

A study of prevalence and impact of dysmenorrhea and its associated symptoms among adolescent girls residing in slum areas of Vadodara city, Gujarat

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Abstract

Background: Almost a quarter of India's population comprises of girls below 20 years and dysmenorrhea is a common problem among them. The magnitude of this problem is not clearly known in India.

Objective: To estimate the prevalence and impact of dysmenorrhea and its associated symptoms among adolescent girls residing in slum areas of Vadodara city, Gujarat.

Materials and Methods: A cross-sectional study, a part of field training of third-year medical students where adolescent girls (14–19 years) who experienced menarche for minimum of 1 year at the time of the study, residing in slum areas of Vadodara city were selected purposively and enrolled a sample of 100 adolescent girls. For compiling data, pretested oral questionnaire was used after obtaining written consent from the participants.

Result: Prevalence of dysmenorrhea was 75%, which is significantly higher among the girls with family history of dysmenorrhea. School absenteeism in 65%, decreased school performance in 56%, adverse effect on daily routine in 73%, and affected social relations in 64%. Prevalence of associated menstrual symptoms 57% in which most common physical and psychological symptom was lower abdominal pain (42%), and emotional instability (46%), respectively. For relief, only 5% girls consulted the doctor, 28% girls resorted to self-medications whereas almost 65% girls resorted to self-help techniques such as rest and home remedies (e.g., hot fomentation and eating fenugreek).

Conclusion: Considering higher prevalence of dysmenorrhea, education on reproductive organs and reproduction to the young girls in their important phase of life is needed to prevent unnecessary suffering and interruptions in their education and daily life.


KEY WORDS: Adolescent girls, associated symptoms, primary dysmenorrhea, slum population

Introduction

Dysmenorrhea or painful menstruation is defined as painful cramps that begin a few hours before the onset of bleeding and may persist for hours or days. It may be either primary (occurs typically between 17 and 22 years of age) when there

is no identifiable cause, or secondary to organic pelvic diseases (more common in older women). It is commonly associated with associated symptoms such as lower back pain, nausea, vomiting, headache, diarrhea, and fatigue. The cause of primary dysmenorrhea has yet to be established. It has been attributed to uterine contractions with ischemia and production of prostaglandin.^[1]

Adolescence is a transition period from childhood to adulthood and is characterized by a spurt in physical, endocrinal, emotional, and mental growth, with a change from complete dependence to relative independence. It is for physical and psychological preparation for safe motherhood. As the direct reproducers of future generations, the health of adolescent girls influences not only their own health, but also the health of the future population. Almost a quarter of India's population

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comprises of girls below 20 years. One of the major physiological changes that take place in adolescent girls is the onset of menstruation, which is often associated with problems of irregular menstruation, excessive bleeding, and dysmenorrhea. Of these, dysmenorrhea is one of the common problems experienced by many adolescent girls.^[2]

The prevalence rates reported for dysmenorrhea vary widely across studies due to the differences in measurement methods, as high as 93% and as low as 16%.^[3] In the Middle East and Egypt, prevalence rate has been estimated to be 75%.^[4] Many adolescents consider dysmenorrhea to be a normal part of the menstrual cycle and thus fail to report their pain to their physicians. The consequences of untreated primary dysmenorrhea range from school absenteeism^[5,6] to disruption of relationships with family and friends.^[6,7]

The true incidence and prevalence of dysmenorrhea are not clearly established in India. George and Bhaduri^[9] stated that dysmenorrhea (87.87%) is a common problem in India. Dysmenorrhea has been estimated to be the greatest cause of time lost from work and school in the USA.^[9]

Materials and Methods

A cross-sectional study, carried out in the biggest slum area of the Vadodara city, Kisanwadi slum during July 2014 to September 2014 as a part of field training of third-year medical students in survey methodology, analysis, and preparing the report. The study population included all the adolescent girls in the area in the age group of 14–19 years experienced minimum of 1 year duration at the time of the study. Using purposive sampling, study enrolled a sample of 100 adolescent girls who gave consent. Study was initiated only after getting permission from the ethical committee of the Sumandeep Vidyapeeth University. The tool used was a pretested oral questionnaire. Items that were included: age at menarche, presence and absence of dysmenorrhea, family history, duration of bleeding, length of cycle, amount of blood flow, irregularity of menstrual cycle, treatment used for pain relief, associated symptoms experienced during menstruation, questions related to effects of dysmenorrhea, such as absenteeism in school, effect on school performance and on quality of life such as daily chores and social relations.

The following criteria were used to define dysmenorrhea:

- Spasmodic menstrual cramps sometimes referred to as “labor-like” pains that begin only a few hours before or with the onset of menstrual flow.
- Lower abdominal or pelvic pain associated with onset of menses and lasting for 8–72 h.
- Lower back pain during menses.
- Medial or anterior thigh pain.

Statistical Analysis

Analysis was done using Microsoft excel software and χ^2 -square test.

Result

Total 100 adolescent girls (14–19 years) were interviewed in this cross-sectional study. All girls were school going, no one was engaged in work/job. Following paragraphs describe the result of the study [Figure 1].

Study showed that menarche between the age of 13–14 years had more prevalence of dysmenorrhea (80%), however statistically it was not significant. When asked about history of menstrual cycle to dysmenorrhic girls, 28% had irregular cycles, 67% experienced moderate-to-severe blood flow, 85% girls had duration of cycle of 21–30 days and 21% had duration of menstruation more than 7 days though there was no statistically significant association between dysmenorrhea and the following: regularity of the cycle, length of the cycle, amount of flow, age at menarche ($P = >0.05$). Associated menstrual symptoms were present among 57% dysmenorrhic girls [Table 1].

Dysmenorrhea seems to be familial problem as out of 60 adolescent girls with family history of dysmenorrhea, 51 (85%) adolescent girls were dysmenorrhic and it was statistically significant.

Table 2 clearly showed that school absenteeism was more (65%) and school performance was also more affected (56%) among dysmenorrhic. Daily routine to carry out household activities was affected among 73% and social relations were affected among 64% among dysmenorrhic girls. Statistically, there was significant association between dysmenorrhea and school absenteeism, school performance, daily activities, and social relations ($p < 0.05$).

Figure 2 showed that Lower abdominal pain (42%) and backache (35%) were the most common reported physical symptoms followed by nausea (26%), vomiting (28%), and diarrhea (30%). And most common psychological symptoms

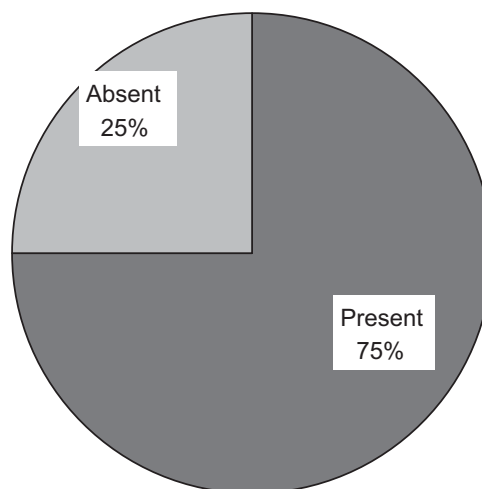


Figure 1: Prevalence of dysmenorrhea (%). Majority of the adolescent girls (75%) under the study experienced dysmenorrhea.

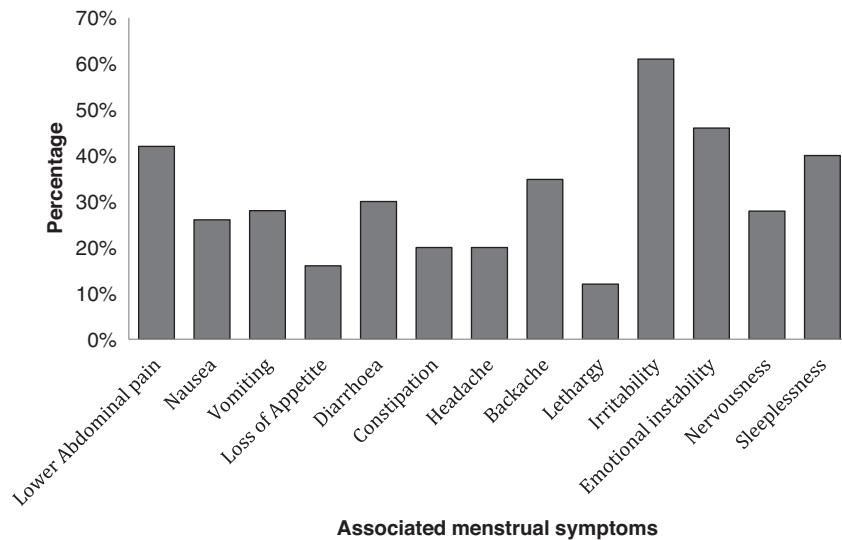


Figure 2: Percentage of dysmenorrhic adolescent girls who had associated menstrual symptoms (%). Dysmenorrhea is known to be associated with a wide variety of symptoms (more than one symptom per person).

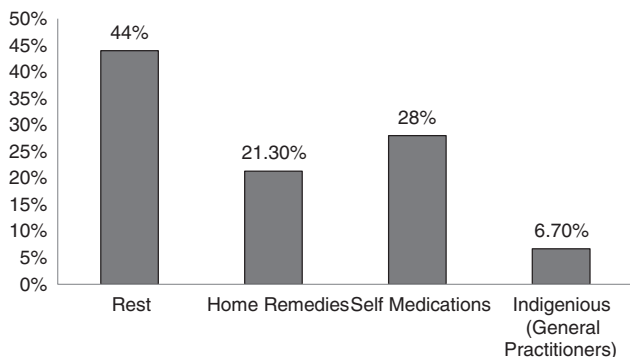


Figure 3: Remedies for relief of dysmenorrhea.

found were irritability (61%) and emotional instability (46%) followed by sleeplessness (40%) and nervousness (28%) among dysmenorrhic adolescent girls. Non-dysmenorrhic girls experienced all these symptoms less [Figure 3].

The girls in urban areas were nervous, sensitive, and could not endure dysmenorrhea so despite the considerable effect of dysmenorrhea, both academically and socially, 28% girls had resorted to self-medications even without the advice of a doctor and only 5% girls consulted a doctor (MBBS/ BHMS/ BAMS) whereas 65% girls resorted to self-help techniques such as rest and home remedies such as hot fomentation and eating fenugreek (*methi*).

Discussion

Prevalence of dysmenorrhea was higher among the target group that affected their quality of life compared to lives

of non-dysmenorrhic girls. Physical activity and relation with family and friends and social mingling were also suffered.

Similar findings are reported by Anil K. Agarwal, Anju Agarwal (79 %) [2] in higher secondary schools in Gwalior, Sharma et al. (67.2 %) [10] among adolescent girls, Sharma and Gupta (67%) [11] in school of Dharan, Sundell [12], and Milsom (67%) among young women born in 1962, Andersch among urban Swedish population of adolescent girls (67%) [13], Harlow and Park (71.6%) [14] among 165 women aged 17–19 years entering a local university in 1985.

Regarding factors associated with dysmenorrhea, a study conducted by Rahma Al-Kindi et al. [15] showed that, among Omani female high school, regular cycles were reported by 59% ($n = 237$) students; a cycle duration of 21–35 days was reported by 89% ($n = 359$); menstrual duration of 2–7 days was reported by 88% ($n = 354$); and little to moderate flow was reported by 95% ($n = 382$). The overall prevalence of dysmenorrhea is 94% ($n = 380$) and the mean age of menarche is 13 years. [15]

In our study, Mean age of menarche among all the girls was 13.4 years. Dambhare DG et al. found that mean ages of menarche is 13.51 years among 1100 school adolescent girls in district Wardha, Central India. [16]

Similar findings by Kumbhar et al. found that of the 183 adolescent girls, 119 (65%) were dysmenorrhic girls and among them 11.8% have irregular cycles and 14.3% experience heavy flow with duration of menses more than 5 days. [17]

In a study conducted by Avasarala and Panchangam in which 66% girls have family history of dysmenorrhea [18] and Kumbhar et al. also observed family history of dysmenorrhea among 81 adolescent girls and 74% girls are dysmenorrhic. [17]

Dysmenorrhea is a major problem representing the leading cause of school absenteeism and affecting routine life. Kumbhar

Table 1: Factors associated with dysmenorrhea

Factors	Dysmenorrhic girls n=75 (%)	Non-dysmenorrhic girls n=25 (%)	Statistical values
Menstrual cycle			
Regular	54 (72%)	20 (80%)	$X^2=0.3$
Irregular	21 (28%)	5 (20%)	P -value >0.05
Amount of blood flow			
Mild (1–4 pads/day)	25 (33.3%)	5 (20%)	$X^2=3.27$
Moderate (5–10 pads/day)	42 (56%)	19 (76%)	P -value >0.05
Severe (2 pads at a time)	8 (10.7%)	1 (4%)	
Length of cycle			
<21 days	9 (12%)	4 (16%)	$X^2=0.4$
21–30 days	64 (85.3%)	20 (80%)	P -value >0.05
>30 days	2 (2.7%)	1 (4%)	
Age at menarche			
<13 years	10 (13.3%)	2 (8%)	$X^2=1.11$
13–14 years	60 (80%)	20 (80%)	P -value >0.05
>14 years	5 (6.7%)	3 (12%)	
Duration of bleeding			
2–7 days	59 (78.7%)	15 (60%)	$X^2=3.4$
8–14 days	16 (21.3%)	10 (40%)	P -value <0.05
Associated menstrual symptoms			
Present (58)	43 (57.3%)	15 (60%)	$X^2=0.05$
Absent (42)	32 (42.7%)	10 (40%)	P -value >0.05
Family history			
Present (60)	51 (68%)	9 (36%)	$X^2=8$
Absent (40)	24 (32%)	16 (64%)	P -value <0.05

Table 2: Impact of dysmenorrhea and associated symptoms

Effect	Number of total girls (n= 100)	Dysmenorrhic girls n=75 (%)	Non dysmenorrhic girls n=25 (%)	Test of significance
Absenteeism in school				
Yes	53	49 (65.3%)	4 (16%)	$X^2=16.39$
No	47	26 (34.7%)	21 (84%)	P -value <0.05
Routine affected				
Yes	61	55 (73.3%)	6 (24%)	$X^2=19.18$
No	39	20 (26.7%)	19 (76%)	P -value <0.05
School performance				
Yes	42	42 (56%)	0	$X^2= (21.89)$
No	58	33 (44%)	25 (100%)	P -value <0.05
Social relations				
Yes	48	48 (64%)	0	$X^2=28.26$
No	52	27 (36%)	25 (100%)	P -value <0.05

et al.^[17] observed that among 119 dysmenorrhic adolescent girls, sickness absenteeism is 47.9%. There is 72% sickness absenteeism among 53 dysmenorrhic adolescent girls residing in urban area observed by Avasarala et al.^[18] Restricted physical activity, poor personal relationship, poor social integration, loss of concentration affecting school performance, routine work are also observed by Kumbhar et al. and Avasarala et al. in their studies.^[17,18]

A study among 600 university students in Iran by Rakhshae showed that academic performance of 69.7% students is affected by dysmenorrhea and 50.3% reported absence from college. Also, more than 60% participants report that their social activities and relationships with family are affected by dysmenorrhea. There is significant association between pain duration and social activities, collage performance, absenteeism, and social relationship.^[19]

Kumbhar et al. observed associated symptoms among 119 dysmenorrhic adolescent girls such as headache, vomiting, and diarrhea (18.5%, 12.6%, and 8.4%) dysmenorrhic girls, respectively. Majority of the dysmenorrhic girls experience disgusted (81.5%), irritability (70.6%), emotional instability (44.5%), loss of interest in regular work (61.3%), disturbed sleep (55.5%), and reduced appetite (52.1%) during menstrual period.^[17] Rakhshae reported the menstrual symptoms such as fatigue (17.9%), irritability (17.6%), headache (7.9%), loss of appetite (7.7%), nausea (7.2%), dizziness (7.1%), decrease in concentration (6.4%), diarrheal (4.2%), insomnia (3.7%), and vomiting (2.7%) among university students.^[19]

Regarding relief of pain, our findings are consistent with other studies carried out by Avasarala et al.^[18] and Kumbhar et al.^[17], in their studies that most adolescents with dysmenorrhea do not consult a health-care provider. Banikarim et al. found among Hispanic adolescent girls that treatments taken for dysmenorrhea included rest (58%), self-medications (52%), heating pad (26%), tea (20%), exercise (15%), and herbs (7%), 14% consulted a physician and 49% to school nurse for help with their symptoms.^[20]

The low rates of consulting doctor may be due to the sensitive nature of dysmenorrhea among adolescent girls, conservative social values and cultural beliefs, and the reluctance of young unmarried girls to consult a doctor, particularly male doctor. This may suggest that there is a significant lack of awareness and knowledge among adolescent girls regarding treatment for dysmenorrhea.

Conclusion

To conclude, this study provides the information on prevalence of dysmenorrhea and its associated symptoms among adolescent girls of the slum areas of Vadodara city. The pain suffered can be severe and its associated symptoms lead to school absenteeism and limitations in social and academic performance and also day-to-day activities. Dysmenorrhea also adversely affects the mood and thereby attitudes in the family and among friends so indirectly affect their quality of life.

The girls in urban areas could not cope up dysmenorrhea and they resorted to self-medications. Despite the considerable impact of dysmenorrhea, both academically and socially, very few girls consulted the doctor. Young girls are unlikely to discuss dysmenorrhea with the doctor, but seek painkillers available over the counter. They seem to accept dysmenorrhea as part of the physiological process of the transition between adolescence and adulthood, which reflects a lack of information about primary dysmenorrhea. So health education on issues related to reproductive health should be incorporated early enough in the school curriculum with the involvement of the school personnel to prepare girls for menstruation and inform them about available treatment options in case they experience dysmenorrhea.

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