



Burden of Primary Dysmenorrhea -Way Forward



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Abstract

Background: Though accurate burden of dysmenorrhea is not very well known, it is probably the most common menstrual disorder, may be most common gynecological disorder too. Reported occurrence is as high as 90 percent in women of reproductive age.

Objective: Present prospective study was carried out with the aim of knowing occurrence of dysmenorrhea, relation to Tanner's stage, school absenteeism.

Material Methods: Postmenarcheal adolescents, 282 school girls were interviewed in their schools. In addition 100 first year medical / nursing students who lived/worked in the same campus, mostly in the same building, willing to be part of the study, were also interviewed. Girls were from rural as well as urban settings, divided according to reporting of presence or absence of dysmenorrhoea.

Results: Mean age of menarche in school girls was 13.4 years, in medical and nursing students also it was 13.1 years. In most school girls (53.32%), pain started in second year after menarche. More of older medical, nursing students reported dysmenorrhoea (21.6% <18 years old and 81.8% in >18 years old). Tanner staging influenced occurrence of dysmenorrhoea more at a given age than age alone. Many girls remained absent from their schools or work regularly because of dysmenorrhoea. Eighty nine per cent school girls regarded menstruation as physiological event but 11% thought it was a curse.

Conclusion: Over all dysmenorrhoea was very common. This physiological event needs to be given more attention to decrease absenteeism from school, work, also help girls to cope better with dysmenorrhoea till there is more information about prevention.

Background

Though an accurate burden of dysmenorrhea is not very well known, it is probably the most common menstrual disorder, may be the most common gynecological disorder too. Probably every woman experiences some pain during menstruation at some or the other time in her life. Also primary dysmenorrhea, menstrual pain in the absence of any identifiable pelvic pathology, is by far the most common gynecological disorder which women fail to report even when asked. It has been reported that as high as 90 percent of girls /women of reproductive age get dysmenorrhea. Schroeder [1] has reported the incidence among adolescents around 92%. A prospective study based on diaries kept for one year by college students, revealed that 72 percent of monitored periods were painful and Andrew [2] reported that sixty percent of the women studied reported at least one episode of severe pain. Johnson [3] in his study reported 72.7% incidence. It is the leading cause of periodic short term morbidity in adolescents, which can become a distressing symptom curbing daily activities and causing social withdrawal. It continues to be an important medical problem with financial and social burden to the individual, and

society as a whole and hence research needs to continue. Polat et al. [4] in their study found mean age of menarche 13.3 ± 1.4 years and 45% were found to suffer pain in each menstruation and concluded prevalence of primary dysmenorrhea higher than that cited in the literature. George et al. [5] studied the prevalence of dysmenorrhoea among adolescent girls and reported the range from 60 to 83 percent and many adolescents reported limitation on daily activities. A significant association was found between severe dysmenorrhea, absenteeism from school/work, and basic level of education. Pain associated with dysmenorrhea is believed to be caused by hypersecretion of prostaglandins and an increased uterine contractility. Unfortunately clinicians have unjustifiably tended to adopt a nihilistic approach dismissing the disorder as a normal physiological event. Sometimes the sufferer is labeled neurotic. At individual level it may generate sufficient fear in anticipation of the next menstruation, so much that mental health of the girl during the intermenstrual phase may be severely compromised. Although it is only temporarily disabling, its frequency, regularity and the numbers of sufferers make it worthy of renewed appraisal.

Objective

Present prospective study was carried out with the aim of knowing the occurrence of dysmenorrhea, relation to Tanner' stage and school absentism.

Material Methods

Postmenarcheal 282 adolescent school girls, were interviewed. They were from four schools around the medical institution, where study has been done, selected randomly, depending upon the accessibility from the medical institute, girls' head masters', and parents' permission and willingness to be part of the study. In addition 100 first year medical and nursing students who lived in the same campus, most of the time in the same building, willing to be part of the study, were also interviewed. The study subjects were rural as well as urban. After obtaining necessary consent, they were interviewed with the help of a predesigned questionnaire, developed according to the objectives. Information regarding occurrence of dysmenorrhea and the details as per objectives were collected and analysed. Analysis was done according to the reporting of dysmenorrhea, yes or no.

Results

Mean age of menarche in school girls was 13.4 years and in medical and nursing students also it was 13.1 years, 60.70% school girls from upper economic class [6] had menarche between 10-11 years compared to 19.6% girls from lower middle and middle EC (P=0.0359, significant difference), 80% and 83.33% of upper EC medical/nursing students also had an earlier menarche compared to 28.57% of lower EC (P=0.005 highly significant). Overall of 73 urban medical / nursing students, 65.75% said they suffered dysmenorrhea and of 27 rural, 51.85% reported dysmenorrhea (P=0.20 insignificant difference). Out of 282 school girls, 197(69.85%) reported dysmenorrhea and 85(30.14%) school girls said they did not have dysmenorrhea (Table 1). Over all more urban school girls reported dysmenorrhea than rural, 74.59% and 60.82% respectively ((P<0.016 significant difference). In most school girls (53.32%), pain started in second year after menarche. More of older medical and nursing students reported dysmenorrhea (21.6% <18 years old and 81.8% in >18 years old). Dysmenorrhea increased with chronological age from 56.61% in girls of 12-13 years old to 90.90% in 18-19 years old school girls ((P=0.033 significant difference) (Table 2). Of 153 school girls with gynaecological age (interval from menarche) of one year, 93 (60.78%) reported dysmenorrhea. Of 99 school girls with gyn age of 2-3 years 77(77.70%) reported dysmenorrhea. Of 30 girls with gyn age 4-7 years, 28 (93.33%) reported dysmenorrhea. Of 3 Nursing/Medical students with gynae age of 1-3 years, no one had dysmenorrhea, of 50 with gyn age 4-7 years, 25(50%), of 38 with gyn age of 8-11 years, 30(78.94%) had dysmenorrhea and all 9 Nursing/Medical students with gyn age of 12-15 years, had dysmenorrhea. However in the beginning during interviews

the reporting of dysmenorrhea deferred at the same age <18-18 amongst school girls (69%) and nursing & medical students (26.66%) (Table 3). Actually during analysis there was gross difference between medical/nursing students and school girls. Interviews had taken place in the months of July / August, when students had joined the medical / nursing schools. On an informal basis when asked the medical / nursing girls admitted that in the beginning they were shy about revealing their problems and were not sure whether they would be made to seek treatment from senior consultants. So many had said they were not having dysmenorrhea. Dysmenorrhea was actually in 73.3%. Over all of 197 girls of 14-15 years, 109 had (55.32%) dysmenorrhea. The pain started one year after menarche. Of 9 girls in upper-middle class, 5(55.55%) had dysmenorrhea. Of 38 girls of lower class, 29(78%) had dysmenorrhea in second year after menarche. Out of 49 girls from upper-middle and middle class, 31 (63.26%) started getting dysmenorrhea 2 years after menarche. Overall 61 out of 282 girls (21.6%) missed school, because of dysmenorrhea, 38 of 185 urban (20.54%) and 23 out of 97 rural (23.71%). Of 38 urban, 11 (28.94%) always missed school, 17 (44.73%) frequently, 10 (26.31%) occasionally. Of 23 rural girls 4 (17.39%) always missed school, 20 (32.78%) for 3 or more days, 10(16.12%) for 2 days and 30 (49.18%) for one day, 39 girls out of 177 (22.03%) of lower middle and lower economic class missed school and 21 of 102 (20.58%) upper middle and middle class missed school (Table 4). Over all 42 of 100 nursing/medical students also said they missed school, 7 of 27 (25.92%) rural and 35 of 73 (47.94%) urban (P=0.0476 significant difference). Of 35 urban girls, 11 (31.43%) always missed school, 13 (37.14%) frequently and 11 (31.43%) occasionally. Of 7 rural girls, 2(28.57%) missed school frequently, one (14.28%) always and 4(57.14%) occasionally. Of 42 girls with school absentism, 10(23.80%) missed school for 3 or more days, 13(30.95%) for 2 days and 19 (45.23%) for one day (Table 5). Of 29 school girls of 12-13 years with dysmenorrhea, 21(72.41%) had described moderate pain, of whom 3(14.85%) missed school and one with severe pain, always missed school. Of 40 girls of 16-17 years, 29(72.5%) described pain as moderate, 9(31.03%) of them missed school and all 8 girls with severe pain, missed school. Of 20 girls between 19-20 years, 6(30%) described pain as mild and one (16.66%) of them missed school and 8(40%) with severe, pain always missed school. Of 29 girls between 21-22 yrs, 8 (27.5%) described pain as mild of whom one (12.55%) missed school and 15 (51.72%) described pain as severe (86.6%) of them missed school (Table 4 & Table 5). Thirty nine girls of 177 middle-lower and lower class missed school and 21 out of 102 (20.58%) and girls from upper middle and middle class missed school. Forty two of 100 medical / nursing girls missed school, 7 of 27 (25.92%) rural and 35 of 73 (47.94%) urban. Of 35 urban girls, 11 (31.43%) always missed school, 13 (37.14%) frequently and 11 (31.43%) occasionally. Of 7 rural, 2 (28.57%) always missed school, one (14.28%) sometimes and 4 (57.14%) occasionally. Of 42 girls who missed school, 10 (23.80%) missed school for more days, 13 (30.95%) for 2 days

and 19 (45.23%) for one day. Dysmenorrhoea also increased with sexual maturity from 38% at age 10 years with Tanner stage 3 to 66% at age 10 years with Tanner stage 5 and from 31% one year post menarche to 78% five years post menarche. In girls between 14-15 yrs. 64% had dysmenorrhoea and it increased to 83.33% in 16-17 yrs old. However in 14-15 yrs old, 50% of girls in Tanner stage III had dysmenorrhoea and 90.12% of girls in Tanner stage IV had dysmenorrhoea. Similarly, 41.6% of girls between 16-17 yrs. at Tanner stage III had dysmenorrhoea compared to 96.55% at Tanner stage IV. Thus, Tanner staging influenced prevalence of dysmenorrhoea, more at a given age than when age was considered alone. In upper and upper-middle class girls of 14-15 yrs. 62.5% girls had dysmenorrhoea with Tanner stage III and 93% had dysmenorrhoea at Tanner stage IV and in middle-lower and lower class girls, 45.45% had dysmenorrhoea at Tanner stage III and 88.23% at Tanner stage IV. Though dysmenorrhoea was slightly less often in the middle-

lower and lower class compared to upper and upper-middle class (65.4% as against 76.2% respectively) dysmenorrhoea frequency increased from Tanner III to Tanner IV in both groups of same age girls from different socio-economic strata. Frequency of dysmenorrhoea increased from 49.6% at Tanner stage III to 90.83% at Tanner stage IV (P=0.0001, significant) and though there were 17 girls of Tanner stage V in the school survey, all of them had dysmenorrhoea putting the frequency at 100% in the present analysis. Of 42 girls with severe pain, 10 (23.80%) belonged to Tanner stage V and of 35 girls with mild pain only 1 (2.8%) belonged to Tanner stage V. Of the 119 girls with Tanner stage IV, 72(60.5%) described the pain as moderate and 30 (25.2%) described the pain as severe. Of 17 girls in Tanner stage V, 10 girls (58.82%) described the pain as severe. Eighty nine per cent school girls regarded menstruation as physiological event but 11% thought it was a curse.

Table 1: Age, Residence & Presence or Absence of dysmenorrhoea Among School Girls and Medical and Nursing Students.

Age (Yrs)	Rural		Urban		Total
	Schol Girls		School Girls		
	DP*	DA*	DP	DA	
10-Nov	0	1	0	0	1
Dec-13	3	9	26	13	51
14-15	38	23	80	30	171
16-17	18	5	22	3	48
18-19	-	-	10	1	11
TOTAL	59	38	138	47	282
	Medical Nursing Students		Medical Nursing Students		
<18-18	0	3	4	8	15
19-20	7	6	13	13	39
21-22	5	4	24	2	35
23-24	2	0	7	2	11
Total	14	13	48	25	100

*DP= Dysmenorrhoea Present

*DA= Dysmenorrhoea Absent

Table 2: *Age, Gynaecological Age and Presence or Absence of Dysmenorrhoea among School Girls.

Ager (Yrs)	Gynecological Age								Total
	0-1		02-Mar		04-May		06-Jul		
	DP*	DA*	DP	DA	DP	DA	DP	DA	
Dec-13	0	0	0	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	1
	9	4	0	0	0	0	0	0	13
	16	9	0	0	0	0	0	0	25
	1	4	0	0	0	0	0	0	5
	3	1	1	0	0	0	0	0	5
	0	2	0	0	0	0	0	0	2
	0	0	0	0	0	0	0	0	0

14-15	1	0	0	0	0	0	0	0	1
	1	1	1	1	0	0	0	0	4
	20	5	12	1	0	0	0	0	38
	27	19	17	8	1	0	0	0	72
	8	5	17	4	0	0	0	0	34
	5	3	4	2	0	0	0	0	14
	0	3	1	1	0	0	0	0	5
	1	0	2	0	0	0	0	0	3
16-17	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	4	0	2	0	0	0	6
	0	1	9	2	2	0	0	0	14
	1	0	7	2	9	0	0	0	19
	0	1	2	1	3	0	0	0	7
	0	0	0	0	1	0	0	1	2
	0	0	0	0	0	0	0	0	0
18-19	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	1	0	0	0	1
	0	0	0	0	0	0	2	0	2
	0	0	0	0	5	0	1	0	6
	0	0	0	0	1	0	0	0	1
	0	0	0	0	0	1	0	0	1
	0	0	0	0	0	0	0	0	0
Total	93	60*	77	22	25	1	3	1	282

*DP= Dysmenorrhoea Present

*DA= Dysmenorrhoea Absent

Table 3: *Age, Gynaecological Age and Presence or Absence of Dysmenorrhoea among Medical and Nursing Students.

Age(Yrs)	Gynaecological Age								Total
	0-3		04-Jul		08-Nov		Dec-15		
	DP*	DA*	DP	DA	DP	DA	DP	DA	
<18-18	0	0	0	0	0	0	0	0	0
	0	2	1	6	0	0	0	0	9
	0	1	2	1	0	0	0	0	4
	0	0	1	1	0	0	0	0	2
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
19-20	0	0	0	2	1	0	0	0	3
	0	0	6	5	1	1	0	0	13
	0	0	8	7	1	2	0	0	18
	0	0	2	2	0	0	0	0	4
	0	0	1	0	0	0	0	0	1
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0

	0	0	0	0	0	0	0	0	0
21-22	0	0	0	0	1	0	0	0	1
	0	0	1	0	8	2	0	0	11
	0	0	2	1	10	3	0	0	16
	0	0	0	0	3	0	0	0	3
	0	0	1	0	1	0	0	0	2
	0	0	0	0	0	0	0	0	0
	0	0	0	0	1	0	0	0	1
	0	0	0	0	1	0	0	0	1
23-24	0	0	0	0	0	0	0	0	0
	0	0	0	0	1	0	6	0	7
	0	0	0	0	1	0	1	0	2
	0	0	0	0	0	0	2	0	2
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0
Total	0	3	25	25	30	8	9	0	100

*DP= Dysmenorrhoea Present

*DA= Dysmenorrhoea Absent

Table 4: *Age, Socio-Economic Status, Rural, Urban Setting and School Absentism.

Ses	Age (Yrs)	School Absentism				Total
		Yes		No		
		Rural	Urban	Rural	Urban	
Upper	10-Nov	0	0	0	0	0
	Dec-13	0	0	0	1	1
	14-15	0	0	0	0	0
	16-17	1	0	1	0	2
	18-19	0	0	0	0	0
Upp-Mid	10-Nov	0	0	0	1	1
	Dec-13	0	0	5	4	9
	14-15	1	3	0	1	5
	16-17	1	0	0	1	2
	18-19	0	0	0	0	0
Middle	10-Nov	0	0	1	0	1
	Dec-13	1	1	6	16	24
	14-15	4	5	9	31	49
	16-17	2	2	1	5	10
	18-19	0	1	0	0	1
Mid-Low	10-Nov	0	0	0	0	0
	Dec-13	0	1	0	8	9
	14-15	4	7	13	28	52
	16-17	1	3	4	8	16
	18-19	0	1	0	2	3
Lower	10-Nov	0	0	0	0	0
	Dec-13	0	1	0	11	12

	14-15	5	7	25	24	61
	16-17	3	5	9	1	18
	18-19	0	1	0	5	6
Total		23	38	74	147	282
Age	Dysmenorrhoea	DP*		DA*		
		School Absentism				
		Yes	No			
10-Nov	Mild	0	0	1		1
	Moderate	0	0			
	Severe	0	0			
Dec-13	Mild	0	6	22		51
	Moderate	3	18			
	Severe	1	1			
14-15	Mild	7	18	53		171
	Moderate	15	50			
	Severe	14	14			
16-17	Mild	1	2	8		48
	Moderate	9	20			
	Severe	8	0			
18-19	Mild	1	0	1		11
	Moderate	0	5			
	Severe	2	2			
Total		61	136	85		282

*DP- Dysmenorrhoea Present

*DA- Dysmenorrhoea Absent

Table 5: *Age, Socio-Economic Status, Rural, Urban Setting and School Absentism among Medical and Nursing Students.

Ses	Age (yrs)	School absentism				Total
		Yes		No		
		Rural	Urban	Rural	Urban	
Upper	<18-18	0	0	0	1	1
	19-20	0	1	0	1	2
	21-22	0	4	0	2	6
	23-24	0	0	0	0	0
Upp-mid	<18-18	0	3	0	5	8
	19-20	1	1	1	8	11
	21-22	0	8	0	5	13
	23-24	0	0	0	1	1
Middle	<18-18	0	1	3	2	6
	19-20	1	7	5	6	19
	21-22	1	4	4	3	12
	23-24	0	5	0	3	8
Mid-low	<18-18	0	0	0	0	0
	19-20	1	1	4	1	7
	21-22	1	0	3	0	4
	23-24	2	0	0	0	2

Lower	*There was no girl in the lower socio-economic status group					
Total		7	35	20	38	100
Age	Dysmenorrhoea	DP*		DA*		
		School Absentism				
		Yes	No			
<18-18	Mild	0	0	11		15
	Moderate	4	9			
	Severe	0	0			
19-20	Mild	1	5	19		39
	Moderate	4	2			
	Severe	8	0			
21-22	Mild	1	7	6		35
	Moderate	4	2			
	Severe	13	2			
23-24	Mild	0	1	2		11
	Moderate	3	1			
	Severe	4	0			
		42	20	38		100

Discussion

Dysmenorrhoea is a highly prevalent disorder and continues to periodically plague girls / young women. The reported prevalence was 55% in school and college girls in the study by Hedge [7]. Patel et al. [8] did a study and reported that the burden of dysmenorrhoea was greater than any other gynaecological complaint, and was associated with significant impact. Social disadvantage, co-morbidity with other somatic syndromes and reproductive factors were determinants of this complaint. The frequency of dysmenorrhoea reported by different researchers is difficult to compare because of the wide variations in the diagnostic criteria, age distribution of the girls, the ethnic, cultural backgrounds, different geographic locations and girls frankness in providing correct information. In the present analysis gynaecological age had a positive correlation with dysmenorrhoea, 60.78% school girls at gyn age 4 to 5 years had dysmenorrhoea. Similar trend was also found in the medical and nursing students with 50% of girls who had pain at gyn age of 4 to 7 years and 78% later. There is increased endometrial prostaglandin production in ovulatory cycles and hence more often pain compared to anovulatory cycles. The fact that dysmenorrhea occurred only in ovulatory cycles has withstood the test of time. Age of menarche at 11-12 years in girls from higher economic class and greater severity of dysmenorrhoea with an earlier menarche has been reported earlier also [9]. Zannoni et al. [10] reported that 68% of the participants complained of dysmenorrhoea, 12 % lost days of school/work monthly because of dysmenorrhoea in a study of 250 cases. Absence from school/work during menses showed an adjusted odds ratio for severe dysmenorrhoea about 28 times greater

than those who did not declare absenteeism. Banikarim et al. [11] reported 38% missing school due to dysmenorrhea and 33% reported missing individual classes. The prevalence of school and work absenteeism provided evidence for the continuing importance of dysmenorrhea as a public health problem of this age group. In the present analysis too many girls reported dysmenorrhea and many remained absent from schools. The pain is difficult to measure in dysmenorrhoea partly because it is usually accompanied by other unpleasant symptoms and partly because the reaction to pain is an individual experience and is affected by the personality of person experiencing pain. In the study by George et al. [5], 28(12%) had mild pain, 77(33%) had moderate pain and 41(17.6%) had severe pain during menstruation. Agrawal et al. [12] studied the prevalence of dysmenorrhea in adolescent girls and reported 79.67% girls having dysmenorrhea. Most of them, 37.96%, suffered regularly from severe dysmenorrhea. Bavit et al. [13] after a study about nutrition and physical activity reported a healthier and more favorable nutrition style and more regular physical activity reduced the severity of dysmenorrhea in girls. Therefore, educational measures are required to raise awareness among young women about the effects of proper nutrition and physical activity on the prevention and reduction of dysmenorrhea complications. The sexual maturity of each subject was graded by using the reference photographic plates developed by Tanner. Frequency of dysmenorrhoea increased from 49.6% at Tanner stage III to 90.83% at Tanner stage IV (P=0.0001, significant) and though there were 17 girls of Tanner stage V in the school survey, all of them had dysmenorrhoea putting the frequency at 100% in the present analysis. Present findings were similar to the study by Klein [14] who had reported that dysmenorrhoea

increased from 38% at Tanner stage III to 66% at Tanner stage V, in girls between 14-15 years, 64% had dysmenorrhoea which increased to 83.33% in 16-17 years old. However at 14-15 years 50% of girls in Tanner stage III and 90.12% of girls in Tanner stage IV had dysmenorrhoea. Similarly, 41.6% of girls between 16-17 years at Tanner stage III had dysmenorrhoea compared to 96.55% at Tanner stage IV. Tanner staging influenced occurrence of dysmenorrhoea more at a given age than when age was considered alone. Decades back in the study of dysmenorrhoea by Klein [14] in United States, of the 2699 postmenarcheal girls prevalence of dysmenorrhoea was 59.7%. Of those reporting pain, 14% described it as severe, 37% as moderate and 49% as mild. The prevalence of dysmenorrhoea increased with age, from 39% in 12 years old to 72% in 17 years olds. Dysmenorrhoea also increased with sexual maturity from 38% at age 10 years with Tanner stage III to 66% at age 10 years with Tanner stage V and from 31% one year post menarche to 78%, 5 years post menarche. In the present study, when medical/nursing students were asked in the beginning very few reported dysmenorrhoea, but when asked again they said by denying, they had put an effective end to further questions inspite of the fact they were informed that it was just research. Actual numbers were 3 times more. So the issue of dysmenorrhea needs to be tackled sensitively. More research is needed so that steps could be taken for prevention.

Conclusion

Dysmenorrhoea was found to be very common. Tanners stage affected dysmenorrhoea more than age. Girls with severe dysmenorrhoea remained absent from school always, though some with mild and moderate too. Decreasing absentism from school, work and help the girls to cope better with this physiological event is the need of hour.

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