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Original Research Article

A Cross-Sectional Study on Menarcheal Age and Menstrual Disorders

Kharde Anup[1*], Reddy Roshan[2**], Phulambrikar Rutuja[3**], Jadhav Jayashree[4**]

[1]Assistant Professor, [2]Intern RMC, [3]Junior Resident RMC, [4]Associate Professor RMC,
[*]Dept. of Community Medicine RMC, PIMS-DU, Loni.
[**]PIMS-DU, Loni.

Corresponding Author: Kharde Anup

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ABSTRACT

Introduction: Puberty is the time of life when crucial endocrinological, metabolic, somatic and psychological changes occur. Menstruation is a physiological, periodic and cyclical shedding of the endometrium accompanied by loss of blood. The age at which pubertal changes occur has declined worldwide over the last few decades. Menstrual disorders frequently affect the quality of life of adolescents and young adult women and can be indicators of serious underlying problems.
Aim: to study menarcheal age and menstrual disorders among students residing in university girl's hostel
Objectives: 1) to determine the age of onset of menstruation 2) to ascertain different menstrual disorders among participants.
Material and Method: It was a descriptive type of cross sectional study conducted at Girls Hostel. Simple random sampling method was used for data collection. A total of 551 participants were enrolled after explaining to them the aim of the study and informed consent was obtained. The data entered in MS-excel and analyzed using SPSS-21 software. Chi square test was used to determine the statistical association and 5% level of significance ($P<0.05$) was considered significant (two tailed)
Results: The mean age of menarche was 13.12 ±1.44 years and range is 6 -17 years and 190 (34.48%) girls had attended their menarche at age less than 11 years. Dysmenorrhea was reported as most common menstrual disorder by 269 (48.82%) girls followed by abnormal cycle length which was seen in 110 (19.96%) girls and menorrhagia in 65 (11.80%) girls.
Conclusion: Menstrual and reproductive health is a fundamental right of females. This study concluded that the onset of menarcheal age has been declining. Dysmenorrhea is a most prevalent menstrual disorder among young females.

Keywords: Menarche, Dysmenorrhea, Menorrhagia, Menstrual disorders.

INTRODUCTION

Puberty is the time of life when crucial endocrinological, metabolic, somatic and psychological changes occur. Though menstruation is mostly talked topic, but often neglected scientifically. Even its god's gift to women for the creation of life, women still faces the challenges which are not only social in nature like a taboo but also medical disorders due to this. The menstrual cycle is a physiological change that occurs in females. Menstruation is a periodic and cyclical shedding of the endometrium accompanied by loss of blood and it occurs primarily in human and their closest evolutionary relatives like Chimpanzees. [(1)] Menarche, the first menstruation period of life is a milestone in a female puberty that signifies the maturation of reproductive potential and physiological growth. The normally menarche occurs at the age of 11-15 years

and menopause is the end of a women's reproductive phase, which is commonly occurs between the age of 45 to 55 years. [2] The age at which pubertal changes occur has declined worldwide over the last few decades.[3] Precocious puberty is a condition where pubertal changes occur at an age earlier than expected. In additions to precocious puberty another major problem of female reproductive life is increasing prevalence of menstrual disorders. According to statistics, 75% of adolescent girls reported to have menstrual dysfunction and is known to affect the normal daily chores. [4] The most frequent menstrual disorders are polymenorrhea, oligomenorrhea, dysmenorrhea and menorrhagia. Menstrual problems are common and a significant source of morbidity among girls and also one of the cause's college absenteeism. Menstrual disorders frequently affect the quality of life of adolescents and young adult women and can be indicators of serious underlying problems. With this background in mind the present study was conducted to ascertain of menarcheal age and menstrual disorders among girls residing in university girl's hostel.

MATERIALS AND METHODS

It was a descriptive type of cross sectional study conducted at Girls Hostel of Pravara Institute of Medical Sciences Deemed University. The sample consisted of all the girl students residing in university hostel. A minimum sample size of 385 was calculated using the formula $n = Z_{(1-\alpha/2)}^2 P(1-P)/d^2$ [5] where Z is statistic for a level of confidence, at 95% CL, Z value is 1.96, prevalence (P) was taken as 50% and absolute precision (d) was taken as 5%. Simple random sampling method was used for data collection. A total of 551 participants were enrolled after explaining to them the aim of the study and informed consent was obtained. Girls residing in hostel belonging to medical, dental, physiotherapy and nursing faculties were included and those who were absent at the time of the survey were excluded from the study. Data was collected using a self administered, pre-structured, anonymous questionnaire which was validated by conducting a pilot study on 30 girls and changes made accordingly. The variables considered in menstrual disorders were defined. Dysmenorrhea was defined as painful menstruation of sufficient magnitude, so as to incapacitate day to day activities. Menstrual cycle length was considered abnormal if the cycle was less than 21 days or more than 35 days. Menorrhagia was defined as use of 4 or more fully soaked pads a day for any duration or bleeding for more than 8 days during menstrual period. The questionnaires were checked for completeness and data entered in MS-excel and analyzed using SPSS-21 software. Chi square test was used to determine the statistical association and 5% level of significance ($P<0.05$) was considered significant (two tailed).

RESULTS

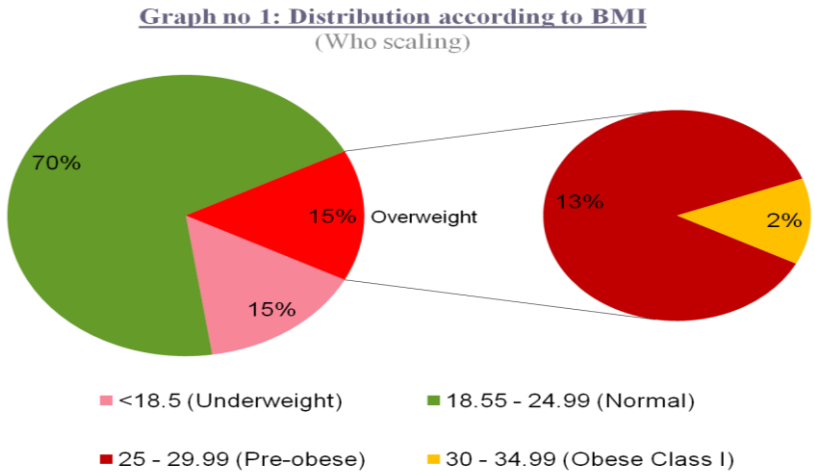
The age of the participants ranged between 17 - 31 years, the mean age was 20.70 ±1.67 years. About 94% were from urban area and 6% from rural area. Majority of them i.e. 454 (82.39%) came from nuclear family while 97 (17.60%) were from joint family. [Table No.1]

Table 1: Socio-demographic data (N =551)

Characteristics	Frequency
Age (in years)	
<18	7(1.27%)
18-21	335(60.79%)
22-25	198(35.93%)
>25	11(1.99%)
Type of family	
Nuclear	454(82.39%)
Joint	97(17.60%)
Residence	
Rural	33(5.98%)
Urban	518(94.01%)

The primary source of information for menstruation was mother in 469 (85.11%) girls followed by sister in 46 (8.34%) and other sources like magazines/ T.V. in 36 (6.53%) girls. Out of all 551 participants, 82 (15%) were underweight and 82 (15%) were overweight, in which 71

(13%) were pre obese and 11 (2%) were came under obese class I category. [Chart 1]



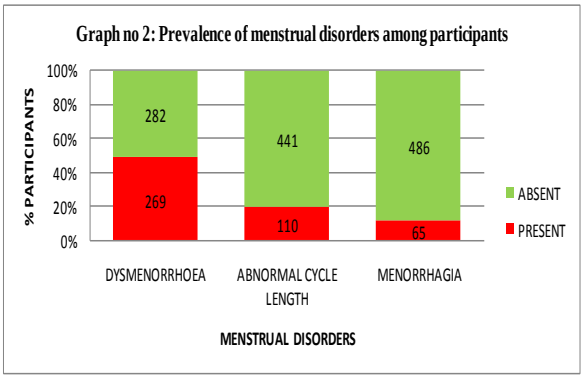
The mean age of menarche was 13.12 ±1.44 years and range is 6 -17 years. Age of menarche for majority of girls i.e. 310 (56.36%) was between 12-13 years and 14-15 years for 38 (06.89%) girls and 190 (34.48%) girls had attended their menarche at age less than 11 years. The length of menstrual cycle for majority i.e. 441 (80.03%) of the girls was between 21-35 days. A few 27 (4.90%) reported it to be less than 21 days and 83 (15.06%) said it was more than 35 days. The duration of flow was 3-7 days for 480 (87.11%) and 48 (8.71%) and 23 (4.17%) girls reported that it was less than 2 days and more than 8 days respectively. The amount of bleeding was <4 pads/day in 502 (91.10%) girls whereas >4 pads/day in 49 (8.89%). [Table No.2]

Table 2: Menstrual patterns of the respondents (N =551)

Characteristics	Frequency
Age of menarche (in years)	
≤ 11	190 (34.48%)
12-13 years	310 (56.26%)
14-15 years	38 (06.89%)
≥ 16 years	13 (02.35%)
Length of the cycle (in days)	
<21 days	27 (4.90%)
21-35 days	441 (80.03%)
>35 days	83 (15.06%)
Duration of flow (in days)	
<3 days	48 (8.71%)
3-7 days	480 (87.11%)
>8 days	23 (4.17%)
Amount of flow	
<4 pads/day	502 (91.10%)
>4 pads/day	49 (8.89%)

The most common premenstrual symptom was reported as pimples by 293 (53.17%) girls followed by fatigue in 352 (63.88%), breast discomfort in 129 (23.41%) girls and the commonest menstrual symptoms noted were mood swings and irritation seen in 342 (62.06%) girls followed by headache and backache in 291(52.81%) girls. Nausea and vomiting was seen in 104 (18.87%) girls. Social withdrawal and college absenteeism during menstruation was reported by 137 (24.86%) and 147 (26.67%) girls respectively.

Dysmenorrhea was reported as most common menstrual disorder by 269 (48.82%) girls followed by abnormal cycle length which was seen in 110 (19.96%) girls and menorrhagia in 65 (11.80%) girls. (Graph No.2)



Among those who were suffering from dysmenorrhea 151 (56.13%) preferred taking medicines whereas 109 (40.52%) preferred other form of remedies like use of hot bag etc. and 9 (3.35%) did nothing for

the pain. Of the 151 girls taking medications, 95 (62.91%) were self-medicated. Dysmenorrhea shows statistically significant association with history of menstrual disorders in family (χ^2=18.66, P<0.001), social withdrawal (χ^2=19.07, P<0.001) and college absenteeism (χ^2=6.503, P<0.01) [Table No 3] and whereas it did not show significant association with BMI, daily exercise and regular consumption of fast food.

Table 3: Univariate analysis of dysmenorrhea

Variable	Dysmenorrhea		Chi-square value	P value
	Present	Absent		
Family History				
Present	54	21	18.669	<0.001
Absent	215	261		
Social Withdrawal				
Present	89	48	19.017	<0.001
Absent	180	234		
College Absenteeism				
Present	84	62	6.036	0.014
Absent	185	220		
Total	**269**	**282**		

Table 4: Univariate analysis of menstrual cycle

Variable	Cycle length		Chi-square value	P value
	Normal	Abnormal		
Family History				
Present	46	29	19.006	<0.001
Absent	395	81		
Social withdrawal				
Present	92	45	18.940	<0.001
Absent	349	65		
College absenteeism				
Present	335	40	6.869	0.007
Absent	106	70		
BMI				
Underweight	66	17	7.549	0.023
Normal	313	66		
Overweight	62	27		
Total	**441**	**110**		

Table 5: Association between Cycle length and Dysmenorrhea

Cycle length	Dysmenorrhea		
	Present	Absent	Total
Normal	206	235	441
Abnormal	63	47	110
Total	**269**	**282**	**551**
X2 = 3.930, d.f.=2, P = 0.047			

Table 6: Association between Cycle length and Menorrhagia

Cycle length	Menorrhagia		
	Present	Absent	Total
Normal	44	397	441
Abnormal	21	89	110
Total	**65**	**486**	**551**
X2 = 7.028 , d.f.=2, P = 0.008			

Of those who had abnormal cycle length, 77(70%) believed it was altered by stress. Abnormal cycle length shows significant association with history of menstrual disorders in family (χ^2=19.006, P<0.001), social withdrawal (χ^2=18.940, P<0.001), college absenteeism (χ^2=6.869, P=0.007) and BMI (χ^2= 7.549, P=0.023). [Table no 4]

Abnormal cycle length also shows significant association with dysmenorrhea (χ^2= 3.93, P= 0.047). [Table no. 5] and Menorrhagia only shows significant association with cycle abnormality (χ^2 = 7.028, P = 0.008). [Table No 6]

In present study poor the health care seeking behavior of the respondents was observed out of 269 girls who had dysmenorrhea, only 75 (27.88%) sought medical help. Of the 110 girls having abnormal cycle length, almost half 52 (47.27%) had consulted a doctor. Of the 65 girls who suffered from menorrhagia, 21 (32.30%) took medical help.

DISCUSSION

Menarche, the first menstruation period of life is a milestone in a female puberty that signifies the maturation of reproductive potential and physiological growth. Age of menarche as reported by our study was 13.12 (±1.44) years. Dambhare DG et al [6] reported the age of menarche to be 13.67 (±0.8) years with no statistically significant difference on the type of residence. Similarly, it was 13.73 (±1.24) years in a study conducted by Waghchavare VB et.al [7] in Sangli district. It was 13.36 (1.25) years in a study conducted by Shabnam Omindar. [8] Polymenorrhea was reported by 8.38% and oligomenorrhea by 22.1% girls in the study conducted by Dambhare DG et.al and prevalence of dysmenorrhea as reported by this study was 56.15%. Similar findings were reported by a study conducted in Gujarat by Verma PB et.al. [9] and our study. The cycle length abnormality was noted in 19.96% girls in our study whereas it was in 14.5% girls in the study conducted by Waghchavare VB et.al. [7] And it was 13.5% in a study conducted by Shabnam Omindar at. College absenteeism was reported by 21% girls by Waghchavare VB et.al. [7] College absenteeism due to dysmenorrhea was

24.76% in the study conducted by Dambhare DG et.al. [6] The current study also shows 31.22% college absenteeism due to dysmenorrhea which is found to be statistical significant associated with dysmenorrhea and cycle irregularity.

CONCLUSION

Menstrual and reproductive health is a fundamental right of females. This study concluded that the onset of menarcheal age has been declining. Dysmenorrhea is a most prevalent menstrual disorder among young females. Poor health seeking behavior was observed among participants and the majority of them relied on self medication. Family history of menstrual disorders, social isolation, college absenteeism and body mass index were found to be associated with menstrual disorders.

Recommendations

Health promotion is the best way to tackle menstrual problem effectively. It can achieve through comprehensive health education program. Health education should include in the secondary school curriculum. Health seeking behavior should be encouraged by creating awareness through sexual and reproductive health counseling by an expert.

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