total 31% patients were hypertensive and 69% were type 2 diabetic. Regarding medical condition, 27% subjects were aware and remaining was unaware about their medical condition. 94% of the subjects had the awareness about therapeutic and dietary management aspects whereas 6% did not have such awareness.

Conclusion-There were low awareness levels among obese/overweight subjects regarding obesity/overweight and also regarding complications and self-care practices

Key words: Obesity, Age, Gender, BMI (Body mass index), Diabetes, Hypertension, Awareness

Introduction

Obesity is identified as a major communal health challenge of the 21st century across the globe [1]. Currently, an estimated 205 million men and 297 million women over the young age and more than half a billion adults worldwide.[2] Even in countries like India, which are typically recognized for high prevalence of under nutrition, a significant proportion of overweight and obese people now coexists with those who are undernourished.[3]

The rising prevalence of overweight and obesity in India has become a serious public health problem and found to have a direct correlation with the increasing prevalence of obesity-related co-morbidities, hypertension, the metabolic syndrome, dyslipidaemia, type 2 diabetes mellitus, and cardiovascular disease. The risk for these disorders appears to begin from a body mass index (BMI) of about 21 kg/m^2 [4].

World wide data for the prevalence of overweight and obesity has become more than double since 1980, which reached to 1.9 billion overweight and 600 million obese adults in 2014 **(5)** and it is estimated that, the world's adult population38% will be overweight and another 20% will be obese by 2030**(6).**

The adverse health consequences associated with obesity include cardiovascular disease; stroke; type-2diabetes mellitus**,** hypertension, dyslipidaemia, cancers of the breast, endometrium, prostate and colon**;** gallbladder disease; osteoarthritis respiratory problems, including asthma and sleep apnoea**,** and probably also depression **(7).**

Overweight and obesity can be measured by using body mass index (BMI) and used widely as an index of relative adiposity among any population **(8).**

According to World Health Organization (WHO) four categories were established with the relation to Body Mass Index (BMI). These categories are; BMI range 15 to 19.9 kg/m^2 (underweight), 20to24.9kg/m^2 (normal weight), 25to29.9kg/m^2 (overweight) and 30 to35kg/m$^{2(9)}$

Material and methods

The present case control study was carried out in the Department of Biochemistry, SBKS medical institute and research center a constitute institute of Sumandeep Vidyapeeth university piparia, Waghodia. A total 200 subjects were enrolled for this study, out of these 100 obese subjects and 100 were normal healthy individuals. The study was conducted after getting the ethical approval from institutional ethical committee. The cases were enrolled from Dhiraj General Hospital and the control was from in and around the Sumandeep Vidyapeeth. Each patient had undergone an initial clinical evaluation and awareness regarding about medical condition, the measurements of height, weight and BMI calculation. Practical and clinical definitions of overweight and obesity are based on the BMI, which is computed by dividing weight (in kilogram) by the square of height (in meter) [kg/m2].(10) A person with a BMI between 25 and 29.9 is considered to be overweight, a BMI of greater than 30 is considered to be obese. A person with a BMI between 18.5 and 24.9 is considered normal, and if the BMI is below 18.5 the woman is considered to be underweight (10).

The statistical analysis was carried out by the SPSS version -21 software. The data were presented in the form of mean ±SD values and for categorical data the number were presented in the form of frequency and percentage. Test of significance p- value is less than 0.05 is considered as significant.

Results and Analyses
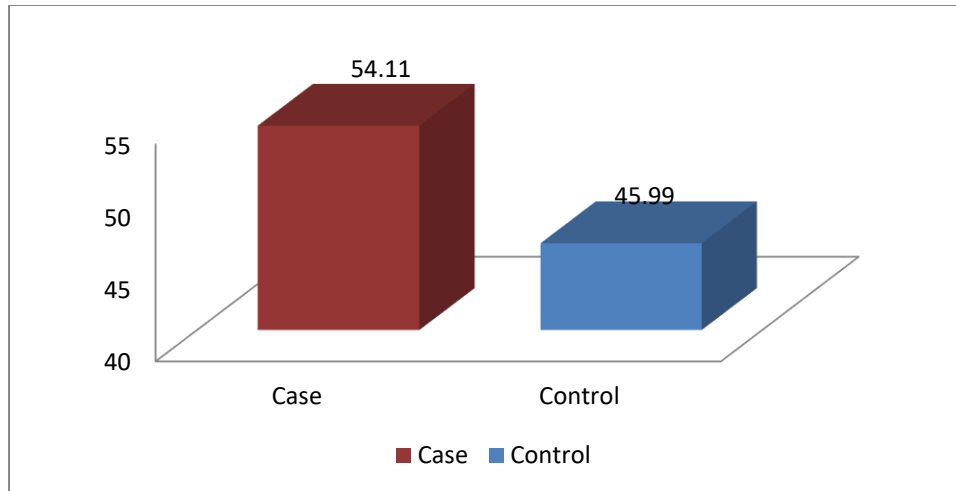## **Table no.1Age wise distribution in case and control groups**

Table no.2Gender wise distribution in case and control groups

Gender	Case (n=100)	Control (n=100)
Male	**52%**	**55%**
female	**48%**	**45%**

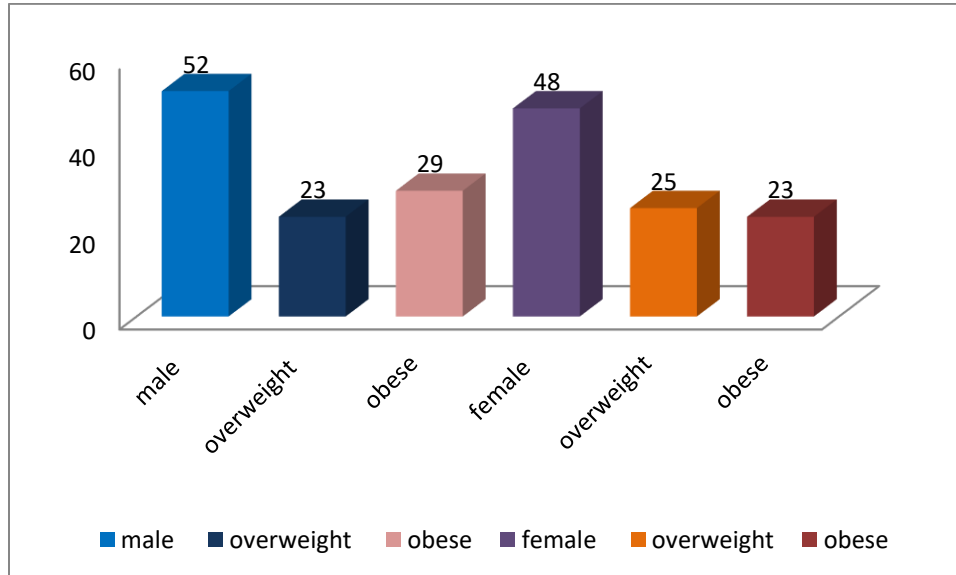**Figure-1. Body mass index wise categorization incases (A gender wise categorization)**

Table no.4: Awareness related medical condition and medical condition in age group wise distribution

Age groups	AWARENESS			
	Aware with the medical Condition		**On treatment**	
	YES	**NO**	**Taken**	**Not taken**
40-50	10(33.3%)	20(66.6%)	27(90%)	3(10%)
51-60	12(23.07%)	40(76.92%)	51(98.07%)	01(1.92%)
61-70	5(27.7%)	13(72.2%)	16(88.8%)	2(11.11%)
Total	27%	73%	94%	6%

Table no.5: Gender wise distribution of prevalence in hypertension and type 2 diabetes

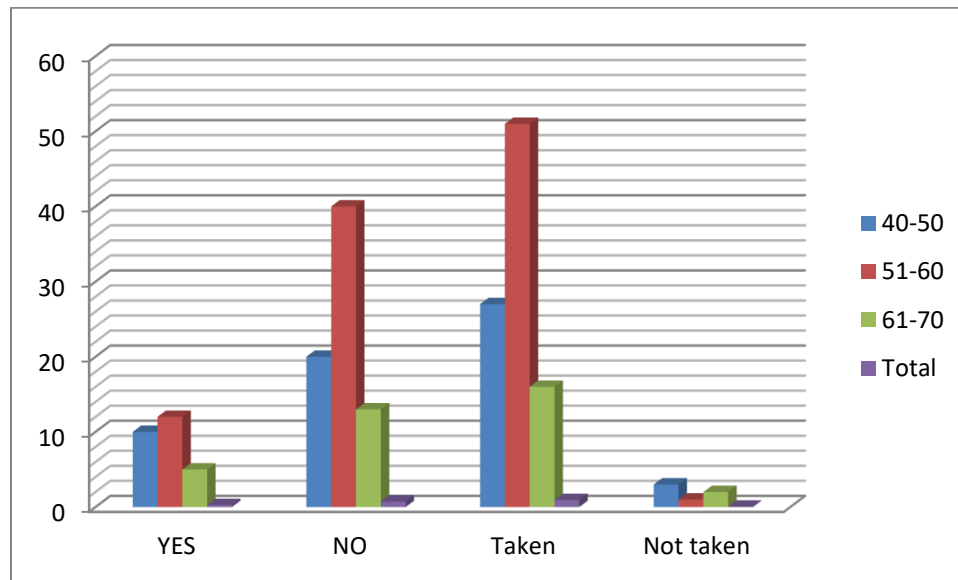| Total hypertension (31)	Male 14(45.1%)	Female 17(54.8%)
Total type 2 diabetes 69%	Male 36 36(52.1%)	Female 33(47.8%)

Figureno.2 shows the details of awareness about their Medical condition and treatment taken or not taken in study population.

Discussion

Obesity is a multifactorial and complex disease, which is due to accumulated excess fat in adipose tissue, causing impaired physical and psychosocial health and well-being". Overweight and obesity is one of the major cause of comorbidities including type-2 diabetes, cardiovascular diseases, cancer and other diseases .Body mass index (BMI) is most widely used criteria for classifying obesity.[1&2] In the present study also we have categorized patients using this criteria, in the subjects whereas none of the controls were obese or overweight. All the subjects and controls were those who were visiting Dhiraj general hospital, piparia. The study subjects

comprised of both males and females in the age group of 40-70 years. Hundred each of study subjects and controls were selected as per the inclusion and exclusion criteria.

In this study, age wise distribution in case and control groups was carried out and the mean age was 54.11±6.23 years in cases and whereas in controls it was 45.99±8.67 years.

Racette et al (2003) reported that obesity was affecting all ages and at all socio economic levels and found age advanced the obesity also increased.[7]

52% of subject cases were of males and remaining 48% were females whereas 55% controls were males and 45% of females.

In the categorization of diseases as per the body mass index, 48% were overweight and 52% were obese. Out of them 23% and 29% males were overweight and obese respectively. In the category of females the respective percentage was 25% females and 23%. They further observed sex differences apparently in the pattern of weight gain and development of overweight and obesity. This was attributed to hormonal differences between men and women. The findings of the present study are correlation with that of Racette et al (2003) though the percentage was higher in Racette et al (2003) in comparison to this study.

We have also analyzed gender wise prevalence of type-2 diabetes, hypertension in overweight and obesity category. Both the categories combined together, we have observed that there was a 31% hypertension and diabetes 69%. Out of this 31% hypertensive subjects there were 45.1% and 54.8% males and females respectively. In case of diabetes there was a prevalence of 69% and out of this 52.1% and 47.8% males and females were respectively.

In the present study, the details of awareness were also observed regarding their medical condition and treatment taken or not taken from each and every individual in study population and found that total of 27% subjects were aware with their medical condition and 73% were unaware. 94% of the subjects were on treatment and remaining 6% did not take any treatment for this condition. (Figure-2)

Conclusion

The results of this study give an indication of lacking awareness about causes, consequences and ways and means of controlling it and dietary management in the majority of subjects from this rural area who are visiting this hospital. Though many of this overweight and obese subject who were afflicted with type-2 diabetes/ hypertension/both did not have awareness about self-care practices. The study gives an input that along with therapeutic intervention it is equally important to raise the awareness levels in both overweight and obese subjects to control and equally important to raise the awareness levels about these aspect among the controls so as to prevent it.

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