Menstrual Pattern and Common Menstrual Disorders among Students in Dinajpur Medical College

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With a view to sea at a glance on menstrual pattern, a descriptive cross-sectional study was carried out among 174 purposely selected young college girls of Dinajpur Medical College through self-administered structured questionnaire. Age of the respondents was between 19-25 years with a mean of 21.8±1.6 years. Minimum age at menarche was 9 years, while maximum age was 15 years with mean 12.6 ±1.0 years and median 13 years. It was observed that as many as 152 (87.4%) respondents had regular menstrual cycle, whereas 22 (12.7%) had irregular cycle. Menstrual flow was average in 100 (57.5%), scanty in72 (41.4%) and heavy in 2 (1.2%) respondents. At least 106 (60.9%) respondents conceded that they had painful menstruation (dysmenorrhoea) with a varying degree of severity. Of them, as many as 26 (24.5%) needed medical intervention either by analgesic and/or antispasmodic. About 56 respondents had family history of dysmenorrhoea. To establish relationship between dysmenorrhoea and its family history, conduction of a large scale has been suggested.

[Dinajpur Med Col J 2009 Jul; 2 (2):37-43]

Key words: Dysmenorrhea, menarche, menstrual pattern

Introduction

Menarche, the first menstrual period of life is a milestone in female puberty that signifies the maturation of reproductive potential and physiological growth. It generally occurs approximately 2-.3 years after the initiation of puberty, between the ages of 11 and 14 years in 95% of girls depending on race, ethnicity, socioeconomic and nutritional status.[1]Menarche typically occurs within 2 to 3 years after thelarche (breast budding), at Tanner stage IV breast development, and is rare before Tanner stage III development.[2] Menarche correlates with age at onset of puberty and breast development. In girls with early onset of breast development, the interval to menarche is longer (3 years or more) than in girls with later onset.[3–5] By 15 years of age, 98% of females will have had menarche.[6, 7]

Menstruation is a periodic and cyclical shedding of progestetional endometrium accompanied by loss of blood. This peculiar is only present in women and in higher apes.[8] The menstrual cycle as an additional vital sign adds a powerful tool to the assessment of normal development and the

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exclusion of pathological conditions. Menstrual cycles are irregular during the first year of menarche due to anovulatory cycles. Height, weight and body fat content continue to increase for 1–2 years following menarche and the cycles become regular within 2–3 years.

Typically a menstrual flow lasts 2–7 days in 70–80% of cases, and changing three to five pads per day suggests normal flow. The duration between two menstrual cycles ranges from 21 to 45 days in the 1–2 years after menarche. When ovulatory cycles begin, 60–80% of the cycles are 21–35 days long, which is a similar pattern to that in adults.[9] Some variety of menstrual dysfunction occurs in approximately 75% of adolescent girls, and may affect the life of adolescent and young adult women.[10,11]

Traditionally, primary amenorrhea has been defined as no menarche by 16 years of age; however, many diagnosable and treatable disorders can and should be detected earlier, using the statistically derived guideline of 14 to 15 years of age.[6,7] Thus, an evaluation for primary amenorrhea should be considered for any adolescent who has not reached menarche by 15 years of age or has not done so within 3 years of thelarche. Accordingly, lack of breast development by 13 years of age also should be evaluated.[12]

A number of medical conditions can cause irregular or missed menses in adolescents. Although secondary amenorrhea has been defined as the absence of menses for 6 months, it is statistically uncommon for girls and adolescents to remain amenorrheic for more than 3 months or 90 days - the 95th percentile for cycle length. Thus, it is valuable to begin evaluation of secondary amenorrhea after the absence of menses for 90 days. Therefore, girls and adolescents with chaotically irregular cycles with more than 3 months between periods should be evaluated, not reassured that it is "normal" to have irregular periods in the first gynecologic years.

Dysmenorrhea is one of the most common gynecologic disorders among adolescent girls. It is defined as pelvic pain directly related to menstruation, and is associated with symptoms ranging from headache and back pain to nausea, vomiting and diarrhea. It is classified into two categories: primary when pelvic examination and ovulatory function are normal; and secondary when there is an identifiable gynecological pathology. Primary dysmenorrhea characteristically begins when adolescents attain their ovulatory cycles; generally within the first year after menarche.[13] It is believed that the cause of the pain is excess production of prostaglandins (PG) in the endometrium during the ovulatory cycle. PG stimulates the myometrial contraction and local vasoconstriction that cause the menstrual effluent to be expelled from the uterine cavity. It was shown that women with dysmenorrhea have higher levels of PG in their plasma and menstrual effluent than women without dysmenorrhea.[13] Additionally, elevated serum vasopressin, nitric oxide and interleukin-6 levels have been reported in women with primary dysmenorrhea.[14,15]

Dysmenorrhea is the major cause of activity restriction and college absence in adolescent girls. However, this condition is often considered as physiological pain and ignored by adolescents; and only few adolescents need to consult a physician for menstrual pain.

This cross-sectional study was conducted to determine: (i) the patterns of menstrual cycles associated with the age of menarche; (ii) the prevalence of menstrual disorders; menstrual irregularity, dysmenorrheal and prolonged

menstrual bleeding; (iii) source of knowledge and management strategy of menstrual disorders, especially dysmenorrhea; and (iv) the effect of menstrual disorders on social activities and college attendance among female college students.

Methods

The subjects were student girls from Dinajpur Medical College, Dinajpur, Bangladesh. In total there were 200 female students in different years. We aimed to include at least 75% of the female students in the study. A total of 174 students, who were present at the college at time of the study were asked to complete the anonymous questionnaire of 25 items distributed by the researchers. The aim of the study and the contents of the questionnaire were explained to each subject, and voluntary participation was requested. Subjects who had primary amenorrhea and had a history of abdominal or pelvic surgery were not eligible for the study. All participants gave written informed consent before enrollment.

The questionnaire included data regarding demographic features, menarche age, menstrual pattern, severity of dysmenorrhea and associated symptoms, impact of menstrual disorder on social, sport activities and college attendance, management strategy of the pain, the source of their knowledge about menarche and whether they required medical help (from a doctor, nurse or midwife) for menstrual disorder or not.

Students were asked to identify the year of their first period. Questions such as "Do you remember which grade you were in when you started having period?" were used to help the subjects remember the date. The normal range of menarche age is 10–16 years, and we divided the reported menarche age into three groups: early normal menarche age was considered between 10 and ≤12 years; mid-normal menarche age was between 13 and 14 years; and late normal menarche age was between 15 and <17 years.

Dysmenorrhea was defined as any type of pain or discomfort associated with menstrual period. The severity of dysmenorrhea was defined as mild, moderate and severe based on the pain, limitation of activities and medication taken. Severe dysmenorrhea was defined as clearly inhibition of the daily activities associated with systemic symptoms and poor improvement with analgesics In deciding whether the menstrual pattern of the subjects was regular we were cognizant of the normal variation in the menstrual cycle of 21–35 days with a mean of 28±2 days, while it was considered irregular when it was less then 21 days or more then 35 days. Menstrual flow was considered as scanty, average and heavy one based on number of sanitary towels used per day as mentioned by the respondents(1-2, 3-5 and > 5 sanitary towel per day as scanty, average and heavy menstrual flow respectively).

The data were analyzed manually and with the help of scientific calculator.

Results

A total of 174 female students were selected purposively and interviewed by self structured questionnaire. All of them are from Dinajpur Medical College. Age of respondents was between 19-25years with a mean of 21.1 ± 1.6 years. Of them, 14(8.0%) were married 160(92.0%) are single. Shortest age at menarche was 9 years, highest age was 15 years with a mean age 12.6 ±1.0 years and median13 years. Onset of menarche in 64(36.8%)respondents was at the age of 13 years. Menstrual cycle was regular in 152(87.4%) respondents, whereas 22(12.7%) had irregular cycle (Table 1). Concerning menstrual period, it was found

that a good number of respondents160(92%) had period within 2 to 7 days(Table II).

Table I: Menstrual cycle N=174

Menstrual cycle	Frequency	Percentage
Irregular	22	12.7
Regular	152	87.4
Total	174	100

Table II: Duration of Menstrual period N=174

Menstrual cycle Type	Duration 1 day	2-7 Days	> 8 Days
Regular	2	146	4
Irregular	0	14	8
Total	2	160	12

It was revealed that in 100(57.5%) respondents menstrual flow was average, while in 72 (43.4%) it was scanty and was heavy in 02 (1.1%) respondents (Table III). As discussed in methods, menstrual flow was considered as scanty, average and heave one based on number of sanitary towels used per day as mentioned by the respondents (1-2, 3-5 and > 5 sanitary towel per day as scanty, average and heavy menstrual flow respectively). At least 106 (60.9%) respondents disclosed that they had painful menstruation (Table IV). Regarding severity, it was found that in 68 (64.9%) respondents pain was mild, whereas in 26 (24.5%) respondents it was moderate and in 12 (11.3%) pain was severe in intensity (Figure 1). Those who had dysmenorrhoea, as many as 26 (24.5%) needed medical intervention either by analgesic and/or antispasmodic (Figure 2). Moreover, at least 56 (52.8%) respondents with dysmenorrhoea had family history of dysmenorrhoea (Table V). No significant association was found between menstrual cycle type and severity of menstrual bleeding ($p > 0.05$). Significant association was found between types of menstrual cycles and dysmenorrhoea and with family history($p < 0.05$).

Table III: Menstrual bleeding type of cycle N = 174

Menstrual cycle Type	Menstrual bleeding Average	Scanty	Heavy
Regular	82	64	02
Irregular	18	08	00
Total	100 (57.5%)	72(41.4%)	02(1.1%)

Table IV: Types of menstrual cycle with dysmenorrhoea N=174

Menstrual cycle Type	Dysmenorrhoea Present	Absent
Regular	86	66
Irregular	20	04
Total	106(61.0%	70(39.1%)

Intensity of Dysmenorrhoea

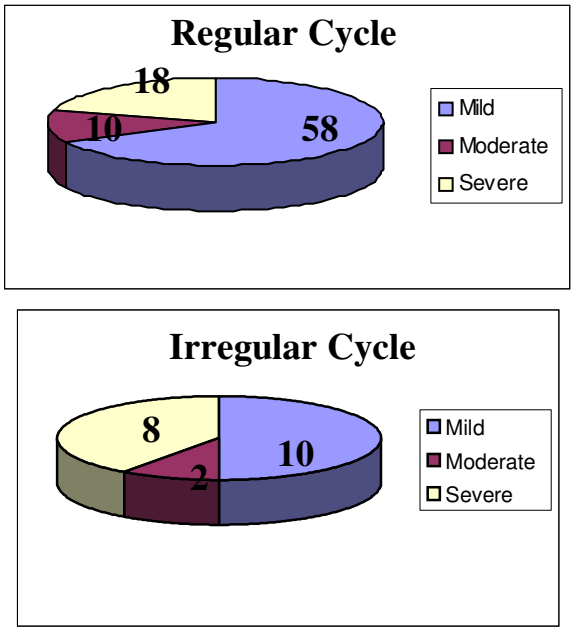
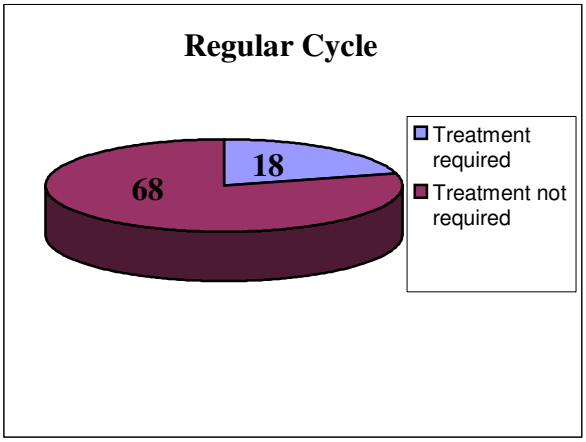


Figure1: Multiple Pie diagram showing severity of dysmenorrhoea with type of menstrual cycle.

Treatment needed



Requirement of treatment for dysmenorrhoea with type of cycle

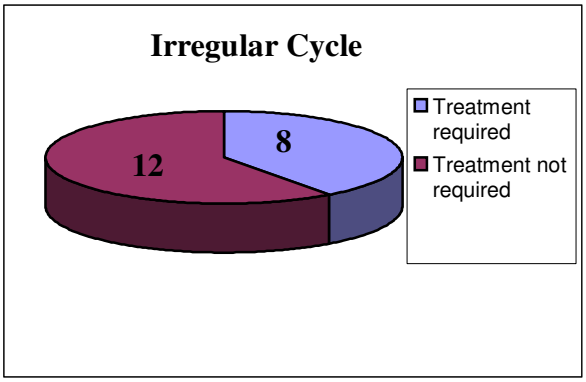


Figure 2: Multiple pie diagram showing requirement of treatment dysmenorrhoea with type of cycle

Table V: Dysmenorrhoea with family history N=106

Dysmenorrhoea Type	Family history of dysmenorrhoea Present	Absent
Regular	38	48
Irregular	18	02
Total	56 (52.8%)	50(47.2%)

Discussion

Adolescence is a time of enormous physical and hormonal change for a young girl. Although organic gynecological pathologies are rare in this period, menstrual disorders may be seen commonly, and may cause further problems for the adolescents and their parents.

The age of menarche is determined by general health, genetic factors, socioeconomic and nutritional status. It is typically between 12 and 13 years; but with the improvements in the nutritional status and general health it has declined in many populations during the last decades.[16,17] In this study the age at menarche was 9-15 years with a mean of 12.6 ±1.0 which is similar to the other studies.[18,19] However, the present results differed to those from another study that was done in Ankara. The mean menarche age was 13 years and 2 months, which was 6 months later than the present one.[20] This may be related to improvement of nutritional and socioeconomic status of the adolescents in recent decades. Median age at menarche was 13 years which is very much related to findings of study conducted by Grover et. al., Singh et. al. and Hedge et. al.[21]

Problems with menstrual pattern may affect 75% of girls, and are the major cause of recurrent short-term school absenteeism in female adolescents.[10,11] Menstrual irregularity and prolonged menstrual bleeding are the most common menstrual disorders in early adolescents. Prolonged menstrual bleeding usually occurs early after menarche due to anovulatory cycles. In anovulatory cycles, estrogen unopposed by progesterone produces an unstable endometrial lining that eventually breaks down, and vasoconstriction and myocardial contractility do not occur.[22]

In respect of regularity of menstrual cycle, it revealed that it was regular in 152 (87.4%)

respondents, whereas 22 (12.7%) had irregular cycle. As many as four respondents had menstrual cycle over ninety days. Regarding menstrual flow, it was found that it was average in 100 (57.5%) respondents, while it was scanty in 72 (41.4%) and heavy in 02 (1.1%) respondents. This is more or less similar to the findings of study conducted by Chowdhury et al.[19,23]

A substantial number of respondents 106 (60.9%) disclosed that they had dysmenorrhoea with various degree of severity. Those who had dysmenorrhoea, as many as 26 (24.5%) needed medical intervention either by analgesic and/or antispasmodic. This can be compared with the study findings of Chowdhury et al.[23] Moreover, at least 56 (52.8%) respondents with dysmenorrhoea had family history of dysmenorrhoea.

Conclusion

The prevalence of dysmenorrhea and menstrual irregularity was high, and most adolescents have inappropriate and insufficient information about menstrual problems. Hence, an education program is needed at the end of primary school about menarche and menstrual problems.

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