



Menstrual pattern and prevalence of dysmenorrhea among school going adolescent girls in a rural block of Haryana: A cross sectional study

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ABSTRACT

Background

The World Health Organization (WHO) has defined adolescence as the age group of 10-19 years. Adolescents in India comprise 19.3% of the total Indian population. Adolescence is a transition phase through which a child becomes an adult. It is characterized by rapid growth and development; physiologically, psychologically and socially. This period is marked by the onset of menarche. Menstruation is a natural, normal biological process experienced by all adolescent girls and women in reproductive age.

Objectives

To study the menstrual pattern and prevalence of dysmenorrhea among school going adolescent girls in a rural block of Haryana.

Methods

There were 18 government high and senior secondary schools in block Lakhanmajra. Out of these 5 were exclusively girls' schools, 10 were co-ed schools and 3 were exclusively boys' schools. All the 5 schools meant exclusively for girls were included in the study. All girls studying in 6th to 12th classes from these schools, after applying the exclusion criteria were included in the study.

Results

The mean age at menarche was 12.83±1.326 years. The inter-menstrual interval was 21 to 35 days in majority (80.1%) of the adolescent girls and the duration of menstruation was more than 7 days in 9.4% of the girls. Majority of the girls (52.1%) reported the duration of menstruation to be 2-3 days.

INTRODUCTION

The World Health Organization (WHO) has defined adolescence as the age group of 10-19 years.¹ Adolescents in India comprise 19.3% of the total Indian population.² Adolescence is a transition phase through which a child becomes an adult. It is characterized by rapid growth and development; physiologically, psychologically and socially. This period is marked by the onset of menarche. Menstruation is a natural, normal biological process experienced by all adolescent girls and women in reproductive age. Among all the developmental

milestones associated with the adolescent years, menarche is the most important. The onset of the first menstrual period is a qualitative event of major significance in a woman's life, denoting the achievement of a major functional state. The bodily changes associated with puberty will have an impact on the girl's physical, psychological and social development. Equipping adolescent girls with adequate information and skills on menstrual hygiene and its management helps in empowering them with knowledge which enhances their self-esteem and positively impacts academic

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performance. Hence for a better management of menstruation it is essential to study the menstrual pattern and the prevalence of dysmenorrhea among the adolescent girls.

MATERIAL AND METHODS

Material and Methods

The study was carried out in community development block Lakhan Majra which is a rural field practice area attached to Department of Community Medicine, PGIMS, Rohtak.

Study population

There were 18 government high and senior secondary schools in block Lakhan Majra. Out of these 5 were exclusively girls' schools, 10 were co-ed schools and 3 were exclusively boys' schools. All the 5 schools meant exclusively for girls were included in the study. All girls studying in 6th to 12th classes from these schools, after applying the exclusion criteria were included in the study.

Sampling procedure

Sample size

Assuming the prevalence of menstrual problems in adolescent girls to be 40%³ and allowable error of 10% at 95 % level of significance the sample size was calculated by using the formula $n=4pq/l^2$ as follows :

Where, p is prevalence of menstrual problems (40%)

q is (1-p)

l is the allowable error i.e. 10% of p

So, $n= 4 \times 0.4 \times 0.6 / (10/100 \times 0.4)^2$.

Using this formula, the sample size came out to be 600 but for the purpose of present study all the girls studying in 6th to 12th classes from these schools

were included after applying the exclusion criteria mentioned below:

Exclusion criteria

- 1) Those who were not willing to participate.
- 2) Those who were absent till the day investigator was working in the school.
- 3) Those who had not attained menarche.

In all 800 girls were included in the study.

Study design

The study was a community based observational study with cross-sectional design.

Study period

The study spanned over a period of one year beginning from July 2015.

Data collection

The investigator contacted the District Education Officer, Block Education Officer and Principals of the schools. The objectives and nature of the study were explained and a verbal consent/assent was sought to carry out the study in the schools. The students were interviewed one by one separately by the interviewer. A pre-designed and pre-tested interview schedule was administered and responses were noted by the investigator herself. Data was analysed using appropriate statistical tests.

RESULTS

Table 1 shows that the mean age at menarche was 12.83 ± 1.326 years. The range of age at menarche was 10 to 17 years. Most of the girls (31.3%) attained menarche at the age of 13 years followed by 25.4% girls who attained menarche at 12 years of age.

Table 1 Distribution of Respondents by Age at Menarche

| Age at Menarche | Number | Percentage |
|-----------------|--------|------------|
| 10 | 31 | 3.9 |
| 11 | 87 | 10.9 |
| 12 | 203 | 25.4 |
| 13 | 250 | 31.3 |
| 14 | 143 | 17.9 |
| 15 | 71 | 8.9 |
| 16 | 10 | 1.3 |
| 17 | 5 | 0.6 |

Table 2 shows that the inter-menstrual interval was 21 to 35 days in majority (80.1%) of the adolescent girls. 4.6% had a cycle length of <21 days and 15.3% had a cycle length of >35 days. Table 3 shows that the

majority of girls (52.1%) reported the duration of menstruation to be 2-3 days followed by 30% girls who reported it to be 4-5 days.

Table 2 Distribution of Respondents in Relation to Length of Cycle/Inter-Menstrual Interval

| Length of Cycle | Number | Percentage |
|-----------------|--------|------------|
| <21 days | 37 | 4.6 |
| 21-28 days | 213 | 26.6 |
| 29-35 days | 428 | 53.5 |
| >35 days | 122 | 15.3 |
| Total | 800 | 100 |

Table 3 Distribution of Respondents by Duration of Menstruation

| Duration of Menstruation (Days) | Number | Percentage |
|---------------------------------|--------|------------|
| 2-3 | 417 | 52.1 |
| 4-5 | 240 | 30.0 |
| 6-7 | 68 | 8.5 |
| >7 | 75 | 9.4 |
| Total | 800 | 100 |

Table 4 shows that 14.6 % adolescent girls reported irregular cycles. Table 5 depicts that the prevalence of dysmenorrhea among the respondents was 79.9%. Table 6 depicts the distribution of study subjects according to regularity of menstrual cycle. Four fifths of the respondents had a regular menstrual cycle.

The study also found that around four fifths of the respondents with dysmenorrhea had a regular cycle. A significant association was found between regularity of cycle and dysmenorrhea among study subjects.

Table 4 Distribution of Respondents by Regularity of Menses

| Regularity | Number | Percentage |
|------------|--------|------------|
| Regular | 683 | 85.4 |
| Irregular | 117 | 14.6 |
| Total | 800 | 100.0 |

Table 5 Distribution of Respondents by Pain during Menstruation

| Dysmenorrhea | Number | Percentage |
|--------------|--------|------------|
| Yes | 638 | 79.8 |
| No | 162 | 20.2 |
| Total | 800 | 100 |

Table 6 Association of Regularity of Cycle with Dysmenorrhea

| Regularity of cycle | Dysmenorrhea | | Total |
|---------------------|--------------|-----------|-----------|
| | Absent | Present | |
| Regular | 112(69.1) | 529(82.9) | 641(80.1) |
| Irregular | 50(30.9) | 109(17.1) | 159(19.9) |
| Total | 162(100) | 638(100) | 800(100) |

(Figures in parentheses indicate percentages) $\chi^2=15.404$ $df=1$ $p<0.0001$

Table 7 shows that no significant association was found between dysmenorrhea in respondents and similar complaints in mothers or sisters of the respondents. Table 8 depicts distribution of study subjects by other period problems in mother or sister

of respondents. Other period problems were present in about 12% of the mothers or sisters. Dysmenorrhea was present in around 14% of respondents with other period problems in mother or sister. This association was statistically significant.

Table 7 Association of Dysmenorrhea in Respondents to Similar Complaints in Mothers or Sisters

| Complaints of dysmenorrhea in mothers or sisters of respondents | Dysmenorrhea in respondents | | Total |
|---|-----------------------------|-----------|-----------|
| | Absent | Present | |
| Present | 43(26.5) | 192(30.1) | 235(29.4) |
| Absent | 119(73.5) | 446(69.9) | 565(70.6) |
| Total | 162(100) | 638(100) | 800(100) |

(Figures in parentheses indicate percentages) $\chi^2=0.785$ $df=1$ $p=0.376$

Table 8 Association of Dysmenorrhea in Respondents to Period Problems Other than Dysmenorrhea in Mothers or Sisters

| Period problems other than dysmenorrhea in mother or sister | Dysmenorrhea in Respondents | | Total |
|---|-----------------------------|-----------|----------|
| | Absent | Present | |
| Present | 7(4.3) | 89(13.9) | 96(12) |
| Absent | 155(95.7) | 549(86.1) | 704(88) |
| Total | 162(100) | 638(100) | 800(100) |

(Figures in parentheses indicate percentages) $\chi^2=11.343$ $df=1$ $p=0.001$

DISCUSSION

In the present study, it was observed that the mean age of menarche was 12.83 ± 1.326 years. The mean age of menarche in a study by Thakre et al⁴ in Nagpur was 12.85 ± 0.867 years. Kanotra et al⁵ conducted a study among school going rural adolescents of Ahmednagar, Maharashtra and found the mean age of menarche to be 14.02 years. Dambhare et al⁶ conducted a study among adolescents in Wardha and found that the subjects living in rural areas had a mean age at menarche of 13.67 years. Singh et al³ conducted a study among rural adolescents in Panchkula and found the mean age at menarche of the girls was 13.6 ± 0.83 years.

The mean age for menarche observed in a study from Chandigarh done by Kumar et al⁷ was 13.02 ± 1.13 years. Age at menarche was 13.7 years in Rohtak in a study done by Goel and Mittal.⁸ The differences in the mean age at menarche can be explained by the differences in the factors such as heredity, environmental conditions, body stature, socio-

economic status, nutritional and health status, family size, level of education, and psychological well-being of the adolescent girls.

In the present study, the inter-menstrual interval was 21 to 35 days in majority (80.1%) of the adolescent girls. 4.6% had a cycle length of <21 days and 15.3% had a cycle length of >35 days. Similar results were found in a study conducted by Dambhare et al⁶, where the inter-menstrual interval was reported to be 21-35 days in 69.52% girls and it was 36-45 days for 13.73% girls. In a study conducted among tribal Gujjar adolescent girls by Dhingra et al,⁹ 9.9% of the subjects had their menstrual cycle between 45-60 days. The present study showed that duration of blood flow was 2-5 days in 82.1% of the girls and more than 5 days in 17.9% of the girls which is again comparable to a study done by Patil and Angadi¹⁰ in which 87.7% girls menstruated for 3-5 days. 5.9% of the girls had a menstruation duration of more than 5 days. The differences in inter-menstrual interval and duration of flow could be because of different lifestyle, dietary habits, stress, hormonal imbalance

or some medical reasons which require gynecological assessment. Prevalence of dysmenorrhea among the respondents in the present study was 79.8% compared to 67.2% reported by Sharma et al¹¹ (2008), Sharma et al¹² (2003) reported it to be 67%, Kural et al¹³ reported the prevalence to be 84.2% and Agarwal and Agarwal¹⁴ reported it to be 79.67%. Lower prevalence of dysmenorrhea (18.3%) has been reported in a study done by Kanotra et al⁵ in Maharashtra, Verma et al¹⁵ reported it to be 50.6% and Avasarala and Panchangam¹⁶ reported the prevalence of dysmenorrhea as 56%. Dysmenorrhoea is significantly associated with higher age, most likely because menstrual cycles are commonly anovulatory for some time after puberty, whereas, dysmenorrhoea is associated with ovulatory cycles.

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