

Dysmenorrhoea among Adolescent Females Attending a Suburban Medical College in West Bengal, India

Shelley Seth¹, Joydip Paul², Anindya Das³

^{1,3} Department of Obstetrics & Gynaecology, RG Kar Medical College & Hospital, Kolkata, West Bengal, India, ² Department of Obstetrics & Gynaecology, College of Medicine & Sagore Dutta Hospital, Kamarhati, Kolkata, West Bengal, India.

ABSTRACT

BACKGROUND

Dysmenorrhoea is the most common gynaecological problem. Almost half of the female adolescents suffer from it resulting in a major cause of school / college absenteeism. We tried to find out the prevalence of dysmenorrhoea among female adolescents in a suburban population and investigate a potential association between the body mass index, dietary habits and behavioural factors and its correlation with absenteeism.

METHODS

A cross sectional study was done on 270 adolescent females attending outpatient department of a suburban medical college. We interviewed the selected adolescent girls using a pretested semi structured questionnaire after obtaining their or their parents consent. Statistical analysis was done using frequencies, percentages and chi square test with statistical software package SPSS version 20.

RESULTS

Total 270 unmarried adolescent girls were interviewed. Among them 51.1 % girls suffered from dysmenorrhoea. 58.7 % patients suffered from mild dysmenorrhoea whereas 27.5 % and 13.8 % suffered from moderate and severe dysmenorrhoea respectively. 59.02 % of girls with normal BMI and 54.55 % of obese girls suffered from dysmenorrhoea. Only 16 % patients with mild dysmenorrhoea were absent from their school or college whereas 63.1 % and 84.2 % of patients with moderate to severe dysmenorrhoea had school or college absenteeism respectively. 74.47 % of patients used to take self-medication.

CONCLUSIONS

Dysmenorrhoea was a significant cause of absenteeism and habit of self-medication was prevalent. Introduction of a school health program for menstrual health might improve the issues.

KEY WORDS

Menstruation, Dysmenorrhoea, Adolescents

Corresponding Author:
Dr. Shelley Seth,
26/1B, Seven Tanks Lane,
Kolkata - 700030,
West Bengal, India.
E-mail: seth_shelley@yahoo.com

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BACKGROUND

Adolescence is a critical link in between childhood and adulthood and is characterized by physical, mental, and endocrinological growth spurt. The period of adolescence for a girl is a period of physical, psychological and social transitions and a preparatory phase to become a responsible citizen. The population of adolescent girls is a vulnerable one which is usually neglected in uneducated, lower socioeconomic status regarding health. The potentiality of adolescent girls in every aspect of life is affected by menstrual morbidities and lack of proper knowledge about this physiological process leads to psychosocial stress for those young girls. Though the conditions are not life threatening, the menstruation related health problems frequently reduces the productivity of the young population. Only proper health education about menstrual hygiene can reduce their sufferings.

Dysmenorrhoea is a very common condition and a large number of young girls suffer from this condition. Many studies show that almost 50 – 75 % girls during adolescence suffer from dysmenorrhoea.¹ WHO defines adolescents as persons between 10 and 19 years of age and many studies throughout the world consider this age range as the standard. We will consider the WHO defined age range of 10 - 19 years while considering adolescence in our study.

Dysmenorrhoea describes painful menstrual period due to uterine contractions. It is commonly divided into primary dysmenorrhoea and secondary dysmenorrhoea. Secondary dysmenorrhoea is pelvic pain associated with a detectable organic pathological condition, such as endometriosis. Primary dysmenorrhoea is a painful menstrual period in women with normal pelvic anatomy, that usually begins during adolescence.² Women suffer from sharp, intermittent spasmodic pain usually over the lower abdomen. Pain usually radiates to the lower back or legs. Fatigue, headache or light headedness, nausea, vomiting, diarrhoea, and mild fever are very common systemic symptoms. Patients complain of commencement of pain within few hours of starting of menstrual period and increased intensity till the heaviest flow usually during the first two days.² The aetiology of primary dysmenorrhoea is probably due to a chemical imbalance in the body, and most of the symptoms are explainable by action of particularly PGF_{2α}, a uterine prostaglandin. With the starting of menstrual period, PGF_{2α} is released from the degenerating endometrial cells. It stimulates the contractions of myometrium, ischemic changes to the endometrium and sensitizes the nerve endings. The symptoms of primary dysmenorrhoea peak during the highest level of PGF_{2α} during the first two days of menstrual period.

About 15 % of adolescent girls feel that their menstrual pain is severe enough to cause regular absenteeism from school and work.³ Many studies have shown that adolescents who are suffering from dysmenorrhoea complain of interruption in their social, academic and sports activities.⁴

No previous study has been done in this suburban population regarding dysmenorrhoea. In this study we tried to explore the neglected aspects of a very common menstrual disorder in a population of lower socioeconomic status with poor health education. We tried to find out the prevalence of dysmenorrhoea among female adolescents and determine the association of it with the body mass index, dietary habits,

medicine taking behaviour and absenteeism from school or college.⁴

METHODS

A cross sectional descriptive study was undertaken among the adolescent females between the age of 10 and 19 years attending the Gynaecology Out Patient Department (OPD) of College of Medicine & Sagore Dutta Hospital, Kamarhati, North 24 Parganas from June 2014 to May 2015. Inclusion criteria were unmarried adolescent girls who were suffering from dysmenorrhoea, and attended school or college and gave consent for this study. Exclusion criteria were adolescent girls who were married, not attending school or college regularly and did not give consent. According to the study of Agarwal et al.⁵ considering the prevalence of dysmenorrhoea to be 79.67 %, absolute error 5 % and type I error 5 %, the sample size was calculated as 249. We observed that around 10 adolescent girls / week attended OPD with complaints of dysmenorrhoea. So in 12 months i.e. 52 weeks we found about 500 patients with dysmenorrhoea. Among them according to the inclusion criteria we included 270 girls. The outcome variable in our study was any history of dysmenorrhoea. Girls who answered positive to the question of having pain during the last three menstrual periods were taken into consideration. We considered girls with dysmenorrhoea as a whole, as division of patients with primary and secondary dysmenorrhoea was not possible in all the cases. We interviewed the selected adolescent girls using a pretested semi structured questionnaire after obtaining their informed consent or if the girl was a minor, with consent from her parents. Demographic and other general information about the respondents including age, education, religion, weight, height, dietary habits, and physical exercise were recorded. Responses related to menstruation, elucidated degree of pain, habit of taking medication with or without doctor's advice, absenteeism from school or college were recorded. Body Mass Index (BMI) was calculated from the formula: BMI = weight in Kg / height in m.² A BMI of 25.0 - 29.9 was considered as overweight, the healthy range was 18.0 - 24.9. BMI more than 30 was considered as obese and less than 18 was considered as underweight.

Adolescent girls having painful menstrual periods in the previous three months were considered in our study and the girls with dysmenorrhoea were divided as having mild, moderate and severe degrees of pain. The Verbal-Multidimensional Scoring System⁶ was used to determine the degree of dysmenorrhoea in our study. Student's absenteeism was defined as "temporary cessation of the student, when his presence was expected".⁷ The average absenteeism of 1 or more days in the previous one month was defined as significant absenteeism, in our study because of pain during menstruation. Regular exercise was considered as per CDC guidelines⁸ i.e. "Adolescents should do 60 minutes (1 hour) or more of moderate - to - vigorous intensity physical activity each day, including daily aerobics and activities that strengthen bones (like running or jumping) – 3 days each week". Examples of vigorous activities may include: brisk walking, running, swimming, cycling, playing in playground, dancing. Gaskell Karen Hellesvig defined fast food in his article – "Definition of fast foods".⁹ Privacy and confidentiality was

strictly maintained. Individual identities of the patients were not disclosed.

Statistical Analysis

It was done considering only the parameters. Statistical analysis was done using frequencies, percentages and chi square test with statistical software package SPSS version 20. P value < 0.05 was considered as level of significance.

Data Collection

Actually the data was taken during the posting at CMSDH. The study was done on the population of Kamarhati which is a slum area with population of lower socioeconomic status and the demographic profile remains the same unfortunately in the last 10 years. So the relevance is not lost.

Sample Size

When we were taking sample cases before starting the actual study we found white discharge & pelvic inflammatory disease to be very common among the married adolescent girls as their husbands probably had multiple partners due to migrant job and they suffered from chronic pelvic pain & dysmenorrhoea due to chronic PID. So our findings were influenced by those factors. So we decided to include only unmarried adolescent girls.

Ethical Statement

The study was conducted after getting permission from Institutional Ethics Committee, Gynaecology out patient Department (OPD) of College of Medicine & Sagore Dutta Hospital, Kamarhati.

RESULTS

Total 270 unmarried adolescent girls attending the Gynaecology OPD who fulfilled the inclusion criteria, were interviewed. Among them 51.1 % girls suffered from dysmenorrhoea. Maximum 38.15 % of patients had their menarche at 11 years of age. Most of the girls had their menarche between 10 and 13 years. The mean age was 11.5 years. 38.85 % had the habit of regular physical exercise. Fast food taking habit was found in 52.96 % of girls. In our study showed that 58.7 % patients suffered from mild dysmenorrhoea whereas 27.5 % suffered from moderate and 13.8 % suffered from severe dysmenorrhoea.

	Underweight (BMI < 18) N = 41	Normal (BMI 18 - 24.9) N = 122	Overweight (BMI 25 - 29.9) N = 96	Obese (BMI ≥ 30) N = 11	P Value
Dysmenorrhoea	16 (39.02 %)	72 (59.02 %)	44 (45.83 %)	6 (54.55 %)	0.869

Table 1 Association of Dysmenorrhoea with BMI

Considering Basal Metabolic Rate (BMI), 45.19 % were having normal BMI (18 - 24.9), 35.6 % girls were overweight (BMI 25 - 29.9), 4.1 % were obese (BMI ≥ 30) and 15.19 % were underweight (BMI < 18). Table 1 showed association of dysmenorrhoea with BMI where 39.02 % of underweight girls suffered from dysmenorrhoea whereas 59.02 % of girls with normal BMI, 45.83 % of overweight girls and 54.55 % of obese girls suffered from dysmenorrhoea respectively which was not statistically significant.

	Dysmenorrhoea Present	No Dysmenorrhoea	P Value
Regular exercise (N = 108)	56 (40.6 %)	52 (39.4 %)	0.84
No exercise (N = 162)	82 (59.4 %)	80 (60.6 %)	
Regular fast food (N = 143)	67 (48.6 %)	76 (57.6 %)	0.137
Homemade food (N = 127)	71 (51.4 %)	56 (42.4 %)	

Table 2. Association of Exercise and Dietary Habits with Dysmenorrhoea

Table 2 showed 40.6 % of patients with dysmenorrhoea had the habit of regular exercises whereas 59.4 % of girls suffered from dysmenorrhoea after doing regular exercise. 60.6 % of patients did not have any dysmenorrhoea without doing regular exercise which was not statistically significant. Association of dietary habits showed statistically insignificant association of having regular fast food with dysmenorrhoea. 48.6 % of girls with the habit of taking fast food suffered from dysmenorrhoea whereas 51.4 % girls on homemade food had the same.

Table 3 shows association of sickness absenteeism with dysmenorrhoea. Total 38.41 % of patients with dysmenorrhoea suffered from sickness absenteeism. Only 16 % patients with mild dysmenorrhoea were absent from their school or college whereas 63.1 % and 84.2 % of patients with moderate to severe dysmenorrhoea had school or college absenteeism respectively, which was statistically significant.

	Mild (N = 81)	Moderate (N = 38)	Severe (N = 19)	P Value
Absenteeism present (N = 53)	13 (16 %)	24 (63.1 %)	16 (84.2 %)	<0.00001
No absenteeism (N = 85)	68 (84 %)	14 (36.9 %)	3 (15.8 %)	

Table 3. School / College Absenteeism According to Degree of Dysmenorrhoea

It showed that 56.8 % of patients of mild dysmenorrhoea had to take analgesics during their menstruation whereas 76.3 % and 100 % of moderate and severe dysmenorrhoea patients had to take analgesics respectively. 68.12 % (94 patients) with dysmenorrhoea had to take analgesics during menstruation and 31.88 % (44 patients) did not require any analgesics. Among the patients who were taking analgesics, 46 patients had mild dysmenorrhoea, 29 patients had moderate and 19 patients had severe dysmenorrhoea. Among the patients on medication only 25.53 % (24 patients) of them took medicine according to doctor's advice. The rest 74.47 % (70 patients) took analgesics either from medical shop or medicines suggested or supplied by parents, relatives or friends.

Table 4 showed the modes of taking analgesics among the patients. Total 70 patients i.e. 74.47 % took medicines without

medical advice. So only 25.53 % of girls suffering from dysmenorrhoea took doctor's advice. 89.1 % of patients with mild dysmenorrhoea and 65.5 % of patients with moderate dysmenorrhoea, took medicine without any doctor's advice. 47.4 % of patients with severe dysmenorrhoea took analgesics following doctor's advice. These associations were statistically significant. We used the verbal multidimensional scoring system for assessment of the severity of dysmenorrhoea with reference mentioned at no 6

Mode of Taking Analgesics	Grades of Dysmenorrhoea			P Value
	Mild (N = 46)	Moderate (N = 29)	Severe (N = 19)	
Doctor's advice	5 (10.9 %)	10 (34.5 %)	9 (47.4 %)	0.0037
Without doctor's advice	41 (89.1 %)	19 (65.5 %)	10 (52.6 %)	

Table 4. Association between Severity of Dysmenorrhoea and Self - Medication

Severity Grading	Working Ability	Systemic Symptoms	Analgesics
Grade 0 Menstruation is not painful and daily activity is unaffected	Unaffected	None	None required
Grade 1 Mild. Menstruation is painful but seldom inhibits normal activity; analgesics are seldom required; mild pain	Rarely affected	None	Rarely required
Grade 2 Moderate. Daily activity is affected; analgesics required and give sufficient relief so that absence from school is unusual; moderate pain	Moderately affected	Few	Required
Grade 3 Severe. Activity clearly inhibited; poor effect of analgesics; vegetative symptoms (headache, fatigue, vomiting and diarrhoea); severe pain	Clearly inhibited	Apparent	Poor effect

Table 5. Grading of Dysmenorrhoea

DISCUSSION

Adolescence is the period following the onset of puberty during which there is a transition of a young person from childhood into adulthood. Many studies on dysmenorrhoea have been done on school / college students, medical students etc. But this suburban population consists of adolescent girls who are neglected since their childhood by their parents most of whom were illiterates. We joined a newly developed medical college in that area and due to availability of free services and free medicines these poor neglected adolescent girls started attending Gynaecology OPD with their problems which were totally neglected. No study was done on that population prior to this one. We worked very hard to collect the data by questioning the girls in very busy OPDs. Dysmenorrhoea is the most common gynaecological problem among the adolescent population. Maximum girls had their menarche between 10 and 13 years of age. The mean age of menarche was found to be 11.5 years. It seems mean age of menarche is decreasing when compared with previous studies. Deo et al.¹⁰ conducted a study and found that the age of menarche in menstruating girls varied from 12 to 17 years, among them most girls had their menarche in between 13 and 15 years of age. In another study Dasgupta et al.¹¹ reported the mean age of menarche to be 12.8 years. Whereas the study conducted by Khanna et al.¹² in Rajasthan, reported that the mean age of menarche was 13.2 years.

We found 51.1 % patients suffered from dysmenorrhoea. 13.8 % girls suffered from severe dysmenorrhoea, 27.5 % and 58.7 % suffered from moderate and mild dysmenorrhoea respectively. Ranges of prevalence of dysmenorrhoea varied from 51 % to 80 % in many other studies.^{13,14} Studies conducted in various states of India showed variable rates of prevalence of dysmenorrhoea. Studies on school and college girls with dysmenorrhoea conducted by Anandha Lakshmi et al.¹⁵ in Tamilnadu, Kumbhar SK et al.¹⁶ in Andhra Pradesh, Shrotriya C et al.¹⁷ in Karnataka and Singh et al.¹⁸ in Madhya Pradesh found prevalence of dysmenorrhoea as 51 %, 65 %, 67.5 % and 73.8 % respectively. In one study conducted by Rahma Al - Kindi et al. on school students in Oman, prevalence of dysmenorrhoea was found to be as high as 94 %.¹⁹ Comparatively lower incidence of dysmenorrhoea was reported by Nag (33.84 %).²⁰ Singh et al. found in their study that 63.29 %, 30.37 % and 6.32 % participants suffered from mild, moderate and severe degrees of dysmenorrhoea respectively,¹⁸ whereas in a study conducted by Klein et al.²¹ showed that 14 % girls suffered from severe dysmenorrhoea whereas 38 % suffered from moderate and 49 % from mild dysmenorrhoea.

In our study increase in BMI was not statistically correlated with dysmenorrhoea (P = 0.86, not significant) which corresponds with the findings of Singh et al.¹⁸ However, in few studies like Harlow SD et al.¹ and Andersch B et al.⁶ found that the association of being overweight with dysmenorrhoea was inconsistent. Another study by Parazzini et al. had not found any association with obesity.²² Our study found no association between dysmenorrhoea and physical activity like study of Harlow et al.²³ and with dietary habit which was consistent with study of Parazzini et al.²² Banikarim C et al. showed in their study that 14 – 52 % girls were absent from their school among United States adolescents with dysmenorrhoea, and girls with severe pain missed more school days than girls with mild pain.²⁴ In the present study 38.41 % of patients with dysmenorrhoea suffered from sickness absenteeism. 84.2 % of patients with severe pain missed their school or college classes during menstruation which was much higher compared with other Indian studies probably due lack of proper medical care and ignorance of the guardians.^{18,25}

68.12 % of patients suffering from dysmenorrhoea used to take medicines like analgesics, of which only 25.53 % took doctor's advice. Need for seeking doctor's advice increased significantly with increase in severity of pain. This was consistent with other studies which showed that adolescents took analgesics as over-the-counter medicines and few of them searched for any medical advice.^{24,26} Introduction of a school health program on menstrual health might improve the self- medication habit for dysmenorrhoea.

CONCLUSIONS

Dysmenorrhoea was the prevalent menstrual problem found in the sub-urban adolescent girls under the study. Dysmenorrhoea was a significant cause of absenteeism and habit of self-medication was prevalent. Introduction of a school health program for menstrual health might improve the issues.

Limitations

As it was a cross sectional survey, we could not determine the causal relationship. The participants were the patients who attended the Gynaecology OPD. So they had some problems regarding menstruation, thus not reflecting the general population. The participant girls who were academically poor, might not understand all questions properly. They responded after repeated explanations by health workers. So their responses could not be generalized to all female adolescents of the population. Finally we could not differentiate between primary and secondary dysmenorrhoea, though as we know secondary dysmenorrhoea is not very common in adolescent age group.²⁷

Data sharing statement provided by the authors is available with the full text of this article at jemds.com.

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