



## Awareness of menstrual irregularities among obese women

1. **Sharon Nathan,**

Intern, Dr.D.Y.Patil college of Physiotherapy, Pune, India

2. **Mrudula Sangaonkar**

Assistant Professor, Dr.D.Y.Patil college of Physiotherapy, Pune, India

3. **Tushar J Palekar**

Professor and Principal, Dr.D.Y.Patil college of Physiotherapy, Pune, India

### Abstract

**Purpose:**Menstrual irregularities is the most common problem faced by obese women than non-obese women.Given the rising prevalence of overweight and obesity it is important to investigate their effects on women's reproductive health.A questionnaire was prepared to investigate about the irregularity.This study aims to spread awareness of menstrual irregularity among obese women for the well-being of their reproductive health. **Method:**This is an observational study comprising of 100 samples.Subjects with BMI more than 25 and waist hip ratio of more than 0.80 and 18-40 years of age were included. The data collected was analyzed using graphs and tables and are presented in tabular format. **Result:**Results showed that 64% were aware and 36% were unaware. 70% had menstrual irregularity and only 30% were aware about it. **Conclusion:**This study showed that there is lack of awareness in menstrual problems related to obesity among women.

**Keyword:** BMI, WHI, Menstrual irregularity, Obese.

**Introduction:**Menstrual problem are the major gynecological problems which occur frequently in majority of women. Women have little or no awareness about normal and abnormal menstrual cycle. There is lack of information about the attitude and knowledge of menstruation. Menstrual problems affect the psychology, physiology and well-being of a woman. Awareness should be spread so that women can make correct decision of seeking medical help.

The menstrual cycles are the monthly physiological change that occurs in woman who attain menarch. Normal menstrual cycle is maintained by both endocrine and reproductive system. The age of menarche is less than 16 years of age, length of menstrual cycle range is 21-35 days, length of flow 3-7 days and amount of flow <80ml.<sup>(1)</sup>



The menstrual cycle can be divided into several phase namely:

1. Menstrual Phase
2. Follicular Phase
3. Ovulation
4. Luteal Phase

**Menstruation** is the physiologic shedding of endometrium. It is also called menstrual bleeding, menses, periods.

Follicular phase also called as proliferative phase during which the ovarian follicles are stimulated to mature. The matured follicle is called graffian follicle which undergoes changes to form ovum. Ovulation is a process in which the ovum is released from the ovary. Luteal phase is also called secretary phase during which the corpus luteum is formed. It secretes several hormones.

**Obesity** is defined as a condition in which there is excessive accumulation and storage of fat in the body. Obesity is a final common pathway energy intake chronically exceeds energy expenditure. People are generally considered obese according to the Body Mass Index. Obesity is a growing health problem. Obesity increases the risk of various disease and conditions particularly cardiovascular disease, type 2 diabetes, obstructive sleep apnea, certain type of cancer, osteoporosis and depression.<sup>(2)</sup>

Obesity occurs due to combination of excessive food intake, lack of physical activity and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications or mental disorder.

Obese women are more likely to experience menstrual irregularity. Prevalence of obesity is 21.5% and that in the older than 20 years is 17%. Obese is a risk factor for several hormonal abnormalities such as increased concentration of testosterone and insulin and reduced concentration of sex hormone binding hormone.<sup>(1,3)</sup> Obesity can occur due to PCOD or Thyroid. PCOD causes increased oestradiol level which exerts negative pressure on the pituitary gland resulting decrease in FSH level and increase in LH. LH induces thecal hyperplasia and increased secretion of androgen and testosterone. These androgen further increases oestradiol level by peripheral aromatization. Androgens are also linked to insulin resistance and hyperinsulinaemia which in turn stimulates more androgen production and reduces sex hormone binding globulin.<sup>(9)</sup> Thyroid alters the resting energy expenditure and effects the ovaries and indirectly by interacting with the sex hormone binding globulin.



**Body Mass Index:** The body mass index was first introduced by Belgian polymath Adolphe Quetelet in the 1800s, and consequently is sometimes known as Quetelet's index. Body mass index of an individual is calculated by dividing weight of that individual in kilograms (kg) by height in meters (m) squared.<sup>(6)</sup>

$$\text{BMI} = \text{Weight (Kgs)} / \text{Height}^2$$

Body Mass index is subdivided into three categories-

No.	Nutritional Status	WHO criteria BMI cut-off	Asia criteria BMI cut-off
1.	Underweight	<18.5	18.5
2.	Normal	18.5-24.9	18.5-22.9
3.	Overweight	25-29.9	23-24.9
4.	Pre-obese	-	25-29.9
5.	Obese	>30	>30
6.	Obese type 1	30-40	30-40
7.	Obese type 2	40.1-50	40.1-50
8.	Obese type 3	>50	>50

Benefits of calculating body mass index is it measures the amount of body fat a person carries based on height and weight. It is the most easiest way of determining fitness by using the above formula.

**Waist-Hip Circumference:** Waist will be measured at the midpoint between the last rib and the iliac crest and hip will be measured around the widest portion of the buttocks. To calculate the Waist-Hip-Ratio the waist circumference will be divided by the hip circumference

Women lack of knowledge about expected changes in the life course often make it difficult for them to separate normal age related changes in bleeding pattern.<sup>(4)</sup>



## Methods:

### Study location

Dr.DY.Patil college was taken as a study location.

### Sampling method

Purposive sampling. Obese women with a BMI of >25 and a Waist-hip ratio of >0.80 were taken. They were within the age group of 18-40 years of age. Women who were breast feeding, taking oral contraceptive pills, have undergone hysterectomy were excluded.

**Data collection:** Permission was obtained from institutional sub-ethical committee of Dr. D. Y. Patil College of Physiotherapy. Written informed consent was obtained from subjects. Individual who will fulfill the inclusion criteria will be taken for the study. Participants were informed about the purpose of the study. Procedure for BMI assessment was explained to them .

Body Mass Index : Height will be measured using stadiometer and weight will be measured by asking the students to stand on the weighing machine. To calculate the BMI divide weight in kilograms by height in meters squared. Accordingly scoring of each individual will be done as per the BMI table. Waist-Hip Circumference : Waist will be measured at the midpoint between the last rib and the iliac crest and hip will measured around the widest portion of the buttocks. To calculate the Waist-Hip-Ratio the waist circumference will be divided by the hip circumference

Then a questionnaire was given to them which included questions which will help them assess their awareness regarding their menstrual health. Questionnaire contained background information such as age, marital status, weight and height was asked. Questions related to menstrual cycle ,flow, duration, pain and the measures they take to reduce the pain and the physical activity during their menstrual cycle was asked. Participants were also asked if they had thyroid or PCOD and whether they had consulted a doctor regarding the same. Further questions were asked regarding their awareness of obesity affecting menstrual health

**Data analysis:** A Questionnaire was prepared to find the awareness of menstrual irregularities among obese women.

**Result:** Study showed that 64% women were aware that obesity causes menstrual irregularities and 36% were unaware, 30% obese women were having regular periods and 70% were having menstrual irregularities. 46% were aware about PCOD and 86% were aware about thyroid. Students, housewife and teachers were well aware but the others were not aware about it. 70% are have irregularities and 30% were aware about their irregularities. 19% women exercise daily and 57% are aware that exercise can reduce menstrual irregularities. 22% had light flow, 56% had moderate flow and 19% had heavy flow .16% have no pain at all , 57% had slight pain and 27% had a lot of pain 55 % continue with daily activity, 14% take medicines and 9% lose time from college and



work, 11% function less efficiently. 70% have menstrual irregularities and only 36% are seeking medical help.

**Discussion:** Primary aim of the study was to find out if the obese women were aware that obesity could lead to menstrual irregularities. The study was done as it will help us spread awareness among females about menstrual irregularities in order to improve their health seeking behavior as regards menstrual abnormalities. In this study 100 samples were taken to check the awareness of irregularities among the obese women.

Menstrual problem are generally perceived as only minor health concerns and thus irrelevant to the public health agenda. Women lack of knowledge about expected changes in menstrual function across the life course often make it difficult for them to separate normal changes in bleeding patterns from menstrual morbidity.<sup>(1)</sup>

In this study out of the 100 women 64 were aware that obesity causes menstrual irregularities and 36 were unaware that obesity cause menstrual irregularities. SHAZIA SHUAR-UD-DIN study showed that 80% were not aware about the menstrual irregularities. This is because lack of awareness spread that obesity could affect the menstrual cycle. Several hormonal abnormalities such as increased concentration of insulin and reduced concentration of sex hormone binding globulin occurs due to obesity.

Menstrual irregularities is mostly caused by PCOD and Thyroid so the samples were asked if they knew what was PCOD and Thyroid. Out of the 100 samples about PCOD only 46 were aware and about thyroid 86 were aware. It is very important to let the women now about it because PCOD and thyroid are the major cause for obesity and menstrual irregularities.

It is seen that obesity caused a variety of problem in women like 27% women experienced a lot of pain during their periods, 22% had light flow and 19% had heavy flow and 9% had to lose time from their job or college due to pain and 11% function less efficiently. SHAZIA SHUAR-UD-DIN study showed that 69% daily life was affected.

According to the survey conducted it was seen that the teachers and the students were well aware about this condition as compared to the non working and the other individuals that were not open to the modern facilities and education. OA ESIMAI, GO OMONIYI ESAN showed that level of education did not have a significant impact on the awareness of menstrual irregularities. Hence it is our duty to spread the awareness among those that are not privileged enough to know about the effects of obesity and how it can affect the efficacy of life. As it will not only affect social but also personal life at a very early age.

Our study showed that 57% women knew that exercise could solve menstrual irregularities that was caused due to obesity but only 19% exercised regularly. It is very important to tell the women about the benefits of exercise. During exercise carbohydrate reserve become depleted and the body relies heavily on the oxidation of fat for energy production. The endocrine system can accelerate the oxidation of fats (lipolysis). FFA's are stored as triglycerides in fat cells and inside muscle fiber. The rate of FFA's uptake by



active muscle fiber depends on correlates with the increased FFA concentration. This increased concentration causes FFA oxidation. Thus the triglyceride breakdown may determine the rate at which muscles use fat as a fuel source during exercise. The thyroid hormone also contributes to the mobilization and metabolism of FFA but to a smaller degree. In PCOD women exercise causes decrease in insulin level, diminishes acanthosis nigricans, lowers testosterone level while raising the sex hormone binding globulin level.

OA ESIMAI, GO OMONIYI ESAN study showed that only 10% decided to seek medical help and in our study 36% decided to seek medical help.

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**Conclusion:** This study showed that there is lack of awareness in menstrual problems related to obesity among women in part of population. There is lack of initiation towards exercise taken to reduce the problem of obesity.

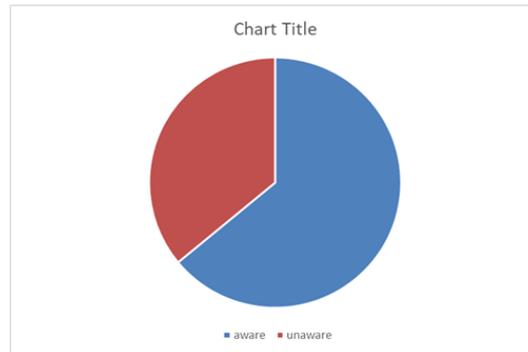
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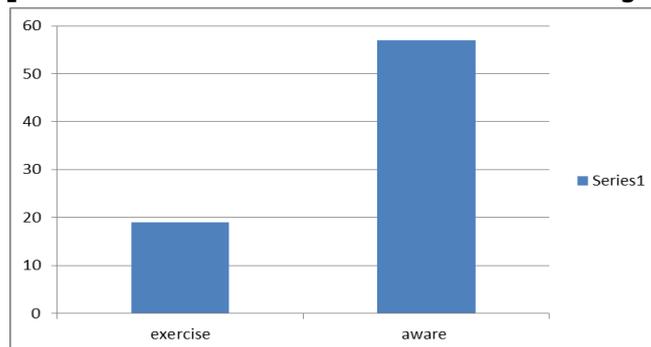
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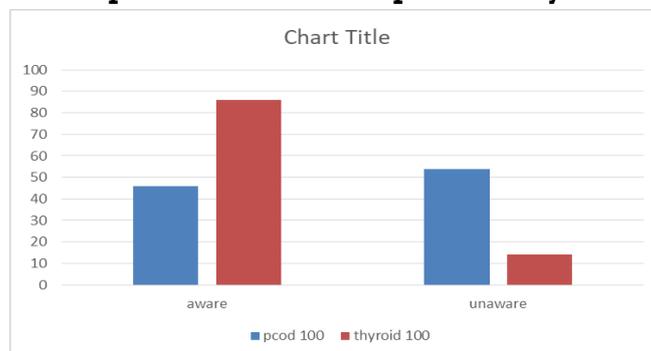
**Graph no 1: Awareness of menstrual irregularity due to obesity among women**



**Graph no 2: Women that are aware and exercise regularly**

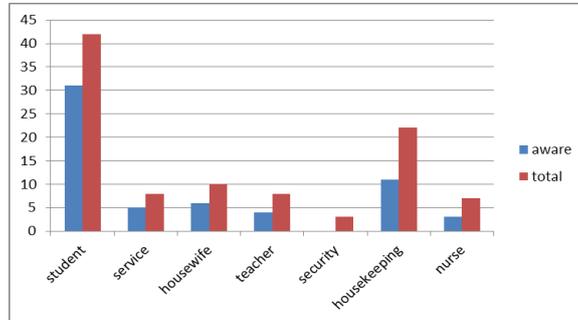


**Graph no 3: Awareness of pcod and thyroid**

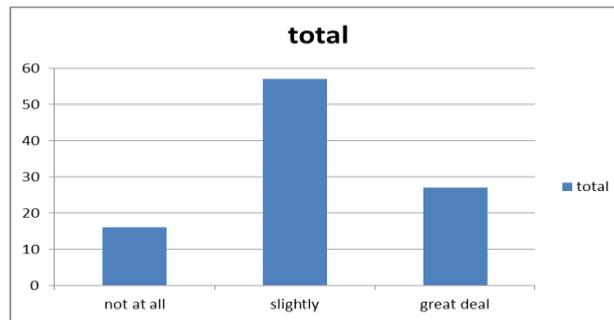




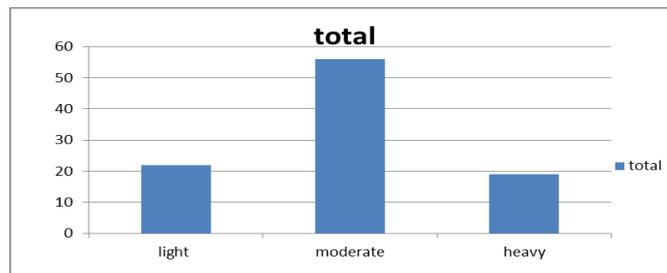
**Graph no 4: Awareness among different profession**



**Graph no 5: Pain during menstrual periods**

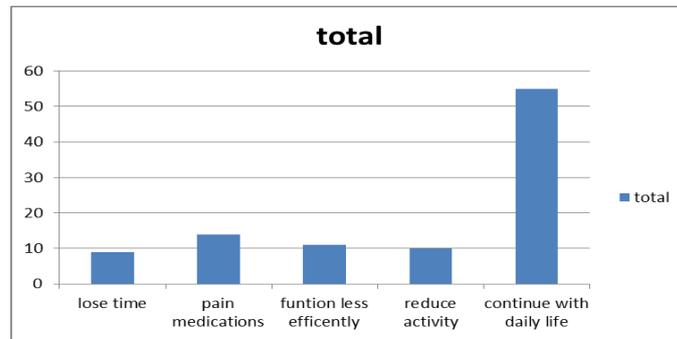


**Graph no 6: Flow during menstrual periods**

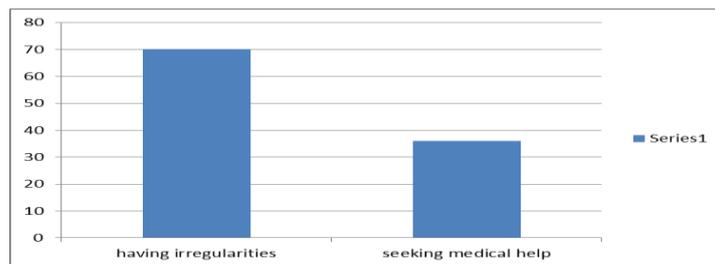




**Graph no 7: Activities restriction during periods**



**Graph no 9: women seeking medical help**



Corresponding Author:Email address: [sharonnathanp@yahoo.com](mailto:sharonnathanp@yahoo.com)