Research Article

An urban–rural comparison of menstrual pattern and menstrual problems among school-going girls

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Abstract

Background: Adolescent girls face a number of menstrual problems and this adversely affects their performance in academics, sports, and other extracurricular activities. Taboos and restrictions prevent them from discussing their problems and seeking prompt medical attention.

Objective: To assess and compare the pattern of menstruation and menstrual problems among adolescent school girls in rural and urban areas, to make an analysis of the approach of adolescent girls toward menstrual problems, and to look for urban–rural differences in the same.

Materials and Methods: Data were obtained using a self-administered questionnaire which included student particulars and questions related to menstrual pattern and problems. The girls were also examined for pallor. Data were analyzed with SPSS version 14.0. Descriptive statistics was used to determine mean and percentages. Categorical data were analyzed using χ^2-test. *P*-values were also calculated using the *z*-test for proportions. Statistical significance of differences between urban and rural groups was tested. *P*-value<0.05 was taken as statistically significant.

Result: Significantly higher number of urban girls began menstruating at lower ages of 10 to 12 years (p-value = 0.0002). Menstruation-associated symptoms and symptoms of PMS were more significant in the rural area ($p < 0.05$). Abnormal vaginal discharge, feeling of tiredness, and pallor were significantly more prevalent ($p < 0.05$) in the rural area; and irregular cycles were mostly encountered in the urban area ($p < 0.05$).

Conclusion: Menstrual problems were significantly more common in the rural population.

KEY WORDS: Menstrual problems, adolescent girls, rural–urban

Introduction

Menstruation refers to the cyclic vaginal bleeding from the uterine endometrium. The first menstruation (menarche) occurs between 11 and 15 years of age with a mean of 13 years. The age at menarche is influenced by socioeconomic, geographical, nutritional, and environmental factors.[1] The period of menarche needs special attention because menstruation in adolescent girls is often associated with related problems and poor practices. According to a survey, menstrual disturbances were among first and fourth most commonly reported causes of morbidity among adult women. There is an urgent and unmet need to understand menstrual pattern and problems of adolescents and include it into the primary health-care program.[1]

In a rapidly developing state such as Goa, stress needs to be laid on menstrual problems faced by adolescent girls so that they can be effectively dealt with so that these girls can play an effective role in the nation's path toward progress. Several taboos and restrictions are still rampant in the state of Goa and prevent the girls from discussing their problems and seeking prompt medical attention. Majority of the girls use oral antispasmodic medication for pain relief as per the advice of mothers or friends.[1,2] The adolescent girls are unable to determine the dosage and type of medications taken for

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dysmenorrhea or the self-perceived effectiveness of their use.[2] This can lead to adverse health outcomes. A significant number of girls (70%) experience severe pain during menstruation And their performance in academics, sports, and other extra-curricular activities is hindered.[1–3,5,6,8,9] Studies[1,2,4,12,14,16] have attempted to provide statistical data on pattern of menstruation among adolescent girls. However, urban–rural comparisons on the same are lacking. Longer bleeding periods (>6 days) make adolescents potentially more susceptible to iron deficiency anemia.[8]

With this background knowledge, the study was undertaken to look for menstrual pattern, problems and the approach of adolescent girls toward the same and assess the urban–rural differences, if any, as very few articles have provided an urban–rural comparison.

Materials and Methods

A community-based, cross-sectional study was conducted in high schools of urban and rural areas of north Goa. One government-aided school was selected from the urban field practice area of Urban Health Centre, Santa-Cruz and two schools (one private, one government) were selected from the rural field practice area of Primary Health Centre, Sanquelim. With 50% prevalence of dysmenorrhoea and 10% permissible error, the sample size was calculated to be 384. Girl students of standard VII, VIII, and IX (from the selected schools) who had attained menarche (had undergone at least three menstrual cycles) were considered eligible to participate in the study. Approval for the research was obtained from the Institutional Ethics Committee. After taking permission from the school authorities and class teachers, the study was planned keeping in accordance with school examination and holiday schedule; and mutually convenient dates were decided upon for data collection, examination, and health education sessions. The purpose of the study was expounded to the girl students, in the vernacular language and confidentially was ensured. Informed consent form was prepared and provided to girls based on the WHO guidelines, consisting of information sheet with (1) Certificate of Consent (For parents) and (2) Certificate of Assent (For child). Duly filled forms were collected and only those who gave consent and voluntarily participated were included. 83 girls who did not give consent were dropped from the study and hence a sample of 301 was obtained. Data were collected using a predesigned questionnaire which was translated in the vernacular language. The questions included:

(1) Background information and sociodemographic profile of the participants.
(2) Details about pattern of menstruation, such as date of menarche, regularity of menstrual cycle, and duration and amount of blood flow.
(3) Problems during menstruation such as pain during menstruation, associated symptoms, excessive blood flow, and irregular cycles.
(4) History of experiencing any symptoms of premenstrual syndrome (PMS) such as irritability, nervous tension, headache, dizziness, palpitations, depression crying, confusion, fluid retention, swollen extremities, abdominal bloating, diarrhoea, and backache.

For the study of regularity of menstrual cycle, last three cycles were taken into consideration and for the study of duration and amount of blood flow, only the last menstrual cycle was considered. If any menstrual problem, which required medical attention, was detected among the study participant, they were encouraged to consult a qualified gynecologist.

The questionnaire was explained to the girls and was filled by them in the classrooms. They were examined for the presence of pallor and this sign was checked on the lower palpebral conjunctiva, dorsum of tongue, palms, and nail beds asking them to stand near the window and face natural daylight. A health education session on menstruation for girls is planned and will be conducted in the local language using power point presentations and videos in the respective schools.

Statistics

The data were analyzed using SPSS (version 14.0) software package. Descriptive statistics was used to determine mean and percentages. Categorical data were analyzed using χ^2-test. *P*-values were also calculated using the *z*-test for proportions. Statistical significance of differences between urban and rural groups was tested. *P*–value <0.05 was taken as statistically significant.

Result

A majority of urban (51.77%) and rural (57.14%) girls had menstrual flow for 3–5 days, which implies that it was moderate. Most of the girls in urban (82.64%) and rural (76.9%) areas had normal amount of blood flow. The flow was found to be scanty in 2.08% of urban and 3.8% of rural girls. It was heavy in 15.28% of urban and 19.2% of rural girls. Among girls who reported heavy flow, 77.27% of urban girls and 66.67% of rural girls said that it was heavy during the first 2 days of the menstrual period.

A significantly higher number of rural girls (20.42%) had abnormal vaginal discharge (*p*-value = 0.045). A higher percentage of rural girls had heavy flow and passage of blood clots. Feeling of tiredness and pallor were significantly more common (*p*-value <0.05) among the rural girls compared to the urban girls but their overall percentage was low (feeling of tiredness: 32.65%, pallor: 32.89%). Higher percentage of urban girls had a long duration of bleeding of more than 7 days (9.22%) compared to the rural girls. Irregular menstrual cycles were significantly more common (*p*–value = 0.002) among the urban girls (28.67%). A majority of the girls from both areas experienced dysmenorrhoea (70%). Very few girls (7.35%) had consulted the doctor regarding menstrual abnormalities.

Both physical and psychological menstruation-associated symptoms were more common among the rural population and the association was extremely significant ($p < 0.0001$). The physical symptoms that are associated with menstruation are dizziness, acne, fatigue, flushing, diarrhoea, nausea, and vomiting. Besides, some psychological symptoms such as nervousness, irritability, depression, loss of appetite, headache, and sleeplessness are also experienced during menstruation. Acne, sleeplessness, and nervousness were the common complaints of rural girls whereas a majority of urban girls experienced symptoms of acne and irritability during their menses.

Menstruation associated-symptoms were found to be significantly higher among the girls with complaint of dysmenorrhoea. Common symptoms among girls with dysmenorrhoea were sleeplessness, nervousness, and acne among the rural population; irritability, headache, and acne among the urban population.

Among girls experiencing dysmenorrhoea, the most common location of pain was lower abdomen (63.33%). The pain was found to occur mostly during the first 2 days of the menstrual period (47.62%). A majority (77.14%) of these girls merely took rest or slept for long hours in order to relieve the pain. Of all, 17.62% girls resorted to various medications, mainly OTC medications. Significantly more number of girls from the rural area employed supportive home remedies compared to girls from the urban area. The association was statistically significant ($p = 0.029$). It was found that dysmenorrhoea adversely affects social interactions, academic, and sports performance of the girls. The routine activities of the girls at both home and school are disrupted (28.6%).

Emotional, nonspecific, and psychological symptoms of PMS were more common among the rural population compared to the urban girls. The relation was extremely significant ($p < 0001$). Emotional and nonspecific symptoms of PMS include irritability, headaches, mood swings, depression, confusion, and insomnia. Physical symptoms include bloating of abdomen, dizziness, palpitations, fluid retention, swollen extremities, diarrhoea, increased weight, joint pain, breast heaviness, and breast tenderness. Among the rural population, the most commonly experienced physical symptom was bloating of abdomen (21.8%) and the most common emotional symptom was mood swings (35.9%). In the urban area, the common physical symptom was joint pain (20.7%), whereas the common emotional symptom was irritability (25.5%).

Discussion

In this study, it was found that majority of urban girls began menstruating at lower ages of 10–12 years. A majority of girls had menstrual flow for a period of 3–5 days, which was normal in volume. Heavy flow and passage of blood clots was more common among girls from the rural area. A higher number of rural girls had abnormal vaginal discharge. Feeling of tiredness and pallor were significantly more common among the rural girls compared to the urban girls. Higher percentage of urban girls had a long duration of bleeding of more than 7 days compared to the rural girls. Irregular menstrual cycles were significantly more common among the urban girls. It was seen that menstruation-associated symptoms and symptoms of PMS were significantly more common among rural girls. It was also found that these symptoms were significantly prevalent in girls who reported having dysmenorrhoea. A majority of the girls from both areas experienced dysmenorrhoea (70%). Dysmenorrhea caused heavy impact on performance of the girls in academics, sports and also on social responsibilities and 28.6% reported disruption of their daily activities. A majority (77.14%) of these girls merely took rest or slept for long hours in order to relieve the pain. Of all, 17.62% of the girls resorted to various medications, mainly OTC medications.

The finding in this study of urban–rural difference in the age at menarche is contrary to other studies which failed to find any such difference.[3,7] This is probably due to higher socioeconomic status, increased consumption of fatty foods, and rapid westernization of the urban group. Higher prevalence of menstruation-associated symptoms and symptoms of PMS in the rural group was contrary to a prior study which reported a higher prevalence in the urban group.[3] This could be because of sedentary lifestyle, lack of physical activity, and excessive intake of fatty foods as a result of rapid progress and westernization in the state of Goa. The finding of higher prevalence of menstruation-associated symptoms in girls with dysmenorrhoea is consistent with the findings of Mohamed.[2] The finding that dysmenorrhea posed a hindrance to various activities is also similar to a previous study.[3]

Due to the use of closed-ended questionnaire the exploration of responses was limited with respect to some of the issues. Findings are based on perceptions of the study participants and may also be associated with recall bias.

Higher numbers of girls from urban areas were found to menstruate at lower ages of 10–12 years. This highlights the need to educate younger girls. Menstruation-associated symptoms and symptoms of PMS were significantly more common in the rural population. This implies that girls in rural areas should be encouraged to indulge in more outdoor activities. Also, menstruation-associated problems were significantly more prevalent in girls who experienced dysmenorrhoea, which added to their woes. Girls in the rural area had a significantly higher incidence of abnormal vaginal discharge, feeling of tiredness, and pallor. This stresses the need for promotion of hygienic practices and healthy dietary habits among the rural population. The urban girls had a significantly higher incidence of irregular cycles, which points out that adequate knowledge on diet is lacking among the girls, as it could be the result of altered diet. Supportive home remedies were more significantly used in the rural area for relief of dysmenorrhoea. Although menstrual irregularity can be normal during the first few years after menarche, other menstrual signs and symptoms, such as dysmenorrhea, PMS, and abnormal uterine bleeding

Table 1: Distribution of study participants with respect of age at menarche

Age at menarche	Urban	Rural	Total	*P*-value
	No (%)	No (%)	No (%)	
10–12	105 (74.4)	79 (52.7)	184 (63.2)	$\chi^2 = 13.93$
13–14	36 (25.5)	71 (47.3)	107 (36.7)	df = 1
Total	141 (100)	150 (100)	291 (100)	$p = 0.0002$

Table 2: Menstruation-associated symptoms experienced during dysmenorrhoea among study population

Menstruation associated symptoms (multiple responses)	Urban (*n* = 105)			Rural (*n* = 105)		*P*-value
	Dysmenorrhoea No (%)	No Dysmenorrhoea No (%)	*P*-value	Dysmenorrhoea No (%)	No Dysmenorrhoea No (%)	
Physical	66 (62.86)	18 (45.0)	0.025	84 (80.0)	28 (54.9)	0.001
Psychological	139 (132.38)	18 (45.0)	0.000	173 (164.76)	48 (94.12)	0.000

Table 3: Distribution of study population based on premenstrual symptoms experienced

Premenstrual symptoms experienced (multiple responses)	Urban (*n* = 145)	Rural (*n* = 156)	Total (*n* = 301)	*P*-value
	No %	No %	No %	
Emotional and nonspecific symptoms	117 (80.69)	212 (135.9)	329 (109.3)	0.000
Psychological symptoms	93 (64.14)	160 (102.56)	253 (84.05)	0.000

may indicate a pathological condition, which requires prompt attention and medical advice from a qualified gynecologist. This therefore points out to the need to encourage girls to seek medical attention; and this is possible only via health education.

Conclusion

Menstrual problems were significantly more common in the rural population.

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References

1. Kanotra SK, Bangal VB, Bhavthankar DP. Menstrual pattern and problems among rural adolescent girls. IJBAR 2013;4(8):551–54.
2. Mohamed EM. Epidemiology of dysmenorrhea among adolescent students in Assiut City, Egypt. Life Sci J 2012;9(1):348–53.
3. Thakre SB, Thakre SS, Ughade S, Thakre AD. Urban–rural differences in menstrual problems and practices of girl students in Nagpur, India. Indian Pediatr 2012;49:733–6.
4. Kendre VV, Ghattergi CH. A study on menstruation and personal hygiene among adolescent girls of Government Medical College, Solapur. Nat J Commun Med 2013;4(2):272–6.
5. Sharma P, Malhotra C, Taneja DK, Saha R. Problems related to menstruation amongst adolescent girls. Indian J Pediatr 2008; 75:125–9.
6. Vani KR, Veena KS, Subitha L, Hemanth Kumar VR, Bupathy A. Menstrual abnormalities in school going girls – are they related to dietary and exercise pattern? J Clin Diagn Res 2013;7(11): 2537–40.
7. Dasgupta A, Sarkar M. Menstrual hygiene: how hygienic is the adolescent girl? Indian J Commun Med 2008;33(2):77–80.
8. Rigon F, De Sanctis V, Bernasconi S, Bianchin L, Bona G, Bozzola M, et al. Menstrual pattern and menstrual disorders among adolescents: an update of the Italian data. Italian J Pediatr 2012;38:38.
9. Paul D. *A report of an ICMR funded research project: knowledge and practices of adolescent girls regarding reproductive health with special emphasis on hygiene during menstruation*. New Delhi: National Institute of Public Cooperation and Child Development (NIPCCD), 2007. pp. 1–98.
10. Kamaljit K, Arora B, Singh KG, Neki NS. Social beliefs and practices associated with menstrual hygiene among adolescent girls of Amritsar, Punjab, India. JIMSA 2012;25(2):69–70.
11. Patle R, Kubde S. Comparative study on menstrual hygiene in rural and urban adolescent. Int J Med Sci Public Health 2014;3(2):129–32.
12. Dhingra R, Kumar A, Kaur M. Knowledge and practices related to menstruation among tribal (gujjar) adolescent girls. Ethno-Med 2009;3(1):43–8.
13. Goel MK, Kundan M. Psycho-social behaviour of Urban Indian Adolescent Girls during menstruation. Australas Med J 2011; 4(1):49–52.

14. Zegeye DT, Megabiaw B, Mulu A. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. BMC Women's Health 2009;9:29.
15. Dars S, Sayed K, Yousufzai Z. Relationship of menstrual irregularities to BMI and nutritional status in adolescent girls. Pakistan J Med Sci 2014;30(1):140–4.
16. Shanbhag D, Shilpa R, D'Souza N, Josephine P, Singh J, Goud BR. Perceptions regarding menstruation and Practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India. Int J Collab Res Intern Med Public Health 2012;4(7):1353–62.
17. Deo DS, Chattargi CH. Perceptions and practices regarding menstruation: a comparative study in urban and rural adolescent girls. Indian J Commun Med 2005;30(1):33–4.
18. Juyal R, Kandpal SD, Semwal J, Negi KS. Practices of menstrual hygiene among adolescent girls in a District of Uttarakhand. Indian J Commun Health 2012;24(2):124–8.
19. Jurlander K. "Wash your hair and keep a lemon"—the experience of menstruation among adolescent girls in South India [dissertation]. Malmö University, 2012. Available at: http://dspace.mah.se/dspace/bitstream/handle/2043/14192/wash%20your%20hair%20and%20keep%20a%20lemon2.pdf?sequence=4&isAllowed=y (last accessed on Oct 14, 2014).

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