

## Menstrual Cycle Pattern among Adolescent School Girls in Chhattisgarh

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### ABSTRACT

**Background:** The menstrual cycle is a very important indicator of women's reproductive health and of their endocrine function. Menstruation, and the menstrual cycle are characterized by variability in volume, pattern and regularity. The purpose of this study was to determine the age of menarche, source of information regarding menstrual cycle, patterns, and problems faced by the adolescent rural and urban school girls, of Chhattisgarh, during menstruation. **Method:** The present study was cross-sectional descriptive study carried out on 750 school going adolescent girls from rural and urban areas of Chhattisgarh. For collection of data Self-structured questionnaire based on issues related to menstruation cycle was used. **Results:** Average age of menarche for overall sample taken, of adolescent girls of Chhattisgarh is 14.33 years. Mean age of menarche for urban and rural adolescent girls. 14.45 years and 13.89 years respectively. The adolescent girls received information about menstrual cycle from various sources viz mother (34.6%), friends (19.4%) and sisters (16.8%). It was noticed that most of the adolescent girls (61.25%) experienced menstrual problems (59% urban girls and 64.5% rural girls reported menstrual problems). 45.6% of urban girls and 35.4% rural girls experienced abdominal pain as one of the major problem during menstrual cycle. 16% & 20.3% urban and rural girls reported to suffer from headache during menstrual cycle respectively. During menstrual cycle, fatigue was observed in 17.8% urban girls and 22.4% rural girls. 20.6% and 21.6% urban and rural girls reported food craving respectively. Higher percentage of rural girls experienced psychological symptoms like depression, anxiety, fatigue, food cravings and headaches, as compared to urban girls. **Conclusion :** Higher percentage of rural adolescent girls of Chhattisgarh experience problem during menstruation cycle as compared to the urban girls, the percentage of rural girls reporting psychological symptoms during cycle, is higher as compared to urban girls. Intervention program for awareness regarding Menstrual cycle and associated issues for adolescent girls and their parents should be planned so that the problems of the girls can be minimized.

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**Keywords:** *Age at Menarche, Menstrual Abnormalities, Socio-Economic Class*

Adolescence (10-19) is a sensitive period in the life of a girls. It is a period when transition from girlhood to adulthood. Around 21.3% i.e. nearly 1/5<sup>th</sup> of the total population of India is represented by this population Dambhare et al, (2012). This period is marked with onset of menarche. There is major physiological/ physical change in girls for which they should be prepared. As menstruation is normal physiological event which signifies the ability of women for procreation, any disorder during this period should be treated as major gynecological problem in adolescence Verma et al (2011). Reproductive health and endocrine functions are indicated by menstrual cycle. Menstrual cycle can be understood by its volume, pattern and regularity. In a study it was found that menstrual disorder exist around 87% of the respondents Verma et al (2011). Various types of menstrual disorders are prevalent viz menstrual irregularity, menorrhagia, polymenorrhoea, oligomenorrhoea, dysmenorrhoea etc. It has been observed that most of the girls face some or the other problem, which are individual specific.

Although it is a physiological process of the body like any other, still many misconception regarding menstrual cycle exist, it is considered as unclean in Indian society. When the physical, physiological and behavioral discomfort joins with the misconception exist in the society, the girls develop negative attitudes towards it, proper information regarding menstrual cycle is not imparted to the girls. Menstrual process and misconception attached to it inhibit girls to discuss regarding menstrual cycle and menstrual problem.

Onset of menarche is affected by genetic, ethnic, environmental and nutritional factors and there can be 4-5 years variation, most of the female experience menarche between 10 to 16 year (Thomas et al 2001). Ailbereisen and Karacke, 1996 reported only 5% of population menarche at before 10 or after 15 years.

Menstrual disorders of various kinds affect not only the adolescence girls but also their family (Adam2002, Diaz 2006 et al ). It is very important to understand the menstrual problem among the adolescence girls so that intervention programme can be organized. Research regarding onset of menarche and menstrual disorder are visible in other countries. In India paucity of research in this area is seen. Hence this study was undertaken (Okusanya et al 2009).

### **THE AIM AND OBJECTIVES OF THE STUDY**

1. To find out the age of menarche among the Adolescent girls of the Urban and Rural area of Chhattisgarh, India.
2. To study different menstrual patterns.
3. To find out the prevalence and types of menstrual disorders.

### MATERIAL AND METHODS

Chhattisgarh is a state in Central India. The state was formed on November 1, 2000 by partitioning 16 Chhattisgarhi speaking southeastern districts of Madhya Pradesh. For the present investigation 750 adolescents girls were selected from different schools of Chhattisgarh (Raipur). The data was selected from the age group of 10-18 years. girls willing to participate in the study, after explaining them the aim of the study were included in the study. These subjects were then interviewed face to face in local language (Chhattisgarhi and Hindi) using a pretested semi structured questionnaire after obtaining their informed consent. The questionnaire contained information regarding demographic parameters, socio-economic status, age at menarche, source of pre-menarchial information, menstruation cycle characteristics, total days of bleeding, regularity of cycle and prevalence of menstrual problems etc.

#### The following definitions were used to describe menstrual cycle disorders:

- Menstrual syndrome (MS) is recurrent variable cluster of trouble ( physical and emotional symptoms ) that develop prior to and during menstruation and subsides after the cycle. The MS consists of low backache, fatigue, breast heaviness, abdominal bloating, increased weight, headache, irritability, skin disorders, aggressiveness, depression, gastrointestinal symptoms and loss of appetite.
- Dysmenorrhoea defined as Painful cramping abdominal pain accompanying menstruation & lasting 12- 24 hours severe enough to interfere with normal activities, or require medication.

### RESULTS

*Table 1. Mean age of menarche in Urban and Rural Adolescents girls*

Age in years	Urban n-394(%)	Rural n-356(%)	Total n-750 (%)
Mean age of menarche in years	14.45	13.89	14.33
≤11	20 (5.0)	10(2.8)	30 (4.1)
12 to 14	253 (64.2)	264 (74.1)	517(68.9)
≥15	121 (30.7)	82 (23)	203 (27)

Mean age of menarche was 14.45 years in urban girls and 13.89 years in rural adolescents girls. It is evident from the table 1 that 5% of urban girls & 2.8% rural girls reached (attained) menarche at the age of 11 or before 11. 64.2% of urban girls & 74.1% of rural girls reported mean on set of menarche at the age of 12-14 years where as 30.7% of urban & 23 % of rural girls reached (attained) menarche after 15 years of age.

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**Table 2. Source of Information of Menstrual cycle reported by respondents (N=750)**

Source	N (%)
Mother	260 (34.6)
Sister	126 (16.8)
Friend	146 (19.4)
Teacher	122 (16.3)
Relative	39 (5.2)
Media (T.V)	42 (5.6)
Books	15 (2.1)

Table 2 indicates that 69.3% girls had knowledge about menstruation before they achieved the menarche. The main source of information about menstruation cycle was mother (34.6%) friend (19.4%) sister (16.8%) and from teacher, (16.3%).while 12% of the girls reported to receive information from other sources ,relatives, media and books.

**Table 3. Menstruation Pattern in Urban and Rural Adolescent girls**

Menstrual Classification	Urban (%)	Rural (%)	Total (%)
<b>Cycle length</b>			
<28	34 (8.7)	18 (5.2)	52 (6.9)
28-30	247 (62.8)	265 (74.4)	512 (68.6)
30-45	108 (27.2)	73 (20.3)	181 (23.7)
45- 2 M	5 (1.4)	0	5 (0.7)
<b>Duration of Menstruation in days</b>			
3 to 5 days	307 (78)	290(81.3)	597 (79.6)
6 to 7 days	87 (22)	66 (18.6)	153 (20.3)
<b>Blood Flow</b>			
Low	9 (2.2)	19 (5.2)	28 (3.7)
Medium	359 (91.3)	274 (77)	633 (84.1)
High	26 (6.5)	63 (17.7)	89 (12.1)

78 % urban girls and 81.3% rural girls reported 3-5 days blood flow during menstruation. 2.2% urban girls reported low blood flow, 91.3% medium blood flow and 6.5% heavy blood flow, Where as 5.2% rural girls had low blood flow, 77% had medium blood flow and 17.7% had heavy blood flow. Cycle length was shorter than <28 days in 8.7%, between 28-30 in 62.8% and longer than 30 days to 2 months in 28.6% , in urban girls where as the cycle was shorter than <28 days in 5.2%, between 28-30 in 74.4% and longer than 30 days to 2 months in 20.3% in rural girls.

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**Table 4. Prevalence of menstrual problems in Urban and Rural Adolescent Girls**

Menstrual Problem					
Urban(%)		Rural(%)		Total (%)	
Yes	No	Yes	No	Yes	No
232(58.9)	162 (41.1)	230 (64.5)	126 (35.5)	462 (61.7)	288 (38.2)

Table 4 depicts prevalence of menstrual problems in urban and rural adolescents girls. It was observed that 58.9% and 64.5% urban and rural adolescents reported problems during menstrual cycle.

**Table 5. Age wise Distribution of Menstrual Syndrome in Urban and Rural Adolescent Girls**

Menstrual Syndrome (Urban%)					Menstrual Syndrome (Rural%)			
Age	Abdominal cramps/pain	Fatigue	Food cravings	Headaches	Abdominal cramps/pain	Fatigue	Food cravings	Headaches
12+	13(43.3)	7(23.3)	6(20)	4(13.3)	10(33.3)	6 (20)	9 (30)	5 (16.6)
13+	11(36.6)	6(20)	8(26.6)	5(16.7)	16 (31.3)	15(29.4)	9(17.6)	11(21.5)
14+	27(56.2)	5(10.4)	8(16.8)	8(16.6)	13(32.5)	7 (20)	9(22.5)	10(25)
15+	22(52.3)	4(9.5)	8(19)	8(19)	8(23.5)	7(20.5)	10(29.4)	9(26.4)
16+	16(45.7)	7(20)	7(20)	5(14.2)	14(41.1)	10(29.4)	7(20.5)	3(8.8)
17+	13(46.4)	4(14.2)	5(17.8)	6(21.4)	11(51.4)	3(14.2)	2(9.5)	5(23.8)
18+	8(42.1)	4(21)	4(21)	3(15.8)	7(35)	4(20)	4(20)	5(25)
<b>Total</b>	108(46.5)	38(16.3)	47(20.6)	39(16.7)	79(34.4)	53(23)	50(21.6)	48(20.6)

Table 5 shows Menstrual Syndrome in urban and rural adolescents. It was observed that 46.5% of urban adolescents suffered abdominal cramps/pain, 20.6% suffered food carvings, 16.3% suffered fatigue and 16.7% suffered from headache. In rural adolescents, 34.4% suffered abdominal cramps/pain, 23% suffered fatigue, 21.6% suffered food carvings and 20.6% suffered headache as menstrual syndrome.

**Table 6. Psychological of Symptoms of menstrual syndrome in Urban and Rural Adolescent Girls**

Symptoms						
	Urban		Rural		Total	
Symptoms	Yes (%)	No (%)	Yes(%)	No(%)	Yes(%)	No (%)
Depression	165 (41.9)	229 (58.1)	110(30.8)	246(69.2)	275(36.3)	475(63.6)
Anxiety	120 (30.5)	274(69.5)	97(27.2)	259(72.8)	217(28.8)	533(71.1)

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It is evident from table 6 that symptoms of depression was reported in 14.9%, anxiety in 30.5% among urban girls, whereas among rural girls depression was noticed in 30.8%, and anxiety in 27.2%.

### DISCUSSION

**The result of the present studies indicate that –**

1. Most of the adolescent girls received information about menstruation from their mothers (34.6%)
2. 8.7% urban girls and 5.2% rural girls experienced menstrual cycle less than 28 days
3. 27.2% urban girls and 20.3% rural girls have reported menstrual cycle after 30-45 days.
4. Psychological problems experienced by rural girls was higher than the urban girls.

65.8% of participants belonged to the age group 15-19 years while 34.2% were between age ranges of 10-14 years. 90.5% of mothers of the study participants were literate.

The mean age of menarche at the adolescent school girls was 14.33 years whereas various studies conducted in Kalamboli the mean age at menarche was found to be 13.32 years, in West Bengal 12.8 years and in Turkey 12.81 years (Nemade et al. 2009, Dasgupta et al. 2008 & Demir et al 2007).

Menstruation though a normal physiological process is many a time associated with menstrual disturbance. These disturbances may sometimes be very severe leading to loss of work during days.

In the present study 63.4% girls had knowledge about menstruation, onset of menarche while in a study, 88.1% girls had information regarding menstruation (Verma PB et al 2011). 61.29% girls reported mother as a first source of information in a study, (Keerti Jogdand et al 2011) where as in present study 34.6% girls reported to receive information from mother.

In the present study, the inter menstrual interval was reported to be <28 days by 6.9% girls whereas it was 28-30 days for 68.6% girls and more than 30-45 days for 23.7% girls and more than 45 days -2 month on the for 0.7% girls. This could be because of changing trends in lifestyle, dietary habit, stress, hormonal imbalance or some medical imbalance or some medical reasons which requires gynecological assessment at the earliest. In a study conducted among tribal Gujjar adolescent girls, 9.9 percent of the subjects had their menstrual cycle between 45-60 days which is similar to the figure in the present study (Dhingra et al 2009).

66.7% girls had regular cycles, 84.1% had medium blood flow, 78.7% had cycle length between 21 to 35 days & 79.7% had bleeding for 3 to 5 days in the present study that is similar to the study conducted by Dambhare et al. 2012, which reported 69.52% had cycle length & 67.56% girls had cycle length of 21-35 days and duration of flow for 2 to 4 days. Present study, in the conformity with other study (Keerti Jogdand et al 2011) which reported 76.65% girls had

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duration of flow for 3-5 days. A study reported 84% girls having blood flow between 3-5 days (Balsubramanian, 2005). In a study conducted at Malaysia 88.2% girls had menstrual flow for 3-7 days and 62.8% had cycle length between 21-35 days (Lee et al 2006).

In the present study 61.7% girls had ever faced menstrual problem, abdominal cramps/pain being the most common (40.5%). In other studies 60.77% (study in central India by Dharampal et al 2012) & 50.6% girls reported dysmenorrhea among girls (Verma et al. 2013). In the present study 51.5% girls reported menstrual syndrome with headache (18.3%), depression (36.3%), anxiety (28.8%), fatigue (20.1%), food cravings (21.1%), similar results have been reported in a study (Sheetu et al. 2014) which found 51.5% girls to have premenstrual syndrome with headache (50%), depression (47.8%), tension (36.9%), abdominal cramps (35.5%) being the common symptoms. Result of the present study is also in conformity with the study conducted by (Dambhare et al 2012). which showed 56.15% girls had experienced headache (26.7%) which was the most common symptom. Menstrual symptoms was experienced by 74.6% and dysmenorrhea by 67.7% of the adolescent girls in a study (Lee et al 2006) and the most common problem was dysmenorrhea 88.8% as reported in his study .

### CONCLUSION & RECOMMENDATIONS

The findings provide a base line data for planning awareness programmes for the adolescent girls. Results indicate that adolescent girls experience menstrual problems. The natures of menstrual problems are different. The percentage of urban girls experiencing psychological problem is higher and the percentage of rural girls experiencing psychosomatic problem is high.

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