



To compare the menstrual disturbances and its relation to BMI: A cross sectional study

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Abstract

Objective: To compare the menstrual disturbances and its relation to BMI among clinical and paraclinical students.

Methods: The study involved a Questionnaire survey conducted among 100 women in the age group between 18-25 years performed in the hospital of obstetrics and gynecology of yenepoya institution Mangalore, to identify the most common menstrual disturbance and most common menstrual complaint and its relation to BMI. The most common menstrual disturbance and common menstrual complaint was then compared to the body mass index. The data collected were collected over the period of May 2021 to April 2022. After the data was obtained it was entered in excel and descriptive analysis was done by calculating the percentage.

Results: Out of 100 participants, most common menstrual complaint was found to have dysmenorrhea (72%) and most common menstrual disturbance was irregular cycles .80% of all participated girls had regular menstrual cycles, 20% had irregular menses cycles. Among 20% of them who had irregular cycles, 3% had Normal BMI, 3% - were overweight, 6% were overweight and 8% were obese.

Conclusion: The most common menstrual complaint was found to be dysmenorrhea and the most common menstrual disturbance was found to be irregular cycles. Participants gets benefited by participating in this study, through the early identification of menstrual disturbances and correction of the same.

Keywords: Menstrual cycle, menstrual abnormalities, BMI, HPO axis

Introduction

As a result of hormonal interactions with the Hypothalamo Pituitary Ovarian (HPO) axis, menstruation is defined as cyclical, physiological uterine bleeding caused by endometrial shedding. Changes in female sex hormones, hereditary conditions, illnesses, body mass index (BMI), lifestyle, and stress are a few of the numerous factors that regularly alter a woman's menstrual cycle's regularity and blood loss. Obesity is a growing public health issue because it is one of the leading causes of morbidity and mortality in many diseases. Obese people are more likely to experience infertility and menstrual irregularities^[1, 2].

Menstrual diseases are characterized by a wide range of irregularities, including irregular menstrual periods, extended menses, and protracted menstrual cycles. It was believed that obese women's menstrual periods were longer and less regular. Increasing research suggests a link between issues with women's menstrual cycles and conditions such endometrial cancer, breast cancer, cardiovascular disease, and neurological disorders. Endometrial hyperplasia is significantly more likely in obese women^[4, 5]. The menstrual bleeding pattern is said to be one of the important indicator of reproductive health^[5].

The cycle vary in a persons life. menstrual irregularity are considered when there is change in the frequency, duration or regularity of the cycle^[6] Women's general health and capacity to carry out daily tasks are both impacted by menstrual irregularity. Therefore, the alteration in the menstrual cycle makes it necessary for the healthcare system to evolve in order to give patients good results, to treat the symptoms, and to enhance quality of life.

Frequently, physical, emotional, social, psychological, and reproductive problems are linked to menstrual irregularities and disorders. Due to changes in lifestyle, habits, and eating patterns, obesity is becoming more common in the industrialised world. Low haemoglobin levels and dietary health are typically associated with menstrual irregularities and problems in women of all ages^[7]. Menstrual problems include irregular periods as well as amenorrhea, dysmenorrhea, menorrhagia, oligomenorrhea, and polymenorrhea. Body mass index (BMI) has the greatest impact on the management of menstrual irregularity. In order to address the growing issues of childhood obesity, early menarche and puberty, and racial and ethnic differences in the effects of body mass index on young women's reproductive characteristics globally, it is important to conduct continuing research^[8, 9].

Methods

The study involved a Questionnaire survey conducted among 100 women in the age group between 18-25 years performed in the hospital of obstetrics and gynecology of yenepoya institution Mangalore, to identify the most common menstrual disturbance and most common menstrual complaint and its relation to BMI. The most common menstrual disturbance and common menstrual complaint was then compared to the body mass index. The questionnaire included all the data about the demographic parameters including included age, height, weight, average length of menstrual cycle, duration of the menses, and amount of bleeding in terms of passage of clots and dysmenorrhea among them. The data collected were collected over the period of May 2021 to April 2022. After the data was obtained it was entered in excel and descriptive

analysis was done by calculating the percentage. Sensitivity analysis was done using ROC curve and data Analysis was done using SPSS

Inclusion criteria

- Age 18-24 years
- Clinical and paraclinical students
- Willing to participate in the study

Exclusion criteria

- Postpartum period/lactating
- Adolescent girls, who have not attained menarche.
- Medical disorders: HTN, DM, thyroid disorders
- Medications including antipsychotics

Results

In the study, it was observed that Out of 100 participants, most common menstrual complaint was found to have dysmenorrhea (72%) Among which 22% had normal BMI, 19% were underweight, 8% were overweight and 23% were obese and most common menstrual disturbance was irregular cycles .80% of all participated girls had regular menstrual cycles, 20% had irregular menses cycles. Among 20% of them who had irregular cycles, 3% had Normal BMI, 3% - were underweight, 6% were overweight and 8% were obese. Majority of the participants were obese.

Table 1: Age and BMI distribution of the participants

Age (In years)	Normal BMI	Underweight	Overweight	Obese
18-21	20	19	9	16
22-25	12	8	4	12
total	32	27	13	28

Out of 100 participants, 32 participants had normal BMI and 27 participants were underweight, 13 participants were overweight and 28 participants were obese.

Out of 32 participants who had normal BMI, 20 participants belong between the age group of 18-21 years and 12 belong to the age group between 22-25 years. Out of 27 participants who are underweight, 19 participants belong between the age group of 18-21 years and 8 belong in the age group between 22-25 years. Out of 13 participants who were overweight, 9 participants belong to the age group between 18-21 years, while 4 participants belong to the age group between 22-25 years. Out of 28 participants who were obese, 16 participants belong to the age group between 18-21 years and 12 participants belong to the age group between 22-25 years.

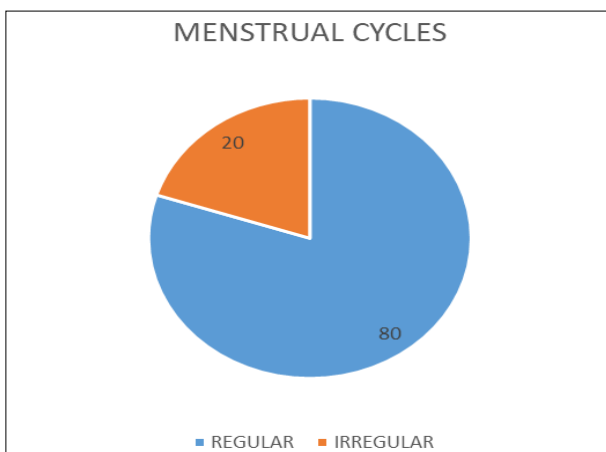


Fig 1: Distribution of study participants with menstrual cycles

Out of 100 participants in the study, 80 participants had regular cycles, while 20 participants had irregular cycles. In this study majority of the participants had regular cycles (80 %)

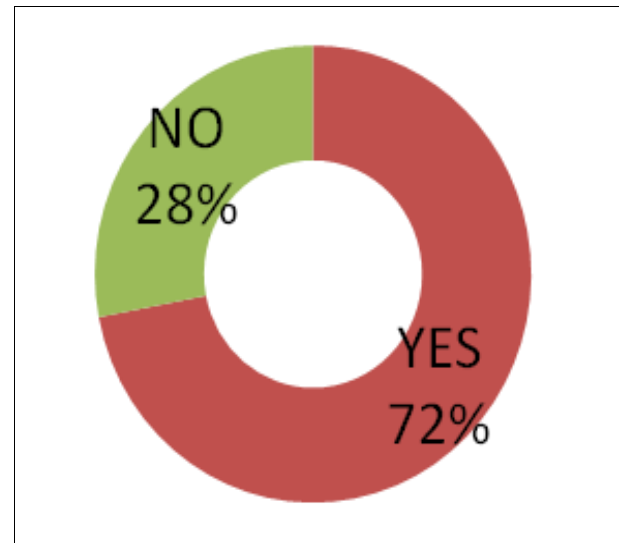
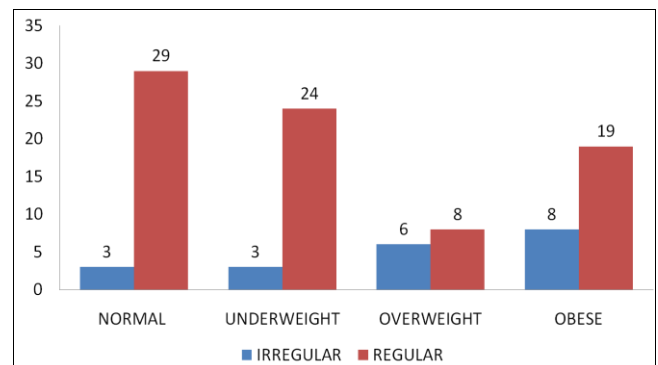


Fig 2: Presence of Dysmenorrhea

Among 100 participants, 72% had dysmenorrhea while 28 % didn't have dysmenorrhea. Majority of the study participants had dysmenorrhea.



Graph 1: Menstrual cycle abnormalities in relation to the BMI

Out of the 100 study participants, 32 participants had normal BMI, out of which 29 participants had regular cycles and 3 participants had irregular cycles, 27 participants were underweight, out of which which 24 participants had regular cycles and 3 participants had irregular cycles. 14 participants were overweight, out of which 8 participants had regular cycles and 6 participants had irregular cycles. 27 participants were obese, out of which 19 participants had regular cycles and 8 participants had irregular cycles.

Discussion

Many international studies showed correlation between menstrual irregularity and BMI. This study has been conducted to understand the relation between menstrual disturbances and menstrual complaints and its relation to BMI.

In the study, menstrual irregularity was found in 20 % of the study population. There was a significant relation between menstrual irregularity and BMI status. In the study, most common menstrual complaint was dysmenorrhea which was consistent with the study conducted by Hong Ju *et al.* [10] In

this study there was a significant role of the BMI as a marker of the nutritional requirement which showed similar results by the study conducted by Saira Dars, *et al.* [11] In this study the median age group was between 18- 21 years and majority of participants had normal BMI.

Yungi Tang, *et al.* [12] analyzed the menstrual cycle regularity and its relation to BMI which showed there was significant difference in menstrual blood flow of different BMI categories. In this study 20% presented with irregular cycles.

The study revealed a possible association between the menstrual disturbances and irregularities with BMI. The limitation of the study is that it involved smaller group of population, where a larger sample size with follow-up could give more information.

Conclusion

We have observed in our study that there is a correlation between BMI and menstrual irregularities.

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