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RESEARCH PAPER

Health complications and activity pattern of obese women

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Abstract : Obesity and overweight are creating a global epidemic. They are the risk factors for many non-communicable diseases. Rapidly changing diets and lifestyles are fueling the global obesity epidemic. Once being considered as a problem related to affluence, obesity is now growing fast in many developing countries. A study on health complications and activity pattern of obese women from Parbhani city was carried out . Total 210 obese women of age group 30 to 60 years from overweight (120) and obese (90) areas of Parbhani District of Maharashtra was purposively selected. The general information, health status and activity pattern by the obese women were obtained through a well- structured interview schedule. Lipid profile and blood glucose was estimated for a sub sample of 75 subjects who were willing to give blood sample. Blood pressure of a sub sample of 75 selected women was measured. Results of the study revealed that the values of serum cholesterol and triglyceride observed to be high in obese women. The values of HDL and LDL cholesterol of all the women subjects were found to be in the normal category. The values of VLDL cholesterol was observed to be at higher side in (72 per cent) women.Sixty per cent obese women were having normal blood glucose values whereas significantly more number of studied women were suffering from hypertension. From the study it can be concluded that respondents from both the groups were spending their leisure time on watching T.V. as watching T.V. is a sedentary activity which results in less energy expenditure and may lead to development of overweight and obesity.

Key Words : Obesity, Health Complications, Activity pattern

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INTRODUCTION

Overweight/obesity is a leading risk factor for global death and disability and is associated with various non-communicable diseases including hypertension, diabetes, cancer and cardio-vascular disorders (Zheng *et al.,* 2011; Berrington *et al*., 2010 and Ni Mhurchu *et al*., 2004).

Obesity increases the risk of several physical and mental conditions. Complications are either directly caused by obesity or indirectly related through mechanisms sharing a common cause such as a poor diet or a sedentary lifestyle. Increases in body fat alter the body's response to insulin, potentially leading to insulin resistance. It also creates a pro-inflammatory state, Shelson SE and a pro-thrombotic state (Gupta *et al.,* 2011).

Hyperlipidemia is largely under treated in women. A survey conducted by the society for Women's Health Research reveals that women need a little more education when it comes to heart disease and cholesterol. Various studies sheds light on fact that, although women are aware of the consequences of high cholesterol, misinformation is still present. This misinformation among

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women is troubling, since heart disease is the leading cause of death in women and persistently high cholesterol levels can contribute to heart disease (Renjini, 2013).

Changes in the dietary intake of housewives, along with decreases in physical activity, have led to the social problem of obesity (Lee,1995). Obesity is the over accumulation of subcutaneous or abdominal fat that occurs when energy consumption decreases due to decreased activity (Kim and Kim, 1998 and Huh, 1990). The cause of obesity is a result of genetic, social, economic and environmental factors, as well as various factors including physical form, physique and concept of health (Moon *et al.,* 2007; Lee *et al.,* 1998 and Matuschka, 1995). Additionally, it has been reported that a 10% increase in body weight can result in changes in plasma cholesterol and triacylglycerol levels (Kim and Kim, 1998). This is especially true for women over 40 years of age after menopause, who undergo decreases in female hormones and increases in abdominal fat. Women 40 and 50 years of age tend to suffer from lifestyle diseases, including hypertension and diabetes and often have endocrinal disease and health problems after menopause (Sira and Pawlak, 2010 and Zhang *et al.*, 2002). Hence, the study was undertaken to know the health complications and physical activity pattern followed by obese women from Parbhani city.

MATERIAL AND METHODS

A total number of 250 women in the age group of 30-60 years from urban areas of Parbhani city were screened for BMI. Out of these 210 women having body mass index more than 23.0 were selected following purposive sampling technique. Biochemical examination of a sub sample of 75 selected overweight/ obese women. Biochemical examination was conducted to study the obesity associated co-morbidities. Blood pressure of a sub sample of 75 selected women was measured by using digital blood pressure machine. A part from this fasting blood glucose and lipid profile was estimated by a medical practitioner for a subsample of 75 subjects who were willing to give blood sample. The physical activity pattern of selected overweight obese subjects was determined by daily activity records. Time spent on physical activity was considered as any time spent doing any voluntary physical work or doing any physical exercise. Time spent in watching TV, reading, computer work or chatting was also considered.The collected data was carefully edited, processed, tabulated and analyzed. In the present investigation statistical measures *viz.,* percentages, 't' test, per cent adequacy, correlation, 'z' test were used for determining statistical differences among the selected variables (Gupta, 1992).

RESULTS AND DISCUSSION

Lipid profile and blood glucose of selected overweight and obese women is presented in Table 1. A sub-sample of 75 women were randomly selected to study lipid profile and blood glucose. The values of serum cholesterol and triglyceride observed to be high in (60%) and (56%) obese women. The values of HDL cholesterol of all the women subjects were found to be in the normal category. The LDL cholesterol values were in normal range among (54.6%) obese women and at higher magnitude in (45.3%) obese women. The values of VLDL cholesterol was observed to be at higher side in (72%) women whereas (28%) were found to be in normal range. (60%) obese women were having normal blood glucose values however, the blood glucose values of (40%) women were more than normal. Above results show a very clear picture of blood constitutes which are of great importance to identify the risk for development of diabetes and hyperlipidemia. It can be concluded from these findings that majority of overweight and obese adult population are at risk for suffering with diabetes and heart disease.

Blood pressure of selected overweight and obese

Table 1: Lipid profile and blood glucose of selected overweight and obese women **(n=75)**

Sr. No.	Parameters	Normal		High	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1.	Serum cholesterol (mg/dl)	30	40	45	60
2.	Serum triglyceride (mg/dl)	33	44	42	56
3.	HDL cholesterol (mg/dl)	75	100	-	-
4.	LDL cholesterol (mg/dl)	41	54.6	34	45.3
5.	VLDL cholesterol (mg/dl)	21	28	54	72
6.	Fasting blood glucose (mg/dl)	45	60	30	40

women is presented in Table 2. The data pressure denotes that (68%) significantly more number of studied women were suffering from hypertension. Apart from this obese women from 50-60 years of age were more prone to hypertension *i.e.* (41.3%) followed by women from the age group of 40-50 years *i.e.* (20%) irrespective of age. It is clear from the table that as the age is advancing the prevalence of hypertension is increasing among the selected subjects. Hypertension is a risk factor of development of cardio-vascular diseases the subjects under study may develop CVT). Foftuny *et al.* and Raina and Jaimalal (2009) also noticed the positive association between obesity and hypertension.

Physical and psychological health problems observed in selected overweight and obese women are presented in Table 3. The data revealed that majority of the studied women were facing physical as well as psychological problems. (68.33%) overweight and (53.33%) women were suffering from physical problems such as leg pain, joint pain, back pain, physical movement inability etc. whereas (8.33%) overweight and (17.77%) obese women suffered with psychological problems such as depression, hypersensitivity, etc. Further it was noticed significantly more number of obese women were suffering from psychological problems than overweight women. The physical and psychological problems faced by the respondents may be due to overweight and obesity as more weight causes inconvenience to perform daily activities smoothly.

The details of the utilization of leisure time by selected subjects are presented in Table 4. Majority of the selected overweight and obese women *i.e.* (43.33 %) from overweight and (46.66%) from obese group spent their leisure time on watching T. V. It was also noticed that (31.66%) overweight and (24.44%) of obese women were spending their leisure time on reading newspaper whereas (25%) overweight and (28.88%) obese women spent their leisure time in communication on the phone and statistically non-significant difference was noticed. From the study it can be concluded that respondents from both the groups were spending their leisure time on watching T.V. as watching T.V. is a sedentary activity which results in less energy expenditure and may lead to development of overweight and obesity.

Physical activity performed at home by selected overweight and obese women was presented in Table 5. It is observed from the activities performed by selected

Table 2: Blood pressure of selected overweight and obese women **(n=75)**

Age	Normal B.P. (120/80mmHg)		Hypertension (140/90mmHg)		Z value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
30-40	7	9.3	5	6.6	2.188*
40-50	5	6.6	15	20	5.683**
50-60	12	16	31	41.3	5.020**
Total	24	32	51	68	4.185**

* and ** indicate significance of values at P=0.05 and 0.01, respectively

Table 3 : Physical and psychological health problems observed in selected overweight and obese women **(n=210)**

Sr. No.	Particulars	Overweight (n=120)		Obese (n=90)		Z value
		Frequency(n)	Percentage (%)	Frequency (n)	Percentage (%)	
1.	Faced problems	92	76.66	64	71.11	0.544^{NS}
2.	Did not face problems	28	23.33	26	28.88	1.522^{NS}
3.	Physical	82	68.33	48	53.33	1.550^{NS}
4.	Psychological	10	8.33	16	17.77	3.273**

** indicate significance of value at P=0.01 NS= Non-significant

Table 4: Leisure time spent by selected overweight and obese women

Sr. No.	Particulars	Overweight (n=120)		Obese (n=90)		Z value
		Frequency (n)	Percentage (%)	Frequency (%)	Percentage (%)	
1.	Watching T.V.	52	43.33	42	46.66	0.533^{NS}
2.	Reading newspapers	38	31.66	22	24.44	1.899^{NS}
3.	Communication on the phone	30	25	26	28.88	1.038^{NS}

NS= Non-significant

overweight and obese women that majority of women *i.e.* (35%) from overweight group and (46.66%) from obese group were performing activities such as sweeping and mopping, respectively. Very less per cent of women were performing the activity of preparing chapatti from overweight group *i.e.* (8.3%) whereas (8.88%) women from obese group were performing the activity of cleaning vessels. Further results also revealed that women from overweight group were performing the activity of washing clothes. (29.16%) followed by mopping (25%) and cleaning vessels (16.66%). However activities such as of sweeping (43.33%), washing clothes (13.33%) and preparing chapatti (10%) were performed by obese women. Statistical difference was noticed for mopping/ washing clothes and cleaning vessels.

Physical activity not performed at home by selected overweight and obese women was presented in Table 6. The table shows that activities such as mopping, sweeping, washing clothes, cleaning vessels and preparing chapatti were not performed at home by the studied subjects a majority of the overweight (91.66 %) and obese (91.11%) women were not preparing chapattis and cleaning the vessels at home, respectively. (65%) overweight women were not performing the washing activities whereas (53.33%) obese women were not performing mopping activity. Activities not performed by the selected overweight and obese women were statistically non-significant. Data regarding activity pattern of selected overweight and obese women were found to be following sedentary activity pattern in day to day life, which is an indication of less energy expenditure leading to positive energy balances responsible for development of overweight and obesity among women.

Exercise pattern of selected overweight and obese women is presented in Table 7. Exercises such as morning walk, yoga, aerobics, swimming, skipping and trade mill. Majority of women from overweight (81.66%) and obese (80%) group were taking morning walk and more number of overweight and obese women were taking morning walk weekly (69.38%) and (51.38%), respectively. Highest per cent of women from both the groups were following 30-60 minutes duration for morning walk.

Yoga was performed by (91.66%) and (81%) overweight and obese women, respectively. Overweight women were performing yoga activity weekly (77.27%) whereas obese women were performing yoga activity daily (44.44%). On the other hand the daily yoga was performed by (55.55%) of obese women. 30-60 minutes duration was followed by women from both the groups *i.e.* overweight (81.81%) and obese (65.43%) were performed by the selected subjects. None of the women from both the groups were performing aerobics, swimming and trade mill activity. Skipping activity was performed by (75%) overweight and (61.11%) obese women. The women from both the groups were performing skipping activity weekly overweight (94.44%)

Table 5: Physical activity performed at home by selected overweight and obese women

Activity	Overweight (n=120)		Obese (n=90)		Z value
	Performing the work		Performing the work		
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Mopping	30	25	42	46.66	4.045**
Sweeping	42	35	39	43.33	1.513^{NS}
Washing clothes	35	29.16	12	13.33	5.376**
Cleaning vessels	20	16.66	8	8.88	4.528**
Preparing chapatti	10	8.3	9	10	1.739^{NS}

** indicate significance of value at P=0.01 NS= Non- significant

Table 6: Physical activity not performed at home by selected overweight and obese women

Activity	Overweight (n=120)		Obese (n=90)		Z value
	Not performing the work		Not Performing the work		
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
Mopping	90	75	48	53.33	2.465^{NS}
Sweeping	78	65	51	56.66	0.998^{NS}
Washing clothes	85	70.83	78	86.66	1.423^{NS}
Cleaning vessels	100	83.33	82	91.11	0.638^{NS}
Preparing chapatti	110	91.66	81	90	0.131^{NS}

NS=Non-significant

Table 7: Exercise pattern of selected overweight and obese women **(n=210)**

Sr. No.	Type of exercise	Overweight (n=120)		Obese (n=90)		Z value
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
1.	Morning walk					
	Frequency	98	81.66	72	80	0.148^{NS}
	Daily	30	30.61	35	48.61	2.797**
	Weekly	68	69.38	37	51.38	1.959^{NS}
	Duration					
	< 30 min	32	32.65	28	38.88	1.118^{NS}
	30-60 min	66	67.34	44	61.11	0.633^{NS}
2.	Yoga					
	Frequency	110	91.66	81	67.5	2.213^{NS}
	Daily	25	22.72	45	55.55	5.072**
	Weekly	85	77.27	36	44.44	3.731**
	Duration					
	< 30 min	20	18.18	28	34.56	3.954**
	30-60 min	90	81.81	53	65.43	1.546^{NS}
3.	Aerobics					
	Frequency	0	0.00	0	0.00	0.00
	Daily					
	Weekly					
	Duration					
	<30 min					
	30-60 min					
4.	Swimming					
	Frequency	0	0.00	0	0.00	0.00
	Daily					
	Weekly					
	Duration					
	< 30 min					
	30-60 min					
5.	Skipping					
	Frequency	90	75	55	61.11	1.488^{NS}
	Daily	25	27.77	20	36.36	1.527^{NS}
	Weekly	85	94.44	35	63.63	2.359^{NS}
	Duration					
	< 30 min	15	16.66	38	69.09	5.575**
	30-60 min	75	83.33	17	30.90	5.435**
6.	Trade mill					
	Frequency	0	0.00	0	0.00	0.00
	Daily					
	Weekly					
	Duration					
	< 30 min					
	30-60 min					

** indicate significance of value at P=0.01 NS=Non-significant

Table 8: Time spent in sleeping by selected obese women **(n=210)**

Sleeping hrs	Overweight (n=120)		Obese (n=90)		Z value
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)	
<6 hours	20	16.66	13	14.44	1.066^{NS}
6-7 hours	35	29.16	38	42.22	2.552**
7-8 hours	65	54.16	39	43.33	1.625^{NS}
	Sleeping in day time				
	Overweight (n=120)		Obese (n=90)		
Sleeping hours	Frequency(n)	Percentage (%)	Frequency (n)	Percentage (%)	Z value
Yes	94	78.33	72	80	0.152^{NS}
No	26	21.66	18	20	0.588^{NS}
Duration					
<1/2 hr	-	-	-	-	-
½-1hrs	20	16.66	12	13.33	1.664^{NS}
1-2 hrs	31	25.83	26	28.88	0.806^{NS}
>2 hrs	43	35.83	52	57.77	3.205**

** indicate significance of value at P=0.01 NS=Non- significant

and obese women (63.63%). No significant difference was noticed in frequency of the respondents. Overweight women were performed skipping activity for 30-60 min duration (83.33%) whereas obese women performed skipping activity for less than 30 minutes duration (69.09%). It was found significant in the duration for performing skipping activity.

Time spent in sleeping by selected obese women is presented in Table 8. The result revealed that most of the women from overweight (43.33%) and obese (54.16%) spent normal time *i.e.*7-8 hours for sleeping in night time. The data indicates that overweight and obese women were spent 6-7 hours for sleeping *i.e.* (29.16%) and (42.22%), respectively. Only (16.66%) and (14.44%) overweight and obese women spent < 6 hours for sleeping. The difference was found statistically significant for 6-7 hours spending for sleeping. Regarding duration of sleeping hours during day time it was seen that (78.33%) overweight and (80%) obese women spent time in sleeping in day time. Majority of the women from overweight and obese group spending their time in sleeping for > 2 hours during day time *i.e.* (35.83%) and (57.77%), respectively followed by 1-2 hours and 1/2- 1 hours statistically significant difference was observed for spending > 2hours for sleeping during day time. Overweight/ obese women spent more time in night and day time sleeping.

Thus, it can be concluded from the pattern of exercise by women that they were not spending energy in exercise and work. Rather they were saving energy by sleeping for longer duration and even during day time which is not desired from them.

Conclusion:

It is evident from the result that the results show a very clear picture of blood constitutes which are of great importance to identify the risk for development of diabetes and hyperlipidemia. It can be concluded from these findings that majority of overweight and obese adult population are at risk for suffering with diabetes and heart disease. Hypertension is a risk factor of development of cardiovascular diseases the subjects under study may develop CVD. The physical and psychological problems faced by the respondents may be due to overweight and obesity as more weight causes inconvenience to perform daily activities smoothly. The respondents from both the groups were spending their leisure time on watching T.V. as watching T.V. is a sedentary activity which results in less energy expenditure and may lead to development of overweight and obesity. Data regarding activity pattern of selected overweight and obese women were found to be following sedentary activity pattern in day to day life, which is an indication of less energy expenditure leading to thousands development of overweight and obesity among women. The pattern of exercise by women that they were not spending energy in exercise and work. Rather they were saving energy by sleeping for longer duration and even during day time which is not desired from them.

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