International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Original Research Article

A Study on Health Problems Associated With Body Weight among Women in Madurai City

C.Thilakam[1@], K. Rethi Devi[2]

[1]Associate Professor and Head, Dept of Home Science, V.V.Vanniaperumal College for women, Virudhunagar
[2]Professor and Head, Dept of Sociology, Mother Teresa Women's University, Kodaikanal

[@]Correspondence Email: thilagachakkrapani@gmail.com

Received: 05/07//2012 *Revised: 31/07/2012* *Accepted: 08/08/2012*

ABSTRACT

Being obese is not just a cosmetic disadvantage, but a health hazard with multiple implications. The odds of having obesity and obesity related health conditions varied among persons depending on their age, gender, race and income. Obesity can have an adverse impact on health at each stage of a woman's life cycle. Obesity also has a marked impact on life expectancy. Excess body weight poses one of the most serious public health challenges of the 21st century globally. Since obesity is more common among women than in men, a total of 3012 women in age group 25-65years were selected by simple random sampling method and subjected for obesity screening test. The study indicated that the prevalence of obesity among women in Madurai city is nearly, 11.4 per cent. Since obesity is the one of the contributing factors for several health problems it is decided to find out the same in the present study among selected respondents. By adopting proportionate stratified random sampling method 300 women in each of the four BMI categories, i.e., 1200 women have been selected randomly from all the four groups.Results of the study exposed the fact that overweight and obese respondents faced many health problems when compared to other two groups of BMI grade respondents.
Key words: Obesity, overweight, health hazard, BMI

INTRODUCTION

Being obese is not just a cosmetic disadvantage, but a health hazard with multiple implications. The odds of having obesity and obesity related health conditions varied among persons depending on their age, gender, race and income. Obesity can have an adverse impact on health at each stage of a woman's life cycle. In young women, obesity has an impact on psychosocial health and, as they grow older and become parents, on their reproductive health. Obesity also imposes a number of

serious risks during pregnancy. In older women, obesity is associated with the emergence of a number of related chronic diseases, such as type II diabetes and cardiovascular disease, and increased risk for almost all types of cancer. Obesity also has a marked impact on life expectancy. The medical risks associated with obesity in women are also important for their children and future generations.

The non-fatal but debilitating health problems associated with obesity include respiratory difficulties, chronic musculoskeletal problems, skin problems and infertility. Obesity causes many lifestyle diseases-diabetes, joint pain, coronary heart disease and skin disorders. Since obesity is the one of the contributing factors for several health problems it is decided to find out the same in the present study.

Objectives

1. To assess the prevalence of overweight and obesity among women in Madurai city
2. To estimate the health problems related to BMI grade of the selected respondents

MATERIALS AND METHODS

By simple random sampling method, 3102 women respondents in age group 25-65 years were selected from hospitals, banks, offices, Government and private schools and colleges, business enterprises, NGOs and households in and around Madurai city. Their anthropometry measurements like height and weight were recorded. All the samples were screened for obesity by calculating their Body Mass Index (BMI) using the universally accepted BMI formula.

$$\text{BMI} = \frac{Mass\ (kg)}{Height\ (m^2)}$$

The total number of respondents (N=3102) were categorized as underweight, normal, overweight and obese based on WHO [1] BMI classification. Using proportionate stratified random sampling method, 300 women in each of the four BMI categories, i.e., 1200 women were selected randomly. A questionnaire containing close ended questions was formulated by the researcher to find out the health problems of the selected respondents related to all four BMI grade (underweight, normal, overweight and obesity).

RESULTS AND DISCUSSION

Several factors have been linked to obesity that significantly influence the prevalence of overweight and obesity across different socio-economic groups.

1. Prevalence of overweight and obesity among women

Table 1 portrays the distribution of respondents based on BMI.

Table 1 Distribution of respondents based on BMI

Body Mass Index (BMI) grade	Number	Per cent (%)
Underweight (< 18.5)	311	10.03
Normal (18.5- 24.9)	1644	53.00
Overweight (25.0- 29.9)	792	25.53
Obesity (30 >)	342	11.03
Morbid obesity (40 >)	13	0.42
Total	3102	100.00

Out of 3102 women respondents (age group of 25-65 yr) screened, significant portion (1644 respondents; 53%) were in the normal BMI. The number of underweight respondents was 311, corresponding to 10 per cent of the total sample. As much as 792 respondents were in the overweight category corresponding to 26 per cent of the total sample. Likewise, 342 (11%) were obese and 13 (0.42%) were morbid obesity, indicating that the prevalence of obesity among women in Madurai city is nearly, 11.4 per cent.

2. Health problems associated with body weight among the respondents

2.1 Hypertension

According to Dallongeville *et al* [2]Phillips and Prins[3] obesity leads to a higher risk of hypertension, diabetes mellitus and cardiovascular disease. Weight gain in an individual was significantly associated with increased blood pressure, cholesterol, triglycerides, fasting glucose, postprandial glucose and uric acid, and with the decrease in forced vital capacity, whereas weight loss was significantly associated with an improvement of all these factors reported by Lean *et al.*[4]

Table 2 Hypertension

Hypertension	Body Mass Index (BMI) Grade								Total (1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	292	(27.3) (97.3)	291	(27.2) (97.0)	269	(25.1) (89.7)	219	(20.4) (73.0)	1071 (89.3)
Present	8	(6.2) (2.7)	9	(7.0) (3.0)	31	(24.0) (10.3)	81	(62.8) (27.0)	129 (10.8)

Table 2 shows among the total respondents surveyed 10.8 per cent had high blood pressure. Among them except under weight (6.2%) and normal respondents (7.0%) rest of them were from overweight (24.0%) and obese respondents (62.8%). The cut off values recently suggested for women in other Asian countries like china (≥ 24.1 kg/m2 for hypertension and ≥ 24.3 kg/m2 for diabetes). Hence the data of the present study proves that obesity is a strong contributing factor for hypertension.

2.2 Diabetes

Diabetes is the major health problem in worldwide; the prevalence of diabetes is rapidly rising all over the globe at an alarming rate. In India, the number of people with diabetes is around 40.9 million. [5] In this, Type II diabetes accounts for about 9 out of 10 cases. Indians are more prone to diabetes because of obesity and change in lifestyle pattern. WHO [1] pointed out that in 2025, India will be number one in the world diabetic.

Table 3 Diabetes

Diabetes	Body Mass Index (BMI) Grade								Total (1200) (%)
	Under Weight N-300	%	Normal N-300	%	Over Weight N-300	%	Obese N-300	%	
Absent	285	(27.6) (95.0)	270	(26.2) (90.0)	240	(23.3) (80.0)	237	(22.9) (79.0)	1032 (86.0)
Present	15	(8.9) (5.0)	30	(17.9) (10.0)	60	(35.7) (20.0)	63	(37.5) (21.0)	168 (14.0)

Similarly, in the present study (**Table 3**) the prevalence of diabetes was higher (14.0%) among the total respondents surveyed. Among them the prevalence was higher among obese (37.5%) and overweight (35.7%) respondents than normal and underweight respondents. The study confirms that diabetes is highly common among overweight and obese.

2.3 Cardio Vascular Diseases

Heart disease or cardiovascular disease is the class of diseases that involve the heart or blood vessels (arteries and veins). Adult women in India have excess

cardiovascular disease. Extra mechanical work is needed in moving the overweight body. Because of increased work load on the heart, there is increased incidence of cardiac failure in obese person. Cardiovascular are becoming alarmingly frequent nowadays. This rise in the incidence of cardiovascular diseases can be attributed to an unhealthy lifestyle, which includes lack of exercise and going on fast foods. Yusuf *et al* [6] presented that there is a strong correlation between central obesity and cardiovascular disease.

Table 4 Cardio vascular disease

Cardio vascular disease	Body Mass Index (BMI) Grade								Total (1200) (%)
	Under Weight N=300	%	Normal N-=300	%	Over Weight N-=300	%	Obese N=300	%	
Absent	300	(25.4) (100.0)	300	(25.4) (100.0)	300	(25.4) (100.0)	282	(23.8) (94.0)	1182 (98.5)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	0	(0.0) (0.0)	18	(100.0) (6.0)	18 (1.5)

Table 4 indicates that on the whole only 1.5 per cent of obese respondents had cardio vascular diseases like pain felt in the chest due to insufficient blood supply to the heart, and atherosclerosis which is a process in which the blood vessels narrow and harden through build-up of plaque in the walls of arteries.

Fortunately, cardio vascular disease was not common among the three categories of respondents viz., underweight, normal and overweight in the present study. Respondents suffering from cardiovascular disease were invariably obese. It is obvious that cardio vascular disease was common among the obese. Further, obesity and diabetes mellitus are often linked to cardiovascular disease.[7]

2.4 Hypothyroidism problem

The thyroid gland is the body's most important control organ; it keeps the energetic metabolism as well as the weight under control. But external influences like diet, lifestyle and stress have their own role in the glandular function interfering with hormone secretion and maintaining the body in regular limits. Thyroid problems have skyrocketed in recent times owing to toxic foods and increasing exposure to pollution and petrochemical wastes, which deplete the thyroid hormones in the body.

Table 5 Hypothyroidism problem

Hypothyroidism problem	Body Mass Index (BMI) Grade								Total (1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(25.6) (100.0)	300	(25.6) (100.0)	296	(25.3 (98.7)	275	(23.5) (91.7)	1171 (97.6)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	4	(13.8) (1.3)	25	(86.2) (8.3)	29 (2.4)

Indeed, people with hypothyroidism problems are overweight and obese which is clear from the **Table** 5 that 86.2 per cent of obese respondents and 13.8 per cent overweight respondents were having hypothyroidism problem. It is very well clear that hypothyroidism leads to weight gain.

2.5 Gall stones

Obesity has greater tendency towards formation of gall stones. Obesity is an important risk factor for gallstone formation,

because the bile of obese people is super saturated with cholesterol and hence liable to form gallstones. Excess adipose tissue contains a large amount of cholesterol.

Table 6 Gall stones

Gall stones	Body Mass Index (BMI) Grade				Total (1200) (%)
	Under Weight N=300 %	Normal N=300 %	Over Weight N=300 %	Obese N=300 %	
Absent	300 (25.1) (100.0)	300 (25.1) (100.0)	298 (24.9) (99.3)	298 (24.9) (99.3)	1196 (99.7)
Present	0 (0.0) (0.0)	0 (0.0) (0.0)	2 (50.0) (0.7)	2 (50.0) (0.7)	4 (0.3)

Table 6 shows that less than one per cent respondents do suffer with gall stone and they are equally distributed in the overweight and obesity categories. It is under stood that obesity and overweight respondents have high risk for gallstone formation.

2.6 Lungs and breathing problem

Obesity causes decrease in lung volumes. Obesity affects dynamic ventilator functions. These include reduced chest wall compliance, increased work of breathing. Obesity leads to a number of sleep-disordered breathing patterns like obstructive sleep apnea and obesity hypoventilation syndrome (OHS), leading to increased morbidity and mortality with reduced quality of life. Fitness experts say that snoring is another issue due to being overweight by 20 per cent. The data in **Table** 7 reveals that lungs and breathing problems are more common and associated with overweight and obesity.

Table 7 Lungs and breathing problem

Lungs and breathing problem	Body Mass Index (BMI) Grade				Total (1200) (%)
	Under Weight N=300 %	Normal N=300 %	Over Weight N=300 %	Obese N=300 %	
Absent	291 (25.3) (97.0)	300 (26.0) (100.0)	297 (25.8) 99.0)	264 (22.9) (88.0)	1152 (96.0)
Present	9 (18.75) (3.0)	0 (0.0) (0.0)	3 (6.25) (1.0)	36 (75.0) (12.0)	48 (4.0)

Lungs and breathing problem was common among 75.0 per cent of obese and 6.25 per cent of overweight respondents of the present study.

2.7 Arthritis problems

Human skeleton is not adapted to carry extra load. In obese person therefore conditions like flat foot, osteoarthritis of knees, hips and lumbar spine occur commonly.[8] Osteoarthritis the degenerative disease of weight-bearing joints is a very common complication of obesity, in the knees of middle-aged women and cause significant disability.

Table 8 Arthritis problems

Arthritis problems	Body Mass Index (BMI) Grade								Total (1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	291	(29.9) (97.0)	254	(26.1) (84.7)	248	(25.4) (82.7)	182	(18.6) (60.7)	975 (81.3)
Present	9	(4.0) (3.0)	46	(20.4) (15.3)	52	(23.1) (17.3)	118	(52.4) (39.3)	225 (18.7)

In the present study also arthritis problems were seen among all elderly people irrespective of their weight. Thus from **Table** 8, it is clear that more than 50 per cent of obese respondents, 23.11 per cent of overweight respondents, had arthritis problems. The present study reveals that though arthritis problems are more common among all elderly persons irrespective of their body weight, overweight and obesity people suffered a lot in arthritis problems when compared to others. Exercise is a good way for people with arthritis to control pain and improve physical function.

2.8 Obstetrical risks

Obese women when pregnant have greater obstetrical risks because of hypertension, diabetes and postpartum infection. There is reduced fertility in obese subjects. They faced the risk of developing a variety of medical and surgical complications; abortion, caesarean operations and gestational diabetes. Maternal health problems emerge significantly in overweight and obese women.

Table 9 Obstetrical risks

Obstetrical risks	Body Mass Index (BMI) Grade								Total (1024) (%)
	Under Weight N= 226	%	Normal N=237	%	Over Weight N= 288	%	Obesity N=273	%	
Absent	225	(29.0) (99.55)	223	(28.7) (94.09)	190	(24.5) (69.59)	138	(17.8) 58.22)	776 (64.7)
Present	1	(0.04) (0.4)	14	(5.6) (5.91)	98	(39.5) (34.02)	135	(54.4) (49.45)	248 (20.7)

Among 1200 respondents, around 176 respondents were unmarried. Hence analysis was made only with married respondents. In general when compared to normal weight women overweight and obese women are more prone to difficult delivery. **Table** 9 reveals that higher per cent age of obese and overweight respondents had caesarean childbirth and they were faced increased risk of hypertension, gestational diabetes and UTI during pregnancy period other than caesarean section.

2.9 Fertility problems

Dubois *et al* [9] pointed out that observational and theoretical considerations indicate that low and high body mass contributes to infertility and poor reproductive outcome. Around 14 per cent of couples in industrialized nations at present are suffering from infertility-related

disorders. The excess weight in women may affect their process of ovulation. It can disturb women's menstrual cycle making it hard for her to ovulate. Menstrual disturbances were present at a four times higher rate in obese women than in lean women. Overweight is always associated with an increased risk of miscarriage. Obesity results in an increased production of estrogen; this hormonal imbalance in turn interferes with ovulation which is the basis of successful conception. Polycystic Ovarian Syndrome (PCOS) is a condition that affects about 5 to 10 per cent of women of childbearing age. Along with above stated reasons, now-a-days fertility problem is common among the younger generations due to various factors like environment, life style, food habits and stress.

Table 10 Fertility problems

Fertility problems	**Body Mass Index (BMI) Grade**								**Total N=1024 (%)**
	Under Weight N=226 %		**Normal N=237 %**		**Over Weight N=288 %**		**Obesity N=273 %**		
Absent	217	(27.2) (96.0)	232	(29.0) (98.0)	146	(18.3) (50.7)	204	(25.5) (74.7)	799 (78.0)
Present	9	(4.0) (4.0)	5	(2.2) (2.1)	142	(63.1) (49.3)	69	(30.7) (25.3)	225 (22.0)

Hence in the **Table** 10 among the overweight and obese respondents' 63.1 per cent and 30.7 per cent respectively had frequent abortions, irregular menstrual periods and few expressed that they faced problem to conceive and few were not able to conceive. This type of problem was rarely seen among underweight and normal respondents. The above report refers that overweight and obesity are one among the factors responsible for infertility.

2.10 Sleep apnea

Sleep-disordered breathing (SDB) is a term used to describe a number of disorders in which there is abnormality in the frequency, pattern, upper airway resistance and/or depth of breathing during sleep.

Table 11 Sleep apnea

Sleep apnea	**Body Mass Index (BMI) Grade**								**Total N=1200 (%)**
	Under Weight N=300 %		**Normal N=300 %**		**Over Weight N=300 %**		**Obese N=300 %**		
Absent	299	(26.3) (99.7)	299	(26.3) (99.7)	298	(26.2) (99.3)	241	(21.2) (80.3)	1137 (94.8)
Present	1	(1.6) (0.3)	1	(1.6) (0.3)	2	(3.2) (0.7)	59	(93.6) (19.7)	63 (5.3)

From **Table** 11 it is found that 93.6per cent of obese respondents were having sleep apnea, this particular problem was very rarely seen among other categories of respondents. It is found out that sleep apnea is high among obese rather than other categories of BMI grade.

2.11 Back pain

Obesity is a contributing factor to back pain. It is true; being overweight or obese can significantly contribute to

symptoms associated with osteoporosis, osteoarthritis (OA), rheumatoid arthritis (RA), degenerative disc disease (DDD), spinal stenosis, and spondylolisthesis. With weight loss, pain from OA subsides in many patients. The spine is designed to carry the body's weight and distribute the loads encountered during rest and activity. When excess weight is carried, the spine is forced to assimilate the burden, which may lead to structural compromise and damage (e.g., injury, sciatica).

Table 12 Back pain

Back pain	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	296	(29.7) (98.7)	277	(27.8) (92.3)	271	(27.2) (90.3)	152	(15.3) (50.7)	996 (83.0)
Present	4	(2.0) (1.3)	23	(11.3) (7.7)	29	(14.2) (9.7)	148	(72.5) (49.3)	204 (17.0)

Table 12 presents that back pain was found high among 72.5 per cent of obese and 14.2 per cent of overweight respondents. It is very clear that back pain is a common problem to all but it is high among obesity respondents and they suffered a lot when compared to others.

2.12 Foot Trouble

Obesity may lead to foot problems. Foot and ankle problems can be linked to an individual's weight and body mass index (BMI). Gain of even 10 pounds could trigger a foot problem.

Table 13 Foot trouble

Foot trouble	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under N=300	%	Normal N=300	%	Over N=300	%	Obese N=300	%	
Absent	300	(27.3) (100.0)	296	(26.9) (98.7)	295	(26.8) (98.3)	209	(19.0) (69.7)	1100 (91.7)
Present	0	(0) (0.0)	4	(4.0) (1.3)	5	(5.0) (1.7)	91	(91.0) (30.3)	100 (8.3)

In addition, obesity damages the joints of the foot and ankle. People carry approximately four to six times their body weight across the ankle joint when climbing up stairs or walking on inclines. Obesity significantly increases the impact. What always seemed obvious is obesity leads to foot problems. Even in the present study **Table** 13 proves that a high per cent of (91.0%) obese respondents had foot problem when compared to other BMI categories of respondents. They often faced pain in the foot and ankle due to their weight. Therefore it can be said that foot and ankle problems can be linked to an individual's weight and body mass index (BMI). Individuals who have higher BMI have a significant increase in foot and ankle problems.

2.13 Abdominal hernia

Protrusion of part or all of the stomach above the diaphragm is abdominal hernia. Seen as a swelling, is not painful all the time. Swelling appears on straining and coughing and may disappear on lying.

Table 14 Abdominal hernia

Abdominal hernia	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(25.4) (100.0)	300	(25.4) (100.0)	294	(24.8) (98.0)	289	(24.4) (96.3)	1183 (98.6)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	6	(35.3) (2.0)	11	(64.7) (3.7)	17 (1.4)

In the present study **Table** 14 shows that abdominal hernia was found among the 64.7 per cent of obese and 35.3 per cent of overweight respondents. Based on the statistical information it can be concluded that obesity leads to abdominal hernia.

2.14 Skin Infection

There are a number of skin problems related to obesity. Obesity results in extra folds of skin that may be difficult to clean properly. These folds create a warm, moist environment that is ideal for many types of bacteria and fungi. Obesity can also lead to insulin resistance and insufficiency of the veins, which also causes certain skin conditions. Excessive deposition of subcutaneous fat predisposes to skin infection.

Table 15 Skin infection

Skin infection	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(26.3) (100.0)	299	(26.2) (99.7)	288	(25.2) (96.0)	255	(22.3) (85.0)	1142 (95.2)
Present	0	(0.0) (0.0)	1	(1.7) (.3)	12	(20.7) (4.0)	45	(77.6) (15.0)	58 (4.8)

From the **Table** 15 it is understood that when compared to other categories of respondents skin infection was found high among obese (77.6%) and overweight (20.7%). It is under stood that obesity leads to skin infections.

2.15 Gastrointestinal disease – constipation

Many factors have been linked to the occurrence of constipation, but few studies exist regarding the link between obesity and constipation. Fat people as a rule are constipated bipeds. The inactivity of the obese also induces constipation.

Table 16 Gastrointestinal disease – constipation

Gastrointestinal disease – constipation	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	296	(26.9) (98.7)	283	(25.7] (94.3)	290	(26.4) (96.7)	231	(21.00) (77.0)	1100 (91.7)
Present	4	(4.0) (1.3)	17	(17.0) (5.7)	10	(10.0) (3.3)	69	(69.0) (23.0)	100 (8.3)

Table 16 indicates that constipation problem was common among 69.0 per cent of obesity respondents followed by 17.0 per cent of normal weight respondents. Hence it can be concluded that obesity leads to constipation.

2.16 Kidney stone

Obesity is an important risk factor for gallstone formation, because the bile of obese people is super saturated with cholesterol and hence liable to form gallstones. [10]

Table 17 Kidney Stone

Kidney stone	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(25.2) (100.0)	300	(25.2) (100.0)	298	(25.0) (99.3)	294	(24.6) (98.0)	1192 (99.3)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	2	(25.0) (0.7)	6	(75.0) (2.0)	8 (0.7)

Table 17 shows that kidney stone was found among 75.0 per cent of obese respondents' and 25.0 per cent among overweight respondents. The data presents that overweight and obesity persons are more prone to kidney stone than other BMI grade people.

2.17 Fall

Obese persons are more prone to accidents because obese people are usually very slow and liable to all kinds of accidents at home as well as in the street pointed out by Joshi[8] and Swaminathan. [11]

Table 18 Fall

Fall	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(25.6) (100.0)	300	(25.6) (100.0)	298	(25.5) (99.3)	273	(23.3) (91.0)	1171 (97.6)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	2	(6.9) (.7)	27	(93.1) (9.0)	29 (2.4)

This is proved in the present study where 93.1 per cent who had a fall were obese respondents. The data shown in the **Table** 18 confirms that obesity people are more prone to fall.

2.18 Fracture

Obese people are likely to meet with accidents by falling down on slippery floors and crossing streets.

Table 19 Fracture

Fracture	Body Mass Index (BMI) Grade								Total (N=1200) (%)
	Under Weight N=300	%	Normal N=300	%	Over Weight N=300	%	Obese N=300	%	
Absent	300	(25.4) (100.0)	300	(25.4) (100.0)	300	(25.4) (100.0)	282	(23.8) (94.0)	1182 (98.5)
Present	0	(0.0) (0.0)	0	(0.0) (0.0)	0	(0.0) (0.0)	18	(100.0) (6.0)	18 (1.5)

It is very clear from the **Table** 19 that 100 per cent of respondents who met with accidents reported that it occurred in the home as well as outside the home and had fracture in the foot, ankle, hand and hip bones were all obese respondents. It is clear that obese people are subjected to more fall and fracture.

CONCLUSION

Results of the study exposed the fact that overweight and obese respondents faced many health problems when compared to other two BMI grade of respondents. The major health problems faced by obese people were listed in order, with obstetrical risk (49.45%) stands first followed by back pain (49.3%), arthritis problems (39.3%), foot trouble (30.3%), hypertension (27.0%), fertility problems (25.3%), gastrointestinal disease (constipation) (23.0%), diabetics (21.0%), sleep apnea (19.7%), skin infection (15.0%), lungs and breathing problem (12.0%), fall (9.0%), hypothyroidism (8.3%), cardiovascular diseases (6.0%), fracture (6.0%), abdominal hernia (3.7%), kidney stone (2.0%) and gall stone (0.7%). **Figure** 1 shows the health problems faced by the obese respondents and **Figure** 2 illustrate health problems faced by the total respondents

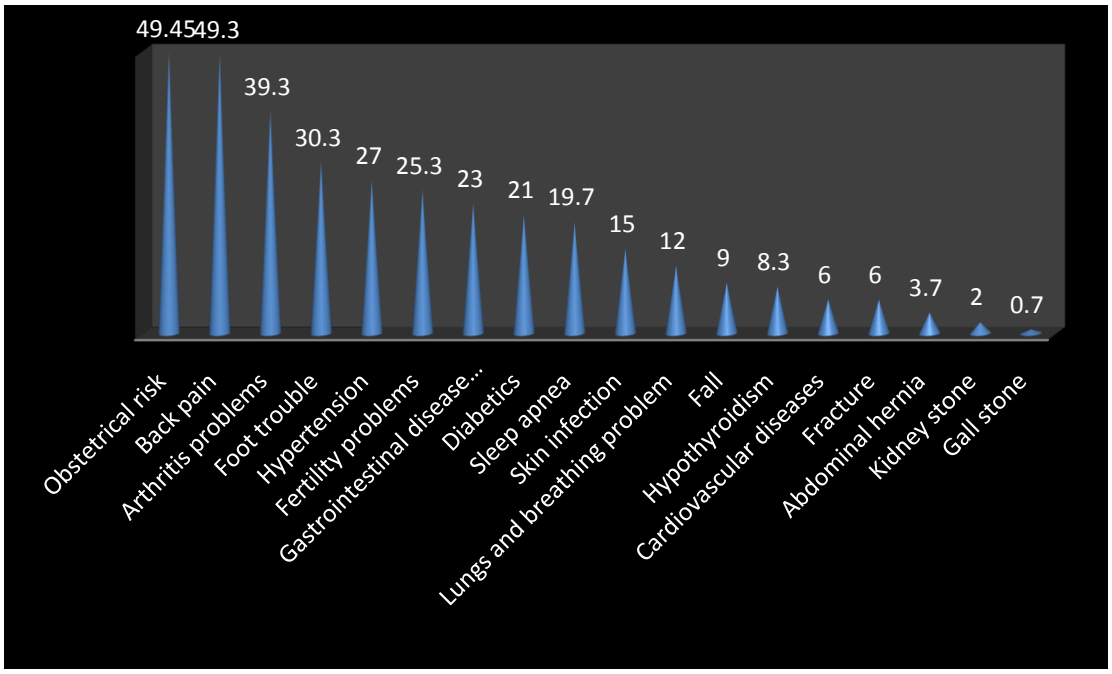

Figure 1 Health problems faced by the obese respondents

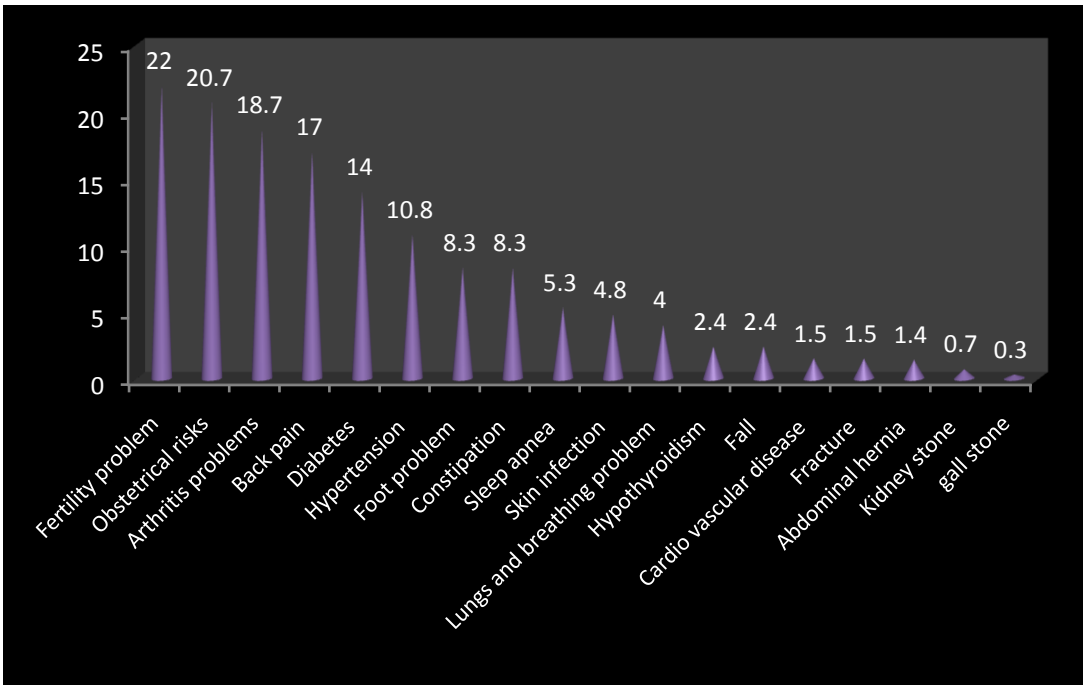

Figure 2 Health problems faced by the total respondents

REFERENCES

1. World Health Organization,1988, Obesity preventing and managing the Global Epidemic Report of WHO Consultation on obesity, Geneva.
2. Dallongeville J, Bringer J, Bruckert E, Charbonnel B, Dievart F, Komajda M, et al. Abdominal obesity is associated with ineffective control of cardiovascular risk factors in primary care in France. *Diabetes Metab* 2008, 34:606-611.
3. Phillips LK, Prins JB, The link between abdominal obesity and the metabolic syndrome. *Curr Hypertens Rep* 2008, 10:156-164.
4. Lean ME, Han TS, Prvan T, Richmond PR, Avenell A. Weight loss with high and low carbohydrate 1200 kcal diets in free living women. *Eur J Clin Nutr* 1997, 51:243-248.
5. International Diabetes Federation, Diabetes Atlas 2006 http://da3.diabetesatlas.org/
6. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, Lisheng L, INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): Case-control study. *Lancet* 2004, 364: 937-952.
7. Highlander P, Shaw GP. Current pharmacotherapeutic concepts for the treatment of cardiovascular disease in diabetics. *Ther Adv Cardiovasc Dis* 2010, 4:43-54.
8. Joshi SA, Nutrition and dietetics, Tata McGraw Hill Education Private Limited, New Delhi, 2011, pp 232-248.
9. Dubois L, Girard M, Girard A, Tremblay R, Boivin M, Pérusse D. Genetic and environmental

influences on body size in early childhood: a twin birth-cohort study, *Twin Res Hum Genet* 2007, 10:479–85.

10. Garrow JS,Treat obesity seriously,A Clinical manual, Edinburgh, Churchill, Livingstone,1981.
11. Swaminathan M, Handbook of Food and Nutrition. Bangalore Printing and Publishing Co Ltd, 2006.

****