



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

A CROSS-SECTIONAL STUDY OF WOMEN IN THE REPRODUCTIVE AGE GROUP INVESTIGATING IRREGULAR MENSTRUAL CYCLES AND THEIR RELATIONSHIP WITH STRESS AND LIFESTYLE CHOICES.

KEY WORDS:

Dr. Savithala. Hemasri Devi

MBBS, Postgraduate OBGY Final Year, GGH Guntur

Dr. Yarru. Jhansi Vani

MBBS, MD (DGO), Professor

Dr. Cuddapah. Sunitha

MBBS, MS (OBGY), Associate Professor

Dr. Gonji Suma

MBBD, MD (PSM), Assistant Professor

ABSTRACT

Menstrual irregularities are a common concern among women of reproductive age, posing significant impacts on their overall well-being. These irregularities can disrupt daily activities and affect quality of life, necessitating effective management strategies. Understanding the underlying factors contributing to menstrual irregularities is crucial for providing appropriate support and interventions to women. By addressing these concerns, we can strive to improve women's reproductive health outcomes and enhance their overall quality of life. **Methods:** A cross-sectional study comprising 500 women aged 18-45 years attending the obstetrics and gynaecology department of GGH Guntur was conducted. Participants were selected via systematic random sampling, and data on menstrual patterns and lifestyle factors were gathered through structured questionnaires administered via face-to-face interviews. Lifestyle factors assessed included dietary patterns, physical activity levels, stress levels, and sleep quality. Statistical analysis, including chi-square tests and logistic regression, was employed to ascertain prevalence rates and explore associations between menstrual irregularities and lifestyle variables. **Results:** The study revealed significant associations between various demographic, lifestyle, and health-related factors and different types of menstrual irregularities. Specifically, significant correlations were found between age groups and types of menstrual irregularities ($p < 0.00001$), as well as perceived stress levels and menstrual irregularities ($p = 0.04804$). However, associations between education levels, BMI categories, and medical conditions (anaemia and thyroid disorders) with menstrual irregularities did not reach statistical significance. **Conclusion:** Our study underscores the complexity of factors influencing menstrual irregularities, revealing significant associations with age groups and perceived stress levels, emphasizing the need for holistic approaches to women's reproductive health.

INTRODUCTION

Menstrual irregularities, encompassing variations in cycle length, flow, and associated symptoms, represent a common concern among women globally [1]. These irregularities can disrupt daily activities and adversely affect quality of life. Factors contributing to menstrual irregularities include hormonal imbalances, stress, dietary habits, and lifestyle choices [2]. Understanding the determinants of menstrual irregularities is crucial for effective management and improving women's reproductive health outcomes.

Despite advancements in healthcare, menstrual irregularities persist, impacting women of diverse ages and socioeconomic backgrounds [3]. Research suggests that lifestyle factors such as diet, physical activity, stress levels, and sleep patterns significantly influence menstrual health [4]. Poor dietary choices, sedentary lifestyles, high stress levels, and inadequate sleep have all been linked to an increased risk of menstrual irregularities [5]. However, further exploration is needed to uncover the precise mechanisms underlying these associations. The prevalence of menstrual irregularities may vary across different populations and settings, influenced by factors like cultural norms, access to healthcare, and environmental influences [6].

This study aims to investigate menstrual irregularities among women attending GGH Guntur and explore their relationship with selected lifestyle variables. By identifying the determinants of menstrual irregularities in this population, tailored interventions can be developed to promote menstrual health and enhance overall well-being among women in the region.

METHODOLOGY:

A descriptive study was conducted among women aged 18-45 years attending the obstetrics and gynaecology department of GGH Guntur from 23/07/23 to 23/03/24. Ethics approval was obtained from the Institutional Review Board of GGH Guntur, and informed consent was obtained from all participants. Convenience sampling was employed until a sample size of 100 participants was achieved.

Women aged 18-45 years were included in the study. Those with a history of hysterectomy, pregnancy, or any medical condition affecting menstrual cycles were excluded.

Data Collection:

A semi-structured questionnaire was administered to collect data on menstrual patterns and selected lifestyle variables. The questionnaire included sections on demographic details, menstrual history, lifestyle habits (such as diet, physical activity, stress levels, and sleep patterns), and any symptoms suggestive of menstrual irregularities. Additionally, anthropometric measurements (height, weight) were recorded, and BMI was calculated.

Dietary habits were assessed based on frequency of consumption of various food groups (vegetarian, non-vegetarian, fruits). Physical activity levels were categorized as sedentary, moderate, or heavy based on self-reported activity levels. Perceived stress levels were measured using the Perceived Stress Scale (PSS).

Data Analysis:

Descriptive statistics will be used to summarize demographic characteristics, menstrual patterns, and lifestyle variables. Associations between menstrual irregularities and lifestyle variables will be assessed using chi-square tests and logistic

regression. Adjustments for potential confounders will be made. Statistical analysis will be performed using IBM SPSS Statistics software.

RESULTS:

The study comprised 100 participants, whose demographic profiles are summarized in Table 1. The participants' age ranged from 18 to 45 years, with a mean age of 31 years. The majority of participants were in the 26-35 age group, constituting 49% of the sample. Additionally, the distribution of educational attainment revealed that most participants had completed primary education (37%), while 38% were employed, and 82% were married. These demographic factors provide important context for understanding the study population and interpreting the subsequent analyses.

Table 1: Demographic profile of study participants

age	frequency	percentage
18-25	15	15
26-35	49	49
36-45	36	36
education		
illiterate	15	15
primary	37	37
secondary	12	12
graduate	36	36
occupation		
employment	38	38
unemployment	62	62
marital status		
married	82	82
unmarried	18	18
socioeconomic status		
upper	10	10
upper middle	18	18
middle	25	25
lower middle	27	27
lower	20	20
DIET		
mixed	92	92
vegetarian	8	8

No reported alcohol or smoking habits were observed. Sedentary behaviour was prevalent (48%), while the distribution of BMI showed 64% overweight, 23% normal weight, 7% underweight, and 6% obese. Medical conditions included 82% with anaemia and 36% with thyroid disorders (see table 2).

Table 2: Dietary Habits, Lifestyle Factors, BMI, and Medical Conditions Among Study Participants.

habits	frequency	percentage
alcohol	0	0
smoking	0	0
physical activity		
sedentary	48	48
moderate	40	40
heavy	12	12
BMI		
<18.5	7	7
18.6-24.9	23	23
25-29.9	64	64
>30	6	6
positive medical conditions		
anaemia present	82	82
thyroid present	36	36

Table 3 outlines participants' menstrual characteristics: 44% experienced menarche before 13 years, 51% between 13-15 years, and 5% after 15 years. Blood flow duration varied: 28% <3 days, 63% 3-7 days, and 9% >7 days. Additionally, 44% reported heavy flow, 51% moderate, and 5% scanty, with 28%

experiencing clots and 65% dysmenorrhoea.

Table 3: Menstrual Characteristics Among Participants

age at menarche	frequency	percentage
<13 years	44	44
13 -15 years	51	51
>15 years	5	5
menstrual blood flow duration		
<3 days	28	28
3-7 days	63	63
>7 days	9	9
blood flow pattern		
heavy	28	44
moderate	32	51
scanty	40	5
clots history		
present	28	28
absent	62	62
dysmenorrhoea		
present	65	65
absent	25	25
cycle pattern		
oligomenorrhoea	62	62
polymenorrhagia	38	38

Participants reported varying levels of stress, with 33% experiencing mild stress, 58% moderate, and 9% severe (figure 1).

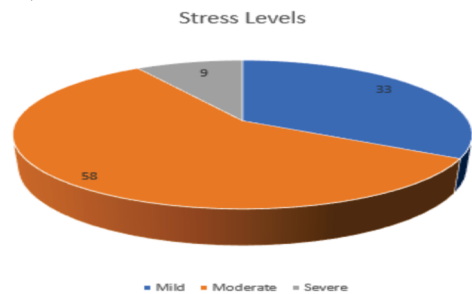


Figure 1: Levels of Reported Stress Among Participants

Significant association found between age groups and types of menstrual irregularities ($p < 0.00001$), suggesting age as a significant determinant in menstrual health outcomes (table 4).

Table 4: Association Between Age Groups and Menstrual Irregularities

age	oligomenorrhoea	polymenorrhagia	total
18-25	8	6	14
26-35	45	7	49
36-45	9	25	36
total	62	38	100

The chi-square statistic is 31.6472. The p-value is < 0.00001 . The result is significant at $p < 0.05$.

The perceived stress scale among participants demonstrates a significant association with oligomenorrhoea and polymenorrhagia ($p = 0.04804$), highlighting the impact of stress levels on menstrual health. Participants reporting moderate stress levels had the highest prevalence of both types of menstrual irregularities. These findings underscore the importance of addressing stress management strategies in promoting menstrual health.

Table 5: Association Between stress Levels and Menstrual Irregularities

Perceived Stress Scale	Oligomenorrhoea	Polymenorrhagia	Total
Mild	25	8	33
Moderate	34	24	58

Severe	3	6	9
Total	62	38	100

The chi-square statistic is 6.0714. The p-value is 0.04804. The result is significant at $p < 0.05$

No significant association found between education levels and types of menstrual irregularities ($p = 0.051104$) (table 6).

Table 6: Impact of Education Levels on Menstrual Irregularities

education	oligomenorrhoea	polymenorrhagia	total
illiterate	7	8	15
primary	25	12	37
secondary	4	8	12
graduate	26	10	36
total	62	38	100

The chi-square statistic is 7.766. The p-value is 0.051104. The result is not significant at $p < 0.05$.

No significant association detected between BMI categories and types of menstrual irregularities ($p = 0.616204$) (table 7).

Table 7: Impact of BMI Categories on Menstrual Irregularities

BMI	oligomenorrhoea	polymenorrhagia	total
<18.5	3	4	7
18.6-24.9	13	10	23
25-29.9	42	22	64
>30	4	2	6
total	62	38	100

The chi-square statistic is 1.7942. The p-value is 0.616204. The result is not significant at $p < 0.05$

No significant association observed between medical conditions (anaemia and thyroid disorders) and types of menstrual irregularities ($p = 0.072549$) (table 8).

Table 8: Impact of Medical Conditions on Menstrual Irregularities

medical conditions	oligomenorrhoea	polymenorrhagia	total
anaemia present	40	16	56
thyroid present	16	14	30
Both	6	8	14
total	62	38	100

The chi-square statistic is 5.247. The p-value is 0.072549. The result is not significant at $p < 0.05$.

DISCUSSION

1) In contrast to the findings of Mittiku YM et al. [7] and Omidvar S et al. [8], where the majority of women with menstrual irregularities were reported to be less than 20 years old, our study revealed that the predominant age group experiencing menstrual irregularities was between 26-35 years old.

2) Our study's finding of a statistically insignificant p-value for the association between obesity and menstrual irregularities contradicts the significant associations reported by Mittiku et al. [7] and Sherly Deborah G et al. [9] This discrepancy highlights the complexity of the relationship, potentially influenced by differences in demographics, methodologies, and temporal trends.

3) Our study unveiled a statistically significant p-value of 0.05 for stress concerning menstrual irregularities, consistent with the findings of Mittiku et al. [7] and Rafique N et al. [10] This alignment underscores the potential role of stress as a significant contributor to menstrual health outcomes. The correlation between stress and menstrual irregularities suggests a complex interplay between psychological and physiological factors in women's reproductive health. Understanding this association is crucial for developing

targeted interventions aimed at mitigating stress and improving menstrual health outcomes.

4) In our study, 82% of participants exhibited anaemia, contrasting with the 57.9% reported by Mihite R et al. [11] This discrepancy underscores the variability in prevalence rates across different populations and highlights the need to consider demographic and geographical factors when interpreting study findings. While our study did not yield a significant association between anaemia, thyroid disorders, and menstrual irregularities.

5) The statistical analysis did not reveal a significant association between education level and types of menstrual irregularities. While the chi-square statistic was 7.766 and the p-value was 0.051104, indicating a trend towards significance, it did not meet the conventional threshold of $p < 0.05$. This suggests that the observed distribution of menstrual irregularities across different education levels may be due to chance. Further research with larger sample sizes may be warranted to explore potential associations more comprehensively.

Limitations:

Some limitations of our study include the reliance on self-reported data, which may introduce recall bias, and the potential for sampling bias due to the study's sample size and composition. Additionally, the cross-sectional design limits our ability to establish causality or infer temporal relationships between variables, and residual confounding from unmeasured factors may influence our results. Despite these limitations, our study provides valuable insights into the associations between demographic, lifestyle, and health-related factors with menstrual irregularities, highlighting the need for further research to address these complexities comprehensively.

CONCLUSION:

In conclusion, our study provides valuable insights into the multifaceted nature of menstrual irregularities and their associations with various demographic, lifestyle, and health-related factors. While significant correlations were identified between age groups and types of menstrual irregularities, as well as perceived stress levels and menstrual patterns, other factors such as education levels, BMI categories, and medical conditions (anaemia and thyroid disorders) did not exhibit statistically significant associations. These findings highlight the intricate interplay of diverse factors in shaping menstrual health outcomes and underscore the importance of holistic approaches to women's reproductive health. Further research is warranted to elucidate the underlying mechanisms driving these associations and to develop targeted interventions aimed at improving menstrual health and overall well-being in women.

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