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Original Research Article

Prevalence of menstrual disorder among college girls and correlation with body mass index

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ABSTRACT

Background: Menstrual irregularity is the most common gynaecological disorder in all age group. Adolescence is a transitional period between childhood and adulthood and involves physical, biological and psychosexual changes and is characterized by hormonal changes. Aim of this study was to find out the prevalence of menstrual abnormality in college girls in Madurai and their association with their Body mass Index (BMI).
Methods: A cross sectional study was conducted among 200 girls of age group 18-22 years in a college in Madurai after getting their consent from college authorities and students. All details regarding their age of menarche, type of menstrual disorder and their BMI, stress factors were collected. The results were compared using chi square test and the pattern of menstrual abnormality and its relation with BMI and with stress was obtained.
Results: The average age of menarche was 13.38 years in our study, irregular cycle was present in 47.5%, dysmenorrhoea was the commonest disorder and accounts for 26% students requiring medical treatment. Underweight students have irregular cycles compared to other groups. Stress had a significant correlation with menstrual irregularity.
Conclusions: Many students in our study was under obese category, lifestyle modification like regular exercise, avoiding junk food and promoting healthy eating habits should be emphasised among students to have a healthy life. Students should also be informed about menstruation, physiological changes and its importance.

Keywords: Adolescence, BMI, Menstrual disorder, Stress

INTRODUCTION

Menstrual irregularity is the most common gynaecological disorder in adolescent group. Adolescence is a transitional period between childhood and adulthood and involves physical, biological and psychosexual changes and is characterized by hormonal changes. Hormone imbalance is due to immature Hypothalamic-pituitary-ovarian axis, thyroid dysfunction, and polycystic ovarian syndrome. Some of the common problems that the adolescent girls encounter are dysmenorrhoea, menstrual flow disorder and pre-menstrual symptoms. 75% of the adolescent girls encounter some problems associated with menstruation.[1] Dysmenorrhoea is the most common in young girls which is defined as painful menstrual flow.[2] Pre- menstrual syndrome (PMS) is defined as collection of physical and psychological symptoms that the girl experience during luteal phase of the menstrual cycle. More than 90% of these problems are preventable by early diagnosis and proper treatment.[3]

An etiological relationship exists between menstrual problems, BMI, dietary habits, exercise and psychological stress.[4] The aim of the study is to find out the prevalence of menstrual abnormality in college girls

in Madurai and their correlation with their BMI and psychological stress with their menstrual disorder.

METHODS

This is a cross sectional study done at Shautrastra girls college in Madurai belonging to 18-22 years after taking consent from the college authorities and ethical committee of our hospital. Students and college authorities were explained about the purpose of the study and questionnaires were distributed to those willing to take part in the study. Details regarding their age of menarche, menstrual disorder (dysmenorrhoea, menorrhagia, oligomenorrhoea, pre-menstrual syndrome) and stress factors were collected. Anthropometric data (height and weight was measured). BMI was calculated by the formula weight in kilogram divided by height in metres squared (kg/m^2). Students who did not attain menarche, who have some health problems and those not willing for the study were excluded from the study.

For the study, authors decided the following definition. Regular menstrual cycle is prior 3 cycles regular with normal flow (3-5 days) with regular cycle length (22-35 days). Irregular cycle is abnormality in length of the cycle either less than 22 days or more than 35 days cycle. Menorrhagia is defined as bleeding either more than 8 days or heavy flow with clots passage or using more than 5 pads per day. Dysmenorrhoea is painful menstrual cycle. In this study, dysmenorrhoea is considered as painful menstruation seeking medical treatment. Pre-menstrual symptoms are head ache, bloating, nausea, breast tenderness, swelling of extremities or pain abdomen in the luteal phase of the cycle. Emotional symptoms like irritability, anger, depression, anxiety were also collected.

Statistical analysis

Prevalence of each menstrual disorder was calculated. Comparison between BMI and stress with menstrual irregularity was also calculated. Statistical analysis was done using SPSS software and p value <0.05 was considered as statistically significant.

RESULTS

Among 200 students participated in the study the average age of menarche is 13.38 years. Most of the students had normal menstrual cycle 104 students (52%), 52students (26%) had dysmenorrhoea which is the most common disorder presented. 50 students (25%) had irregular cycles with or without dysmenorrhoea and 150 students (75%) had regular cycles. Among irregular cycles 19 students (9.5%) had oligomenorrhoea, 17 students (8.5%) had menorrhagia and only 8 students (4%) complained of pre-menstrual syndrome.

The total number of students with normal BMI was 42 (21%), 4 students fall underweight constituting 2%, overweight were 62 students (31%) and obese were 92 students (46%). Stress was present in 43 students (21%).

Table 1: Descriptive statistics.

Age	Total number	Minimum	Maximum	Mean	Std. Deviation
Age	200	18	29	19.62	1.137
Age of menarche	200	11	16	13.38	1.029

Table 2: Type of Menstrual disorder.

Type	Frequency	Percent
Dysmenorrhoea	52	26
Menorrhagia	17	8.5
Normal	104	52
Oligomenorrhoea	19	9.5
Premenstrual syndrome	8	4
Total	200	100

Our aim of the study is to find the correlation between BMI and menstrual disorder. We found that irregular cycle was common in students with BMI <18.5, 50% of them had menorrhagia, whereas only 25 students (59.5%) had irregular cycles in normal weight category. Among overweight group 45.2% students had irregular cycle and 42.4% students had irregular cycle among obese group. Menorrhagia was the common finding seen in students with BMI <18.5. Among normal weight students 40.5% had normal cycle, 35.7% had dysmenorrhoea, 4.8% had menorrhagia, 14.3% had oligomenorrhoea and 4.8% had pre- menstrual syndrome. Among overweight and obese group most common disorder was dysmenorrhoea which was 22.8% and 26% respectively, menorrhagia was present in 8.7% in overweight and 8.5% in obese group.

Stress factors had a significant correlation with menstrual irregularity. Irregular cycle was present in 72.1% of students with stress whereas only 40.8% had irregular cycle in those with no significant history of stress.

Table 3: BMI and its relation with menstrual disorder.

BMI			Type					Total
			Dysmenor	Menorr	Normal	Oligo	Premens	
BMI	< 18.5	Count	1	2	1	0	0	4
		%	25.0%	50.0%	25.0%	0.0%	0.0%	100.0%
	18.5 - 24.9	Count	15	2	17	6	2	42
		%	35.7%	4.8%	40.5%	14.3%	4.8%	100.0%
	25.0 - 29.9	Count	15	5	33	7	2	62
		%	24.2%	8.1%	53.2%	11.3%	3.2%	100.0%
	>= 30	Count	21	8	53	6	4	92
		%	22.8%	8.7%	57.6%	6.5%	4.3%	100.0%
Total		Count	52	17	104	19	8	200
		%	26.0%	8.5%	52.0%	9.5%	4.0%	100.0%

Table 4: Stress and relation with menstrual disorder.

Stress			Disorderly		Total
			No	Yes	
Stress	No	Count	93	64	157
		%	59.2%	40.8%	100.0%
	Yes	Count	12	31	43
		%	27.9%	72.1%	100.0%
Total		Count	105	95	200
		%	52.5%	47.5%	100.0%

DISCUSSION

Menstruation is important part of normal sexual and reproductive health. The changes in menstrual cycle in reproductive age affect physical and psychological well-being. The mean age of menarche in present study was 13.38 years (Table 1) which was consistent with study conducted by ShabnamOmidvar and Khyrunnisa begum (13.4±1.2 years) and study conducted by Solanki H and Vibha G (14.5 years).[5,6] In another study conducted by Nirmal JL it was 12.6±1.32 years which was less when compared our study.[7] The age of menarche depends on constitutional, nutritional, socioeconomic and general health of the students.

In this study, 47.5% had irregular cycle and 52.5% had regular cycles which were comparable with study conducted in Nigeria found to have regular cycles in 63.5% and 36.5% had irregular cycle.[8] Another study had 34.6% with irregular cycle conducted by Ekpenyong CE.[9] Whereas study conducted by Nirmala JL had on 29% students with irregular cycle.[7] Dysmenorrhoea was the commonest disorder present in our study 26% (Table 2) which was compared with the study conducted by Solanki H, were 26.7% students had dysmenorrhoea which require medical treatment.[6] It was also comparable with study conducted by Nirmala JL were 30% require medical treatment.[7] Dysmenorrhoea was significantly present among students with normal body weight 35.7% (Table 3) which was comparable with study conducted by Begum J et al.[10] In the present study irregular cycle was common among students with BMI <18.5 (75%) which was not comparable with other studies. Menorrhagia was present in 50% of them which was not compared with other studies. Other studies have a significant correlation with increased BMI and irregular cycles. Some studies have no significant correlation between BMI and menstrual irregularity.[11] Stress had a significant correlation with menstrual irregularity. In our study 72.1% had irregular cycle in students with history of stress (Table 4) which was comparable with study conducted by Esimai et al, which were around 30-50%.[12] Most of the students experienced menstrual problems nearing the examination and thus confirms that stress has a major role in menstrual disorders.

CONCLUSION

Many students in our study was under obese category, lifestyle modification like regular exercise, avoiding junk food and promoting healthy eating habits should be emphasised among students to have a healthy life.

Students should also be informed about menstruation, physiological changes and its importance. There are some limitations in the study were socioeconomic status and family details were not collected.

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