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PREVALENCE OF OBESITY AND ITS ASSOCIATION WITH CONICITY INDEX, BLOOD PRESSURE, AND OTHER DEMOGRAPHIC VARIABLES AMONG MUSLIM RURAL ADULT WOMEN (WITHIN REPRODUCTIVE AGE GROUP) OF RATUA-1 BLOCK, MALDA, WEST BENGAL, INDIA

Home Science

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ABSTRACT

Globally, more than 1.9 billion adults are overweight and more than 650 million are obese. Every year near about 2.8 million deaths are caused due to overweight or obesity. **The objective** of the present study is to find out the prevalence of overweight and obesity and its association with Conicity index, blood pressure and other demographic variables among Muslim rural adult women of Ratua-1 block, Malda, West Bengal. **METHODS:** Present community based study was conducted among 129 Muslim women aged 26.71±5.51 years, from October 2020 to July 2021 among rural adult women of Ratua-1 block, Malda, West Bengal. The study participants were interviewed using predesigned and pretested questionnaire and anthropometric examination. **RESULTS:** Among 129 participants 24% were obese and 24% were overweight. Among the 17.05% had high Conicity index (CI), and 61.24% had elevated blood pressure. Significant association existed between BMI and CI, WC & BP. **CONCLUSION:** Present study highlighted the high prevalence of overweight /obesity among rural adult muslim women, which may have serious public health implications at community level.

KEYWORDS

women, reproductive age group, obesity, overweight, rural, Conicity index.

INTRODUCTION

The definition of overweight and obesity remains as abnormal or excessive fat accumulation that produces a pertinent risk to health. One of the common population-level measure of obesity is the body mass index (BMI)[1]. According to WHO-Asian Indian classification, a person with BMI of $\geq 25 \text{ kg/m}^2$ is considered obese, while BMI more than 23 kg/m^2 considered overweight[1]. However intra-abdominal fat has the stronger relationship with risk of obesity-related morbidity and cannot be measured by BMI [2]. Thus WHR and WC measurements & Conicity index (CI) are becoming important indicators for abdominal adipose tissue distribution [3].

Globally, more than 1.9 billion adults are overweight and more than 650 million are obese. Every year near about 2.8 million deaths are caused due to overweight or obesity. Consumption of highly processed energy dense foods, less physical activity, sedentary life styles, lack of health care services and economical support leads to the developing countries to face high risk of obesity and its various consequences (i.e. abnormal lipid profile, cardiovascular diseases, diabetes etc.)[4]. In India more than 135 million individuals were affected with obesity [5]. These prevalence of obesity varies due to age, geographical environment, gender, socio-economic status etc[5]. The prevalence rate of obesity and central obesity among Indian varies from 11.8-31.3% & 16.9-36.3% (ICMR-INDIAB study 2015). Many reports concluded that prevalence of obesity among women were more significant than men[5].

There are many reports emphasizing on sedentary lifestyle, changes in dietary pattern and societal changes as considerable risk factors for propagating overweight and obesity [6]. Till now very little reports are available regarding examination of risk factors contributing to rising prevalence of obesity in rural areas, where more than 70 % of total population lived and modernization occurred less rapidly [6,7].

Thus in-depth examinations of overweight and obesity among women in rural regions are therefore essential, especially considering that these populations are often compromised by low literacy and poor access to health care-services[8,9]. Thus the objective of the present study is to find out the prevalence of overweight and obesity and its association with Conicity index, blood pressure and other demographic variables among muslim rural adult women of Ratua-1 block, Malda, West Bengal.

MATERIALS AND METHODS:

This community based epidemiological study with a cross-sectional design was conducted among the Muslim rural adult women of Ratua-1 block, Malda, West Bengal. The study duration was from October 2020 to July 2021.

Sample Size and Sampling Design:

Total 129 Muslim participants were studied.

From the list of Ratua-1 block area a village was randomly selected by using random numbers. Then according to electoral list of 2019 available to local panchayat were used to randomly identify 129 Muslim respondents (women with in reproductive age group). Unwilling individuals, pregnant women, women with other religion, mentally disabled participants were excluded from the study. Informed written consent was taken from every participant.

Table 1: Distribution of the overweight/obesity and non-overweight study participant in relation to sociodemographic characteristics (N=129):

Parameter r	BMI Status		Total No (%)	Chi-square test (p value)
	Overweight/obese No.(%)	Non-overweight No.(%)		
Education				
Illiterate	51 (46.7)	58 (53.3)	109 (100)	3.16 (p=0.14)
Literate	12 (60)	8 (40)	20 (100)	
Type of Family				
Nuclear	50 (46.72)	57 (53.27)	107 (100)	1.16 (p=0.29)
Joint	13(59.1)	9 (40.9)	22 (100)	
Economic Status (According to B.G Prasad Classification 2020)				
>class III	61 (48.03)	66 (51.97)	127 (100)	2.12 (p=0.14)
≤class III	2(100)	0(0)	2(100)	

Tools Used:

The study participants were interviewed using predesigned and pretested questionnaire and anthropometric examination were done using weighing machine, non-stretchable measuring tape. BP (Blood Pressure), WC, BMI (Body Mass Index), and CI were measured using standard procedure [10-13].

Statistical Analysis:

Data were put in Microsoft Excel worksheet (Microsoft, Redwoods, WA, USA) and checked for accuracy. Association between two attributes was calculated by Pearson's Chi-square test.

Continuous data were first checked for normality distribution by Kolmogorov-Smirnov test. Significant P value indicated skewed distribution. Thus, continuous data were presented in median and interquartile range. Because of skewed distribution, nonparametric tests were performed.

Correlation was calculated by Spearman's correlation coefficient (rho). SPSS software, version 20.0 (Statistical Package for the Social Sciences Inc, Chicago, IL, USA) was used for calculation. P < 0.05 was considered as statistically significant.

Table 2: Distribution of the overweight/obesity and non-overweight study participant in relation to Conicity Index, waist circumference, blood pressure (N=129):

Parameter	BMI Status		Total No.(%)	Chi-square test (p value)
	Overweight/obese No.(%)	Non-overweight No.(%)		
Conicity Index				
>1.18	19 (86.36)	3 (13.64)	22 (100)	14.94 (p=0.00)*
<1.18	44 (41.12)	63 (58.88)	107 (100)	
Waist Circumference				
<80 cm	20 (23.8)	64 (76.2)	84 (100)	60.3 (p=0.00)*
≥80cm	43 (95.5)	2 (4.5)	45 (100)	
Blood Pressure				
<130/85mm of Hg	15 (30)	35 (70)	50 (100)	11.59 (p=0.001)*
≥130/85 mm of Hg	48 (60.76)	31 (39.24)	79 (100)	

Significant At 5% Level

RESULTS:

In the present study, a total of 129 Muslim adult women had participated. Median (IQR) age of the study population was 26 (8.5) years. BMI of the study population was 22.8(3.75). Whereas the diastolic BP was 82(10) mm of Hg and the systolic BP was 124(18) mm of Hg. The WC of the study population was 82(29) cm.

Table 1 revealed that among 129 participants, majority were belongs to illiterate group (84.5%). Among the study population 82.95% women were belongs to the nuclear family.

100 % of the study participants were housewife.

Table 2 showed that out of the study population 17.05% were having high CI and there is significant association existed between obesity/overweight and CI. 34.88% participants had high WC (>80cm) , again significant association existed. The WC had significant positive correlation with BMI (0.684,p=0.0) & CI(0.533,p=0.0). Significant positive correlation existed between BMI and BP (0.300,p=0.01),BP also had significant positive correlation with WC(0.248,p=0.005).BMI had negative relationship (insignificant) with economic status of the participant(-0.128,p=0.147).CI had significant positive correlation with BMI (0.340,p=0.0).

DISCUSSION:

Globally overweight or obesity has reached its epidemic proportion. Whereas developing countries were sufferings from double burden of malnutrition globally. It is also common in India as well. Thus the increasing trends of dual burden of malnutrition need proper management and control at grass root level.

In present study the prevalence of undernutrition (BMI<18.50 kg/m2) was 3% and prevalence of combined overweight or obesity (BMI≥23kg/m2) was 48%.

The present prevalence of overweight/obesity is higher than Rengma Naga(43.34%)[14], Bengali Hindus (19.50%) [15], Marwaris (25.91%) [16], Bengali Muslim from Uttar Dinajpur (12.86%)[17]. Thus the studied population is suffering more from overweight/obesity than undernutrition.

CONCLUSION:

Present study highlighted the high prevalence of overweight /obesity among rural adult muslim women, which may have serious public health implications at community level. Significant association existed between BMI and CI, WC & BP. Therefore, its corrections may play an important role in improving the quality of life of this population. Further studies are required in order to fully understand the extent of the health problems of Bengali Muslim of rural India. Results of such investigations may be helpful in the formulation of appropriate ethnic and region specific health promotion and intervention programmes. Hitherto, in the Indian context, such studies especially focused on rural adult women are scanty.

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