ADOLESCENTS' MENSTRUAL PATTERNS

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SUMMARY

600 adolescent girls from different cross sections of the society were interviewed through a detailed questionnaire. Mean age of menarche was 13.5 years. Though coming from educated families, only 8% were informed before hand of the event. 61% had regular cycles, 55% had painful ones and 21% had either excessive or scantly bleeding. 26-30 days was the cycle range in more than 65% respondents. The blood flow lasted for 3-7 days in 95% girls. 40% had some form of pre and intermenstrual complaints like abdominal pain, cramps and acne, in that order. There was a general similarity in menstrual patterns of adolescents and their mothers or siblings.

Introduction

In this era of scientific and technological advancements, where change has become a way of life, the female adolescent, enmeshed in fears and doubts, trying to assume physical and emotional maturity, invites, more than a casual interest. Menstruation is the most dramatic manifestation of puberty. Being a phase of tremendous hormoneal fluctuations, adolescents' menstrual patterns invite more than a cursory attention. It is with this aim of studying the menarche, menstrual patterns and associated features that this study was carried out.

Material and Methods

600 randomly selected adolescent girls of ages ranging from 13-19 years were given a detailed questionnaire regarding their menstrual patterns after complete explanation of the information and purpose of the study. These subjects were from a large cross section of the society viz; co-education schools, girls' schools, first and second year university girls, female students from 1st and 2nd M.B.B.S. as well as nursing students.

Complete secrecy about the person volunteering the information was ensured and only voluntary respondents were enrolled for the study.

Results

Of the 600 respondents, 367 (61.2%) were school girls, 178 (29.7%) were from colleges other than medical college, 38 (6.3%) were medical college students and 17 (2.83%) were nursing students. The aim behind enrolling more school girls was the fact that they were likely to have

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Accepted for publication on 1/11/1989.

started their menstruation in the recent past. This study had some questions based on recall and thus those groups who had menarche in the recent past were more likely to recall the events reliably.

The age distribution of the respondents varied between 13 and 19 years with a mean of 16.79 years.

492 (82%) respondents were vegetarians whereas the remaining took a mixed diet.

Parental income and education indicated socio-economic strata from which the respondents hailed. 10% respondents had parental monthly incomes between, Rs.500/- to 1000/-, 35% between Rs.1000/- – 1500/-, 29.16% between Rs. 1501/- – 2000/- and around 5% more than that. 98.6% had both parents with atleast primary education and only 1.3% i.e. 8 respondents had illiterate parents.

TABLE - I
AGE AT FIRST INFORMATION

Age in yrs.	*No.*	*%*
9	5	0.83
10	9	1.50
11	47	7.83
12	96	16.00
13	177	29.60
14	175	29.16
15	67	11.16
16	23	3.83
17	1	0.16

Mean age 13.24 yrs.

Table I shows the age at which the respondent received the information regards menarche, menstruation, etc. Majority of the girls received information at or around menarcheal age that is between 13 to 14 years. Only 8% received it before the menarche occurred.

TABLE - II
AGE OF MENARCHE OF THE RESPONDENTS

Age in yrs.	*No.*	*%*
9	1	0.16
10	3	0.50
11	15	2.50
12	51	8.50
13	166	27.60
14	234	39.00
15	97	16.16
16	30	5.00
17	2	0.33
18	0	0.00
19	1	0.16

Mean age - 13.5 yrs.

As shown in Table II 66.6% girls attained menarche at 13 or 14 years of age with around 10% thereafter and 14%-15% before this age. The mean age of menarche in this study came to 13.5 years.

Though apparently it seemed that the menarchal age of the respondents with a mixed diet is lower, on application of Chi-square test the difference was not found to be statistically significant.

The earliest menarche was seen in income groups of Rs. 4000/- to 4500/- per month. Girls from income groups of Rs. 501/- to 1000/- seemed to have menarche later.

As regards the birth order and age of menarche, those girls with birth order 1, had mean menarchal age of 13.73 whereas those with birth order 4 or more tend to have menarche slightly late – 14.4 years (mean). However, this difference, in the present series was not found to be statistically significant, on application of Chi-square test.

TABLE - III
CHARACTERISTICS OF MENSTRUAL CYCLE

Pattern	First 6 Cycles				Subsequent Cycles			
	Present series		Kapoor series 1982		Present series		Kapoor series 1982	
	No.	%	No.	%	No.	%	No.	%
Regular	384	61	344	61.7	501	83.50	416	75
Irregular	216	39	211	38.3	99	16.50	139	25
Painful	318	55	227	41.0	448	74.66	233	42
Painless	282	45	328	59.0	152	25.33	322	58
Scanty	26	7	50	8.0	5	00.83	33	4
Normal	496	79	400	72.0	591	98.50	466	84
Xs	78	14	105	19.0	4	00.66	56	10

As shown in the Table III, 61% of girls had regular cycles, 55% of which were painful and 21% had either excessive bleeding or scanty periods. Puberty and menopause register higher variation in menstrual cycle regularity with the same being around 40% in the present series.

As shown in Table IV, 403 (67.16%) respondents had cycle lengths of 26 to 30 days. Around 22% of responds had a length of 31-35 days in their first 6 cycles. Subsequently these cycles set at 26-30 days in 54.6% respondents.

TABLE - IV
MEAN LENGTH OF FIRST 6 CYCLES AND SUBSEQUENT CYCLES

Length (days)	First 6 cycles		Subsequent Cycles	
	No.	%	No.	%
15				
16 – 20	1	0.16	3	0.51
21 – 25	7	1.16	19	3.16
26 – 30	403	67.16	328	54.66
31 – 35	137	22.83	84	5.66
36 – 40	5	0.83	24	4.00
41 – 45	10	1.60	5	0.83
46 – 50	1	0.16	–	–
51 – 55				
56 – 60	–	–	5	0.83
61 – 90	1	0.16	–	–
Mean length		29.11 days	Mean length	25.93
Present series (1988)				
Campbell series (1986)		36.6 days		30.00

The mean cycle length decreased from 29.11 days to 25.93 days.

TABLE - V
DURATION OF FLOW IN FIRST 6 CYCLES AND SUBSEQUENT CYCLES

No. of days	*First 6 cycles*		*Subsequent cycles*	
	No.	*%*	*No.*	*%*
1	1	00.16	1	00.16
2	6	01.00	4	00.66
3	60	10.00	44	7.33
4	157	28.16	155	25.83
5	235	39.33	240	40.00
6	80	13.33	90	15.00
7	46	7.66	53	8.83
8	8	1.33	13	2.16
9	2	0.33	3	0.50
10	3	0.50	3	0.50
15	1	0.16		

Mean duration		Mean duration	
Present series	6.71 days	Present series	5.05 days
Campbell-1986	4.70 days	Campbell	4.50 days

As shown in Table V, the girls who had bleeding for 4 or 5 days initially, continued to have bleeding for the same number of days even subsequently. However, those who had bleeding for more than 7 days, subsequently reverted to normal in majority of cases.

95% of girls in the present series showed duration of flow between 3 to 7 days.

TABLE - VI
SYMPTOMS OF MENSTRUAL DISCOMFORT PREMENSTRUALLY AND DURING MENSES

	Premenstrual		*Golub's Series 1963*	
	No.	*%*	*No.*	*%*
Cramps	99	16.50	7	2.30
Acne	70	11.60	–	–
Abdominal pain	216	36.00	3	1.00
Irritability	25	6.16	6	2.00
Backache	56	9.30	2	0.67
Breast pain	5	0.83	–	–
Hunger	2	0.83	–	–
Oral ulcers	3	0.50	–	–
Headache	5	6.83	4	1.34
Nasal bleeding	1	0.16	–	–
Constipation	1	0.16	–	–
Nausea	–	–	3	1.00
Drawing in legs	–	–	2	0.67
Abd. swelling	–	–	5	1.68
Asymptomatic	106	31.30	261	90.00

Table VI shows symptoms of premenstrual tensions and syndromes in the subjects. Abdominal pain, cramps and acne predominated in that order. Headache, backache and irritability followed the next. However 30% of girls had no premenstrual symptoms.

An attempt was also made to compare the menstrual patterns of the respondents with their mothers and sisters. In 50% respondents reliable history of their mothers could be obtained. The same was true for around 300 respondents as regards their siblings' menstrual pattern. Pattern of regularity, the amount of flow and premenstrual symptoms, more or less corresponded between the respondents, mothers and sisters.

Discussion

It was with the aim to make the study more uniform, respondents were selected from a large cross section of society. Girls from coeducation schools and medical students - were more communicative. No subject enrolled in the study was beyond 19 years as adolescence and its events may have been forgotten later on, as the time elapsed was more, which in turn could make the data biased.

Less than 10% of girls were informed regarding menarche and menstruation before the event actually occurred. It was only after the menstruation that both the parents as well as the girls thought it worthwhile to exchange information about such an important events. All subjects hailed from significantly educated surroundings and inspite of that only 8% being given the education regarding such as important event beforehand, reflects upon the standard of awareness in the society to such problems.

The mean age of menarche in this study was 13.5 years. In a study from same institution - in 1982 by Kapoor, the menarche age was found to be 13. Shah (1958) from a study in Gujarat State put the menarche age of Gujarati girls at 14.8 years. The possible explanation is that in 31 years between the last few studies, the mean menarchel age of Gujarati girl might have declined. This may be due to increase in socio-economic standard of people of state in general. Studies from different part of country in recent years like Bhargwa (1980), Tyagi (1983) have placed menarcheal age at comparable to that of the present study.

Seemingly girls hailing from higher socio-economic groups had menarche earlier, also those who took mixed diets as comparison to vegetarian diet had tendency to menstruate earlier. Girls with birth-order one had lower menstrual ages than those with birth-order for and more. This was also shown by workers like GMP Singh-1986 Haile and Roth 1984; Dan et al 1973.

39% adolescents have irregular cycles to begin with of which 23% reverted back to normal cycles within subsequent 6 cycles and in 16% they persisted as irregular cycle. The greatest hormonal fluctuation takes place in peripubertal and perimenopausal age of women. Though this 16% might be attributed to such fluctuation, organic cause behind the same must be ruled out. The incidence of pain and normality of amount are comparable with series of Kapoor (1982).

67% girls had a cycle of 25-30 days initially while subsequently these settle to 21-25 days in majority of subjects. 9% had subsequent length of 36-45 days with

only one isolated case of cycle length of 60 days. Campbell (1986) in his study of 670 girls showed that the mean cycle length decreases from 36.6 to 30; in contrast to this in present series the length decreased from 29.11 to 25.93 days.

In general on comparison of Table II, III, IV it was found that those girls who attained menarche late i.e. after 15 years were associated with longer and irregular cycles.

The hormonal fluctuation also reflected upon the days for which the women had bleeding. This was borne out by the fact that nearly 20% of girls had flow days of less than 3 or more than 8. Most of these girls reverted to normal cycles within 6 months. Wide fluctuations in duration of flow as found in present series has also been reported by other authors like Wewellyn Jones (1979) and Jeffcoate (1987). Abdominal pain, cramps, ache, headache, backache and irritability are some of the commonest complaints of premenstrual period. Nearly 40% of the respondents have some or other complaints, though the intensity of these was widely variable. In a much smaller series Golub and Menduke (1963) has reported a much smaller incidence of these complaints.

Conclusion

This is an analysis of 600 adolescent girls as regards their menstrual patterns from which the following conclusions can be drawn.

1. Mean age of menarche was 13.5 years.
2. Though initially irregular, menstrual cycle tends to become normal with increasing age.
3. A later menarche (after 15 years) was associated with longer and irregular cycles.
4. Most of the girls had some form of menstrual problems.
5. Menstrual pattern of mothers and sisters tend to correspond with that of respondents.

Bibliography

1. *Bhargava, S.K.: Ind. Pediatrics, A:67-69, 1980.*
2. *Campbell, H.: Jr. of Adol. health care, 7:236-238, 1986.*
3. *Dan, T.C. & Robert, D.F.: Br. Med. Jr., 3:265-268, 1973.*
4. *Golub, L.J. & Menduke, H.: Am. Jr. of Obst. & Gynecol. 87:77, 1963.*
5. *Haile, A & Roth, N.: East Afr. Med. Jr. 61:63-67, 1984.*
6. *Jeffcoate, N.: Text book of gynaecology, Edition 1987 pg. Butterworths & Co. London.*
7. *Kapoor, A.: Dissertation submitted to M.S. University, Baroda, Oct. 1982.*
8. *Shah, K.A.: Jr. JIMA, 30:387-388, 1958.*
9. *Singh, G.M.P.: Ind. Ped. 23:263, 1986.*
10. *Tyagi, D.: JIMA 80:9-10, 1983.*
11. *Wewellyn Jones : Am. Jr. of O & G, 108:637-37, 1970.*