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RESEARCH ARTICLE

THE PREVALENCE OF OBESITY AND ITS RELATIONSHIP WITH HYPERTENSION AMONG WOMEN

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ABSTRACT

Introduction: Overweight and obesity are the fifth leading risk of deaths, resulting in around 2.8 million deaths of adults globally every year. Studies show also in India obesity and overweight are more common especially among women. Most of the women not aware about the co-morbid effects of these. Among various co-morbid condition hypertension also one of the condition developed due to obesity and overweight.

Methods: Cross sectional survey design was used for this study. By using convenience sampling method 300 females were selected for the study. The data was collected using semi structured questionnaires. Both descriptive and inferential statistics were used for data analysis.

Results: The result shows that 36% of women were having obesity their BMI value is more than 25, and 11% of women under weight, only 23 % of samples were having normal BMI value. Based on waist circumference 43.7% of women were comes under obesity and 33% of them were having overweight. And 69 women were having hypertension. There is a significant association with the vigorous physical activity with BMI and WC and moderate physical activity outside home with BMI value but there is no any association with WC.There is a significant association between BMI and WC with hypertension.

Conclusions: More than half of the women having abnormal body mass index(BMI) and abnormal deviation from normal blood pressure. The study concluded that rural women also under high risk for getting obesity related physical problems.

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INTRODUCTION

Obesity and overweight have become a global epidemic now. According to the World Health Organization (WHO), there will be about 2.3 billion overweight people aged 15 years and above and over 700 million obese people worldwide in 2015. Overweight and obesity are the fifth leading risk of deaths, resulting in around 2.8 million deaths of adults globally every year. In addition, 44% of the diabetes burden, 23% ofthe ischemicheart disease, and between 7% and41%ofcertain cancer burdens are attributable to overweight or obesity (http://www.who.int/mediacentre/factsheets/fs311/en). Obesity has reached epidemic proportions globally, with at least 2.8 million people dying each year as a result of being overweight or obese. Once associated with high-income countries, obesity is now also prevalent in low- and middle-income countries (www.who.int/features/factfiles/obesity/en/).

According to Global Health Observatory (GHO) data; Data and analysis on overweight and obesity: In 2014, 39% men and 40% of women aged 18+ were overweight (BMI ≥ 25 kg/m2) and 11% of men and 15% of women were obese (BMI≥30 kg/m2). Thus, nearly 2 billion adults worldwide were overweight and, of these, more than half a billion were obese. Both overweight and obesity have shown a marked increase over the past 4 decades. Obesity rates in men have risen from around 3% in 1975 and in women from just over 6% in 1975 while overweight has risen over this sametime period from just under 21% in men and from just under 23% in women (www.who.int/mediacentre/factsheets/fs311/en/).

The prevalence of overweight and obesity were highest in the WHO Regions of the Americas (62% for overweight in both sexes, and 26% for obesity) and lowest in the WHO Region for South East Asia (14% overweight in both sexes and 3% for obesity). In the WHO Region for Europe and the WHO Region for the Eastern Mediterranean and the WHO Region for the Americas over 50% of women were overweight. For all three of these regions, roughly half of overweight women are obese (23% in Europe, 24% in the Eastern Mediterranean, 29% in the Americas). In all WHO regions women were more likely to be obese than men. In the WHO regions for Africa, Eastern Mediterranean and South East Asia, women had roughly double the obesity prevalence of men (www.who.int/

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mediacentre/factsheets/fs311/en/). Even as India battles malnutrition, the country has developed another nutritional problem—obesity. In past 10 years, the number of obese people has doubled in the country, according to the National Family Health Survey (NFHS-4). As per the survey conducted by Ministry of Health and Family Welfare (MoHFW), most of the states have experienced sharp rise in the number of obese people. Andhra Pradesh, Andaman and Nicobar, Puducherry and Sikkim have more than 30 per cent of their populations falling under the "obese" category. More than 10 per cent population in Bihar, Madhya Pradesh, Meghalaya, Tripura and West Bengal is obese; doubling since the last National Family Health Survey of 2005-06. According to data from the first phase of the National Family Health Survey (NFHS-4) 2015-16. Goa is home to the largest percentage of obese women at 33.5%, while Sikkim is home to the largest percentage of obese men at 34.8% (www.downtoearth.org.in).

Aim of the study

To assesses the prevalence of obesity and its relationship with hypertension among women.

MATERIAL AND METHODS

The research design adopted for the present study was community based Cross sectional survey approach. The study was conducted at village with the population of 2455 and number of houses 346, which comes under JIPMER rural health center service area.By using convenience sampling method 300 females were selected for the study. Semi structured interview method was used to collect the data. The tool was translated into Tamil version and the validity and reliability was established. Socio demography details and other information like clinical variable and physical activity and biophysical measurements (weight, Waist circumference, Waist hip ratio and Blood pressure) were collected. Analysis was carried out in SPSS (Statistical Package for social science) version 20.0. All statistical analysis had been carried out at 5% level of significance.

RESULTS

Table 1. Socio-demographic variables of the women above 18 years of age

Socio Demographic Variables		N=300	%
Educational status	< 10 std	116	38.7
	Higher secondary	103	34.3
	Graduation Illiterate	33	11
		45	15
Marital status	Married Singe widow	249	83
		35	11.7
		15	5
Occupation	Coolie House wife	244	81.4
	Student Business	39	13
	Others	12	4
		5	1.7
Monthly income	<5000	185	61.7
	5001-15000	109	36.3
	>15001	6	2
Total number of family members	1-3	146	48.7
	4-6	148	49.3
	7-9	4	2
	>10	0	0
Religion	Hindu Christian	296	98.7
	Muslim Other	4	1.3
		0	0
		0	0

Table 2. The prevalence of obesity based on BMI among women above 18 years N=300

Classification	BMI	Frequency	%
Under weight	< 18 kg/ m^2	33	11
Normal BMI	18.0-22.9 kg/ m^2	69	23
Overweight	23.0- 24.9 kg/ m^2	91	30
Obesity	>25 kg/ m^2	107	36

Table 3. The prevalence of obesity based on WC among women above 18 years N=300

Classification	WC (cm)	Frequency	%
Normal	72	70	23.3
Over weight	72- 80	99	33
Obesity	>80	131	43.7

Table 4. The prevalence of hypertension among women above 18 years

Classification	BP (mm of hg)	Frequency	%
Normal	<120/80	141	47
Pre hypertension	120/80- 139/90	90	30
Hypertension			
v StageI	140/90 - 159/99	53	17.6
v StageII	≥160/100	16	5.4

Table 5. Association between WC and physical activity among women above18 years N=300

Physical activity		frequency	%	P value
Vigorous physical activity	<2 days	49	16.3	0.02**
B) Days per week	2- 4 days	131	43.7	
	>4 days	120	40	
	<1 hour	25	8.3	
	1- 4 hours	175	58.3	0.04**
B) Hours per day	>4 hours	100	33.4	
Moderate activity outside home	<2 days	32	10.7	
	2- 4 days	200	66.7	0.9
A) Days per week	>4 days	68	22.7	
	<1 hour	75	25	
	1- 4 hours	215	71.7	
B) Hours per day	>4 hours	10	33.3	0.96
Moderate activity inside home	<2 days	35	11.6	0.21
A) Days per week	2- 4 days	230	76.7	
	>4 days	35	11.6	
	<1 hour	20	66.7	
B) Hours per day	1- 4 hours	145	48.3	0.09
	>4 hours	135	45	

***P<0.001 **P<0.05

Table 6. Association between BMI and hypertension among women

BMI	Frequency	% within BP	Mean	SD	P"value
Under weight	32	10.7			
Normal BMI	69	23			
Overweight	91	30.3	2.91	1.006	0.000***
Obesity	108	36			

***P<0.001 **P<0.05

DISCUSSION CONCLUSION

The prevalence of obesity on the base of BMI was assessed among 300 samples of women the result shows that 36% of women having obesity their BMI value is more than 25 and 30

% of women are at risk for obesity they having BMI of 23.0 – 24.9(over weight). And 11% of women under weight, only 23 % of samples were having normal BMI value.

reported i n earlier studies. The present study revealed that there is very significant association between BMI and WC with hypertension.

Table 7. Association between socio demographic variables with BMI

Socio demographic variables		N=300	P-value
Age in years	18-25	46	0.694
	26-35	69	
	36-45	95	
	>46	89	
Educational status	< 10 std Higher secondary Graduation Illiterate	116	0.001**
		103	
		33	
		45	
Marital status	Married Singe widow	249	0.04**
		35	
		15	
Occupation	Coolie House wife Student Business Others	244	0.000***
		39	
		12	
		5	
Monthly income	<5000	185	0.000***
	5001-15000	109	
	>15001	6	
Total number of family members	01-Mar	146	0.000***
	04-Jun	148	
	07-Sep	4	
	>10	0	
Religion	Hindu Christian Muslim Other	296	0.091
		4	
		0	
		0	

P <0.001*** P<0.05**

Table 8. Association between WC and hypertension among womenabove18 years N=300

WC	FREQUENCY	% within BP	MEAN	SD	P"value
Normal	70	23.1	2.21	0.792	0.000***
Over weight	99	33.1			
Obesity	131	43.8			

***P<0.001

This findings supported by a study done by Chauhan et al (Chauhan, 2015), conducted a study about obesity among adult population in rural costal area of south India with 207 adult population where selected the study participants where the individual with the age above 15 years living in rural costal area of Tamilnadu, among the total participants 30% adult where over weight and 40% where obesity by using waist circumference, waist hip ration and BMI. The study report states that high prevalence of central obesity among females higher than males. The present study shows that among 300 samples 69 women were having hypertension in that 17.6% (53) samples were having stage I hypertension were as the remaining 5.4% (16) are having stage II hypertension.47 % of women had normal range of Blood pressure, and 30% of women above 18 years were risk for hypertension. (pre hypertension). Shrivasthava et al. (Shrivastava, 2015). conducted study on prevalence of hypertension in rural India total of 7966 participants were participated, the prevalence of hypertension (BP > 140/90 mmHg) was 29.99%. Men had higher (32.94%) prevalence than women (26.58%). Prevalence of pre-hypertension was 38.32%. Only 8.27% gave history of hypertension.

Among 33.24% of the population who didn't give history of hypertension found to have hypertension. Majority (75.29 %) told that they never checked BP and 70.45% aged above 60 years never checked BP in their lifetime. And concluded that, the prevalence of hypertension in rural area is higher than

This result supported by the study conducted by Gezawa et al, on Prevalence of hypertension and its relationship with indices of obesity in Maiduguri, Northeastern Nigeria. Consenting adults aged 15-70 years using a multistage random sampling technique. Of the 1700 subjects recruited, 1650 responded, yielding a response rate of 97%. The overall prevalence of hypertension was 32.3%, with a higher prevalence among women than men (46.1% vs. 34.5%, $P < 0.05$). Obesity was found in 15.9% of the study subjects.

The prevalence of obesity was higher among women (20.7%) than men (13.6%). All the obesity indices correlated significantly with both SBP and DBP. Increasing age (>40 years), BMI and WC were found to be independently associated with hypertension (Shamim, 2016). The study concluded that rural women also under high risk for getting obesity related physical problems. Childhood diet counseling, activity related entertainment instead of simple television watching, periodic physical check-up for women above 30 years of age, early case registry and follow up were the some of the community level actions to prevent the obesity problems among women population.

Acknowledgement

We express our gratitude to the study participants, and authorities who gave permission to conduct the study.

Ethical Clearance

Approval for carrying out this study was obtained from nursing research monitoring committee (NRMC) and JIPMER Institute ethics committee. Informed written permission was obtained from each study participant prior to the interview. Confidentiality of the results and anonymity were assured to them.

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