

Distribution and Determinants of Dysmenorrhea in Women of Reproductive Age Group in a Tertiary Care Hospital in Chennai

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ABSTRACT

Background: *Dysmenorrhea, also known as menstrual pain is a prevalent and debilitating condition affecting women of reproductive age group. The condition can significantly disrupt day to day activities and lead to absenteeism from school or work. (1)*

Objectives: *The objective of the study was to find out the prevalence of dysmenorrhea among women of reproductive age group, the identification of determinants of dysmenorrhea and to describe the symptoms associated with dysmenorrhea and pain relief seeking methods.*

Materials and Methods: *This was a cross-sectional study conducted at Sree Balaji Medical College and Hospital, between December 2022 and June 2024 among women of reproductive age group attending out patient department in department of Obstetrics and Gynaecology.*

Results: *68.08 % of subjects were suffering from dysmenorrhea. The prevalence of dysmenorrhea was more among subjects in age group 21-30 years, who had attained menarche at 11-13 years, those who had cycle length <21 days, those who had irregular cycles, those who had menstruation for 3–6 days, those who had heavy menstrual flow, those who were nulliparous, those who had a family history of dysmenorrhea. Age group, length of cycles and parity status were found to have a significant association with dysmenorrhea.*

Conclusions: *The prevalence of dysmenorrhea in our study was more compared to other studies. Age group, length of menstrual cycles and parity status was found to have a significant association with dysmenorrhea. Lower back pain was the most common physical symptom and over the counter analgesics were the most common method sought for pain relief.*

INTRODUCTION

Dysmenorrhea, also known as menstrual pain, is a prevalent and frequently debilitating condition affecting women of reproductive age [1].

It is categorized into two main types : Primary and secondary dysmenorrhea. Primary dysmenorrhea is defined as painful menstrual cramps without any underlying medical condition, typically beginning a few years after menarche and persisting throughout a woman's reproductive life. Secondary dysmenorrhea, is linked to underlying pelvic pathologies such as endometriosis, fibroids and pelvic inflammatory disease.

This condition can significantly disrupt normal day to day activities and diminish quality of life, leading to absenteeism from work or school and decreased productivity [1].

There are several biological, lifestyle and psychosocial factors that can contribute to the risk of dysmenorrhea. Family history (2), physical inactivity (3) and stress levels are important determinants of dysmenorrhea.

This study aims to investigate the prevalence and determinants of dysmenorrhea among women of reproductive age attending a tertiary care hospital. By focusing on a hospital setting, this research will provide insights into the clinical aspects of dysmenorrhea and its management within a healthcare environment.

OBJECTIVES

1. To investigate the prevalence of dysmenorrhea among women of reproductive age.
2. To examine the socio-demographic distribution of women of reproductive age.
3. To identify and analyze the determinants influencing the occurrence of dysmenorrhea.
4. To assess the severity of pain, health seeking behaviour and impact on daily activities of affected women.

MATERIALS AND METHODS

- This was a cross-sectional study conducted at Sree Balaji Medical College and Hospital, between December 2022 and June 2024. All the women of reproductive age group attending the out patient department willing to participate in the study were the study subjects. After obtaining approval from the administration, The selected women were explained about the protocol and purpose of the study and were interviewed by interacting in local language . Participation in the study was voluntary. Oral informed consent was taken from the subjects and data were collected using a pre-designed and pre-tested self-administrated questionnaire, which had questions which included questions regarding menstrual cycle, pain during menstruation, life style, nutritional habits, and symptoms associated with menstrual pain. The severity of pain was assessed using a visual analogue scale. Data were kept confidential.
- Sample size calculation: Hypothesized %frequency of outcome factor in the population(p):60% Confidence limits as % of 100 (d): 5% Design effect :1 Sample size $n = [DEFF * Np(1-p)] / [(d^2 / Z^2) 1 - \alpha/2 * (N-1) + p*(1-p)]$ Confidence interval 90% The sample size calculated is: 260 patients.
- Statistical analysis was carried out using statistical packages for IBM SPSS vs 24 for Windows and MS Excel
- Descriptive statistics such as mean and percentage and also inferential statistics like Chi-square test to find out association were used.

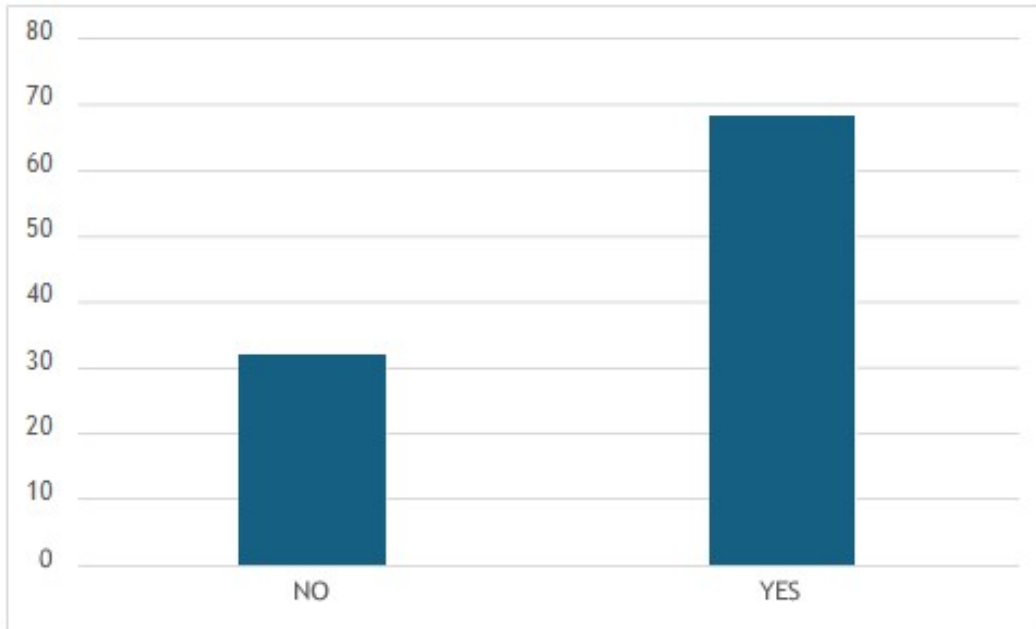
RESULTS

Completed data were obtained from a total of 260 subjects. 177(68.08%) subjects were suffering from dysmenorrhea and 83 (31.92%) were not [Graph 1]. 35% of total subjects had completed education till primary school. (graph 2) . 42.3% of total subjects were married (graph 3) and 37.8 % of total subjects were employed part time. (graph 4).

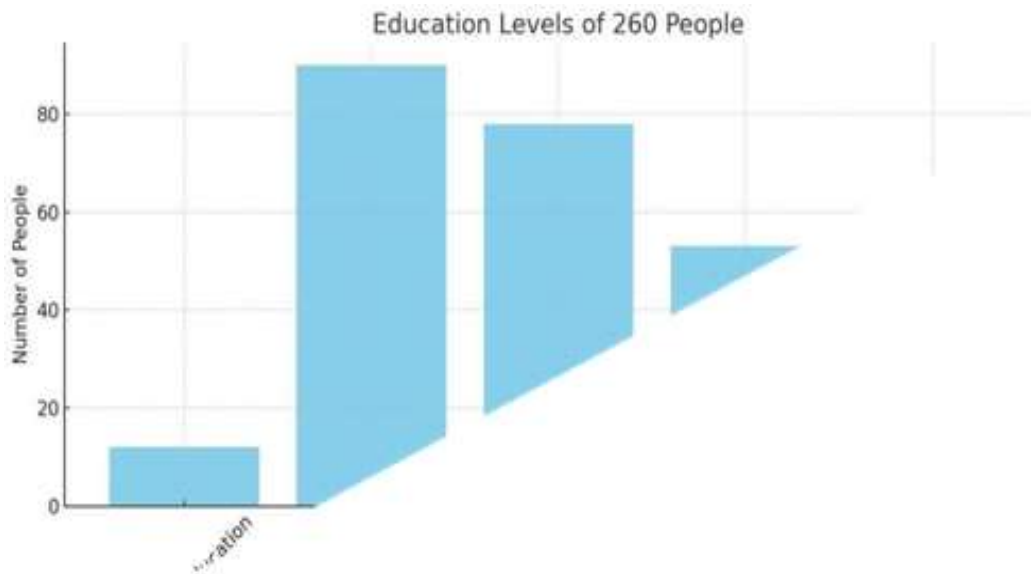
The prevalence of dysmenorrhea was more among subjects aged ≤ 30 years compared to those > 30 years, who had attained menarche at ≤ 13 years of age compared to those who had attained at > 13 years, those who had menstrual cycle length 21-35 days compared to those who had menstrual cycle length < 21 days or > 35 days, those who were nulliparous than those who were parous , those with BMI range 18-24.9 kg/m² and those subjects who had a positive family of dysmenorrhea. Age group of subjects, length of cycles and parity status was found to have a statistically significant association with dysmenorrhea ($P < 0.05$) [Table 1].

138 (78.0%) reported to have moderate pain according to visual analogue scale (Table 2). Lower back pain was the most common physical symptom reported by subjects (graph 5) with dysmenorrhea and over the counter analgesics were most commonly sought after for pain relief. [table 3].

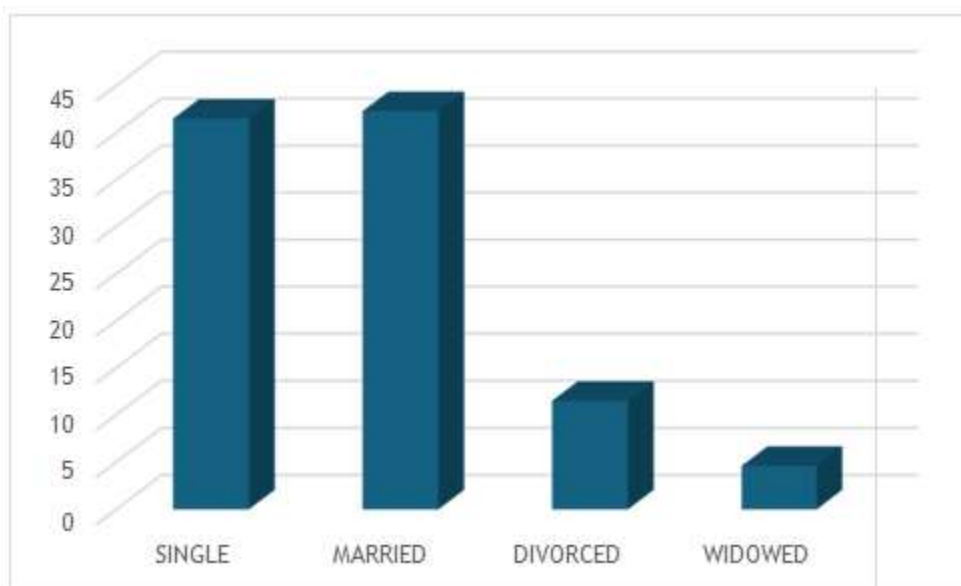
Dysmenorrhea had a moderate impact on daily activities on 49.2% of patients (Table 4) with 96.6% of patients reporting absenteeism from school or workplace for 1-3 days with a mean value of 1.77 days.



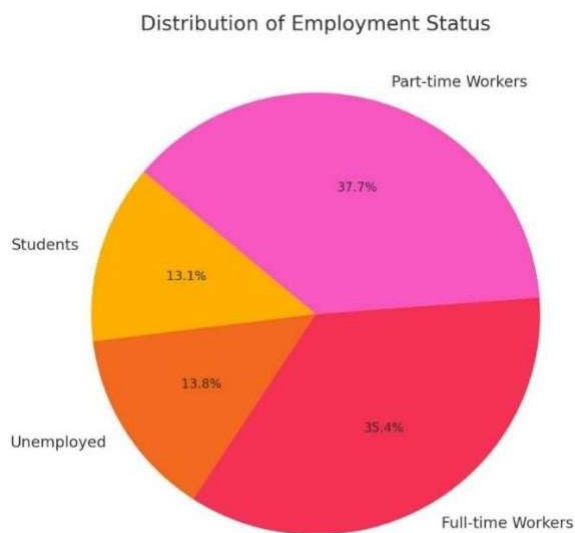
Graph 1: Distribution of prevalence of dysmenorrhea among study sample.



Graph 2: Distribution of educational levels among study sample



Graph 3: Distribution of marital status among study sample



Graph 4: Distribution of employment status among study sample

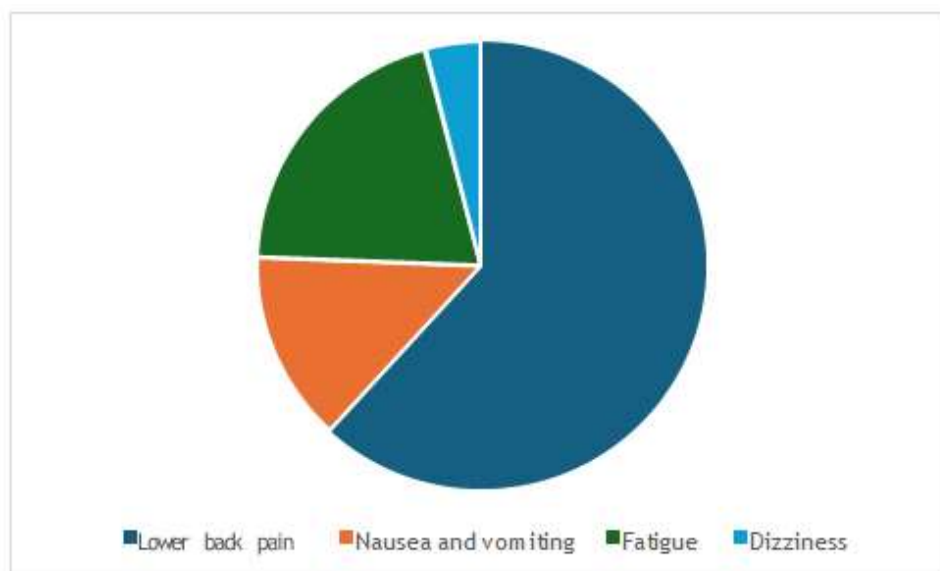
Serial number	Variable	Dysmenorrhoea present (%) (n = 177)	Dysmenorrhoea absent (%) (n=83)	Total (n=260)	P value
1	Age group (years)				
	<=30	158(89.27)	61(73.5)	219	0.02
	>30	19(10.73)	22(26.5)	41	
2	Age at Menarche (years)				
	<= 13	101(57.06)	60(72.29)	161	0.4
	>13	76(42.94)	23(27.71)	99	
3	Length of cycles (days)	61(34.46)		74	
	<21		13(15.66)		0.001

		95(53.67)		149	
	21-35	21(11.86)	54(65.06)	37	
	>35		16(19.28)		
4	Duration of menstruation(days)				
	<3	51(28.81)	23(27.71)	74	0.22
	3-6	97(54.8)	41(49.40)	138	
	3-6	29(16.8)	19(22.89)	48	
	>7				
5	Parity status				
	Nulliparous	90(50.38)	29(34.9)	119	0.002
	Parous	87(49.1)	54(71.08)	141	3
6	Family history				
	Yes	95(53.67)	60(72.29)	155	0.61
	No	82(40.68)	23(27.71)	105	
7	Body mass index(in kg/m2)				
	< 18.5	14(7.9)	5(6.02)	19	0.29
	18.5-24.9	123(69.4)	61(73.4)	184	
	25-29.9	30(16.9)	9(10.8)	39	
	>30	10(5.6)	8(9.63)	18	

Table 1: Determinants of dysmenorrhea and their association with dysmenorrhea.

Pain Intensity	Number of Patients(n=177)	PERCENTAGE
1-3 (Mild pain)	31	17.5
4-6 (Moderate pain)	138	78.0
7-10 (Severe pain)	8	4.5

Table 2: Distribution of intensity of pain



Graph 5: Distribution of associated symptoms

Methods Used for PainRelief:	NUMBER OF PATIENTS (n=177)	PERCENTAGE OFPATIENTS
OTC analgesics	115	64.97
Hot water bottle	32	18.08
Prescription medicines	21	11.86
Herbal medicines	9	5.08

Table 3: Methods used for pain relief

Impact on Daily Activities:	NUMBER OF PATIENTS (n=177)	PERCENTAGE OF PATIENTS
Mild impact	71	40
Moderate impact	87	49.2
Severe impact	12	6.8

Table 4: Impact on daily activities

DISCUSSION

The prevalence of dysmenorrhea in the current study was 68.08% . Other studies conducted in India reported the prevalence range between 50 to 87.8% . (4,5)A study conducted by Weissman et al reported a prevalence of 90 % in women of reproductive age group . (6)

Our study showed that the majority of the patients had completed primary (35%) and secondary education (30%). Previous research indicates that higher educational levels are often associated with better health outcomes and increased health awareness (7,8)

The distribution of marital status shows a nearly equal proportion of married (42.3%) and single (41.5%) individuals. The relationship between marital status and dysmenorrhea is complex and not extensively covered in existing literature. Some studies suggest that marital status may influence the perception and management of menstrual pain, but more research is needed to draw definitive conclusions(9) .The occupational status revealed that a significant portion of the patients were employed either full-time (35.4%) or part-time (41.5%), with students (13.1%) and homemakers/unemployed individuals (13.8%) making up the remainder. Employment status can influence stress levels and access to healthcare, potentially impacting the experience of dysmenorrhea. Previous studies have noted that employed women may report higher stress levels, which can exacerbate menstrual pain(10,11) .

The prevalence of dysmenorrhea was more among subjects ≤ 30 years compared to those > 30 years, . Ameade et al. have found that there was a statistically significant association between the age of the subjects and prevalence of dysmenorrhea with the prevalence more among those 25 years.[12]. According to a study conducted by Ju et al, younger age groups, particularly adolescents and women in early twenties have higher prevalence of dysmenorrhea and this may be attributed to hormonal fluctuations and establishment of regular menstrual cycles during this lifestage(13,14) . Higher prevalence of dysmenorrhea was seen in those who had attained menarche at ≤ 13 years compared to those who had attained at > 13 years, those who had cycle length 21-35 days, Previous research has shown that age at menarche and regularity of menstrual cyces can influence the prevalence and severity of dysmenorrhea (15,16). Dysmenorrhea was more prevalent in nulliparous women compared to parous women in our study. A study conducted by Nyirenda T et al (17) highlighted the association between parity and dysmenorrhea. Positive family history and prevalence of dysmenorrhea aligns with existing literature and emphasizes the role of genetic and hereditary factors.(18). The distribution of BMI among the study population shows a majority with normal weight (46.54%), followed by overweight (29.23%), obese (13.85%), and underweight (10.38%) categories. The association between BMI and dysmenorrhea revealed no significant difference (p-value = 0.29) in the prevalence of dysmenorrhea among different BMI categories. This finding is consistent with some studies which suggest that extreme BMI values (underweight or obese) may be associated with menstrual irregularities. (19,20).

In our study, statistically significant association was found between age group, length of menstrual cycles and parity status. ($P < 0.05$)

Pain intensity was predominantly moderate (78%). These findings are consistent with existing literature that describes similar patterns in dysmenorrhea symptoms (21,22).

Lower back pain was the most commonly reported associated symptom and over the counter analgesics were the most common method of pain relief (64.97%). These results align with previous studies indicating that non-prescription pain relief methods are widely used among women experiencing dysmenorrhea (23,24).

Menstrual pain had a moderate impact (which was defined as ability to perform normal activities with analgesia) on daily activities for 49.2% of patients, with 96.6% reporting 1-3 days of absenteeism from work or school. This is consistent with literature highlighting the significant impact of dysmenorrhea on quality of life and productivity (25,26).

CONCLUSION

In conclusion, this study provides a comprehensive overview of the patient population, highlighting significant patterns such as the predominance of dysmenorrhea among younger individuals and the varying impacts on daily life. The findings emphasize the need for ongoing research to explore these trends further, particularly to understand the nuanced relationships between demographic factors and menstrual pain. Future studies should focus on expanding these observations and developing targeted strategies to improve the management and treatment of dysmenorrhea.

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