

## Perceptions regarding menstruation and Practices during menstrual cycles among high school going adolescent girls in resource limited settings around Bangalore city, Karnataka, India

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### Abstract

**Introduction:** Hygiene-related practices of adolescents during menstruation are of importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). Therefore, increased knowledge about menstruation right from childhood may escalate safe practices and may help in mitigating the suffering of women.

**Objectives:** To assess the perceptions and practices regarding menstrual hygiene among selected high school girls in a resource limited settings in area around Bangalore city.

**Methodology:** This was a cross sectional study done in four selected Government High Schools in rural areas around Bangalore City. A pre-designed, pre-tested and structured questionnaire was administered.

**Results:** A total of 506 girls were interviewed. The average age was 14.08 with Standard deviation of 1.06 and range between 12-16yrs. 99.6% of the students had heard of menstruation and 57.9% had acquired this even knowledge before attaining menarche. 73.7% knew that menstruation was a normal phenomenon but only 28.7% had knowledge regarding menstruation. 48.1% did not know that menstruation was related to pregnancy. Only 44.1% used sanitary pad during the menstrual cycles. Among those who used cloth, only 31.3% used soap and water to clean them. 56.8% used soap and water to clean their genital organs and 88.8% of the girls took bath daily during menstruation.

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**Key words:** Hygiene, menstruation, adolescent girls

### Introduction

The World Health Organization (WHO) has defined adolescence as the age group of 10-19 years. Adolescence in India has been defined to be a period between 10-18 years. There are an estimated 200 million adolescents in India who comprise one-fifth of the total Indian population.<sup>1</sup>

Menstruation is a phenomenon unique to the females. The onset of menstruation is one of the most important changes occurring among the girls during the adolescent years. The first menstruation (menarche) occurs between 11 and 15 years with a mean of 13 years.<sup>2</sup>

Among all the developmental milestones associated with the adolescent years, menarche may be 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 in the girl's physical, psychological and social development.<sup>3</sup>

Hence adolescent girls constitute a vulnerable group, particularly in India where female child is discriminated in the society. Menstruation is still regarded as something unclean or dirty in India and the reaction to menstruation depends upon awareness and knowledge about the subject. The manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche. Although menstruation is a natural process, it is linked with several misconceptions and practices, which sometimes result into adverse health outcomes.<sup>2</sup>

Adolescents' problems constitute a bulk of morbidities which are generally unrecognized and uncared furthering the disease burden. A large variety of morbidities such as nutritional deficiency disorders (stunting, wasting), menstrual disorders, etc. prevail among adolescents RTIs STIs/HIV/AIDS have already appeared as serious problems which can further complicate existing problems like teenage pregnancies, unsafe abortions.<sup>1</sup> These complex psycho-social morbidities and high risk behavior of adolescents have been recognized as a threat to survival, growth and development. It has reported that as many as 40-45 per cent of the adolescent girls have menstrual problems. These are mainly due to psycho-social stress and emotional changes<sup>1</sup>

Moreover poor personal hygiene and unsafe sanitary conditions have also primarily resulted in gynecological problems among the adolescent girls<sup>4</sup>. There have also been high prevalence of reported cases of infections due to lack of hygiene during menstruation<sup>5-6</sup>. It was also reported that repeated use of unclean napkins or the improperly dried cloth napkins before its reuse results in harboring of micro-organisms and causing vaginal infections<sup>7</sup>.

Therefore hygiene-related practices of women during menstruation are of considerable importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). There is interplay of socio-economic status and menstrual hygiene practices which lead to increased risk of RTI. Millions of women suffer from RTI and its complications even leading on to the infection being transmitted to the offspring from the pregnant mother.<sup>2</sup>

Women having better knowledge regarding menstrual hygiene and safe practices are less vulnerable to RTI and its consequences. Therefore, increased knowledge about menstruation right from childhood may escalate safe practices and may help in mitigating the suffering of millions of women.<sup>3</sup>

## **Objective**

The main objective of the study was to assess the perceptions regarding menstruation and practices during menstrual cycles among selected high school adolescent girls in a rural area of Bangalore.

## **Methodology**

This was a cross sectional study done in four selected High Schools in rural areas in three districts of Bangalore Urban, Bangalore Rural and Kolar around Bangalore city. The data was collected during the period of January to March 2011. The study tool used was a pre-designed, pre-tested, structured and self administered questionnaire which was developed and translated into local language. The questionnaire included Socio demographic profile; Perceptions included Knowledge and Attitudes regarding the process of menstruation; Practices during menstrual cycles and menstrual history. Each of the responses was given a weighted score and the study group was assessed based on the total scores. The socio-economic status was assessed using the possession of the Above Poverty line (APL) and Below poverty line (BPL) cards issued by the local government authorities by the families of these girls. The study population included all the girls studying in 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> standards. After taking permission from the school authority, the class teachers of the

respective classes were explained the objectives of the study. A good rapport was established with the girl students by the investigators. The students were explained the purpose of the study and were briefed about the questionnaire. They were also informed about the confidentiality of the information collected so as to get as more reliable answers from them. After obtaining an informed consent, the questionnaires were administered to them. Specific time duration was given to answer all the questions. The girls were allowed to enquire any clarifications with the investigators. The data thus collected was entered into Microsoft Excel and analyzed using standard statistical packages.

## **Results**

### **Socio-demographic profile**

A total of 506 girls were included in the study. A large proportion of 58.7% of the study population were in the age group of 14 - 15 years, followed by 32.4% in the age group of 12 - 13 years. The mean age of the students was 14.08 years with a standard deviation of 1.06. Out of the total 506 students studied, 43.5% were currently studying in the 9 standard, 36% in 8 standard and 20.5% in the 10 standard. A vast majority of the study population (86%) possessed BPL cards. 47% of the study population belonged to nuclear families, 38.2% to joint families and 14.8% to three generation families.(Table 1)

### **Knowledge regarding Menstruation**

A large of majority of 99.6% of the students had heard of menstruation and 57.9% had acquired this knowledge before attaining menarche. In a large proportion, the knowledge was imparted to them by the mother (55.1%), followed by friends (17.4%) and sister (14.2%). It was observed that most of these mothers were illiterates (52.4%) or has just completed their primary schooling (9.5%) (Table 1). 73.7% of the girls knew that menstruation was a normal phenomenon while about 13.4% felt it was due to the curse of god. (Table 2) Even though most of the girls had heard about menstruation, only 28.7% had knowledge on the exact process during menstruation. Most of the girls (89.1%) large majority knew that menstruation was a phenomenon unique only to females. 50.8% felt that the menstrual cycles has an important physiological role in females while the rest of them (45.7%) were undecided. Not many girls (35.8%) could associate the onset of menarche with the attainment of the capacity of women to conceive. A large proportion of the students thought that menstruation was a lifelong process (46.5%) while 31.8% said that it was not a lifelong process and the remaining were undecided. 327(64.6%) girls answered 50% of the knowledge questions correctly. Overall it was seen that none of the girls had adequate knowledge regarding menstruation as assessed by their scores (Table 3).

### **History of menstruation**

Out of the total 506 students studied, 329 (65%) had attained menarche. The mean age of attainment of menarche was 13.4 years with Standard deviation of 1.013. A significantly higher number (66.9%) of girls from BPL families had attained menarche as compared to APL families (53.5%). On enquiring the frequency of menstrual cycles, 63.2% mentioned that they had their cycles once in 4 - 5 weeks, while 22.8% said once in 2 - 3 weeks. 66% of the study population had regular menstrual cycles and 61.3% experienced dysmenorrhoea. On asking if the cycles occur on date, 49.2% of the students said that it occurs sometimes, 31.9% always and 10% said not at all. 75.7% of the girls did not give history of passing clots. It was seen that 48% of the girls complained of white discharge per vagina occasionally. 50.2% said they had experienced physical changes especially secondary sexual characters after attaining menarche though none of them felt that they had changed psychologically.

### Practices during menstruation

Personal practices and hygiene play a very important role during menstruation. It was seen that during menstruation 34.7% of the study population used cloth, 44.1% used sanitary pad and 21.2% used both cloth and sanitary pad. Among the study population who used cloth, 31.3% used soap and water to clean them, while 28.6% used hot water and 20.1% used antiseptic solution along with water. (Table 2) A large proportion of the girls dried these washed clothes in the sun (68.4%), but about 16.4% dried them inside the house. A large majority (71.7%) reused these clothes for 1 - 2 months, 20.4% for 3 - 4 months and 7.9% for 5 - 6 months. The queries on the frequency of change during the time of menstruation revealed that 39.8% changed sanitary pad or cloth twice a day, 29.5% three times a day and 21.7% once a day. A large proportion (56.8%) of the study population used soap and water to clean their private parts while the rest (43.2%) used only water. 53.8% cleaned their private parts after micturition all the time. 8.5% never cleaned their private parts after micturition. 88.8% of the girls took bath everyday during menstruation, 3.3% once in 2 - 4 days and 3% after the bleeding had stopped. (Table 2) As far as the dietary intake during menstruation was considered, most of them (58.1%) said that they consumed less food during menstruation. In a vast majority of the study population nutrition advice was given by the mother (79.9%). Food taboos were common during menstruation and 42.6% avoided certain food items common ones being sweets (21.6%) spicy food (3.9%) curd and milk products (9.1%). Other cultural practices which was followed during menstruation included restrictions to go to the place of worship (94.2%) and special functions held on attaining menarche (45.6%) Overall it was seen that out of the 329 who had attained menarche, 323(98.7%) did not practice all the 10 steps of good menstrual hygiene during menstruation (Table 3)

### Perceptions towards menstruation

Many of the girls mentioned that they experienced fear (44.1%) on attaining menarche, while some of them (26.1%) were anxious. About 74.2% felt that menstrual cycle is a natural phenomenon while 17% felt that menstruation occurred due to the curse of God. Majority of them (56.8%) felt that menstruation poses a huge physical and psychological burden on them. On the whole among the girls who had attained menarche only 43 (14.07%) showed a positive attitude (scores=4) towards the process of menstruation. (Table 4)

### Associated socio-demographic factors

The scores of knowledge practice and attitudes were associated with socio-demographic factors using unpaired t-test. It was seen that knowledge scores were significantly higher (Table 5) among those who had attained menarche, girls from BPL families and girls in the older age group. However there was no significant difference in the mean practice scores between the age groups and in between the socio-economic status. (Table 4) There were a significantly higher number of girls with positive attitude in the older age group. (Table 4) There is no significant correlation between knowledge attained and practices of menstrual hygiene. There was no significant association between type of family and knowledge of menstruation.

*Table 1: Socio demographic profile of the study group*

Socio-demographic Profile (N = 506)	Number	Percent
<b>Age group (in years)</b>		
12 – 13	164	32.4

<b>Socio-demographic Profile (N = 506)</b>	<b>Number</b>	<b>Percent</b>
14 – 15	<b>297</b>	<b>58.7</b>
> 15	45	8.9
<b>Socio – Economic Status</b>		
BPL Cards	<b>435</b>	<b>86</b>
APL Cards	71	14
<b>Type of family</b>		
Nuclear	<b>238</b>	<b>47</b>
Joint	193	38.1
3-generation	75	14.8
<b>Mother's education</b>		
Illiterate	<b>265</b>	<b>52.4</b>
Primary (1-4)	48	9.5
Secondary (5-7)	68	13.4
High school (>/8 std)	125	24.7

*Table 2: Knowledge and Practices during menstruation by the study group*

<b>Knowledge regarding menstruation (N= 506)</b>	<b>Number (%)</b>	<b>Common Practices during menstruation (N= 329)</b>	<b>Number (%)</b>
Heard of menstruation	504 (99.6)	Use of sanitary pad	145 (44.1)
Is a normal phenomenon	373 (73.7)	Drying the cloth in the sun	225 (68.4)
Process Unique to females	451 (89.1)	Use of soap and water to clean private parts	205 (53.8)
Association to conceiving, pregnancy	181 (35.8)	Use of the same cloth for 1 - 2 months	236 (71.7)
Uterus as the source of bleeding	15 (3.0)	Everyday bathing	292 (88.8)
Lifelong process	110 (21.7)	Avoidance of some foods	140 (42.6)

Table 3: Overall assessment of the knowledge, practice and attitudes of the study group

Parameter Mean score $\pm$ SD, range	Response	Scores	Number (%)
Knowledge 4.04 $\pm$ 1.32 0-8	Inadequate	<8	<b>506 (100)</b>
	Adequate	=8	0
Attitude 2.46 $\pm$ 0.996 0-4	Positive	=4	43 (13.07)
	Negative	<4	<b>286 (86.93)</b>
Practices 6.41 $\pm$ 1.65 0-10	Satisfactory	=10	6 (1.82)
	Unsatisfactory	<10	<b>323 (98.17)</b>

Table 4: Menstrual Knowledge, Practices and Attitudes and associated factors

Parameter Total Mean Score ( $\pm$ SD) Range	Associated Factors		Numbers (%)	Mean Scores ( $\pm$ SD)	Significance at $p < 0.05$
Knowledge 4.04 $\pm$ 1.32 0-8 (N=506)	Menarche	Attained	329(65.02)	4.25 $\pm$ 1.29	<b>t*=5.087 p&lt;0.01</b>
		Not attained	177(34.98)	3.68 $\pm$ 1.28	
	S-E status	APL	71(14.03)	3.68 $\pm$ 1.30	<b>t*=2.489 p&lt;0.01</b>
		BPL	435(85.97)	4.09 $\pm$ 1.31	
	Age(yrs)	12-14	332(65.61)	3.92 $\pm$ 1.27	<b>t= 2.84 p&lt;0.05</b>
		$\geq$ 15	174(34.39)	4.26 $\pm$ 1.37	
Attitude 2.46 $\pm$ 0.99 0-4 (N=329)	Age (yrs)	12-14	169(51.37)	2.34 $\pm$ 0.99	<b>t=2.23 p&lt;0.05</b>
		$\geq$ 15	160(48.63)	2.58 $\pm$ 0.98	
Practices		12-14	169(51.37)	6.37 $\pm$ 1.71	

Parameter Total Mean Score ( $\pm$ SD) Range	Associated Factors		Numbers (%)	Mean Scores ( $\pm$ SD)	Significance at $p < 0.05$
6.41 $\pm$ 1.65 0-10 (N=329)	Age (yrs)	$\geq 15$	160(48.63)	6.45 $\pm$ 1.58	t=0.423 p=0.672

\*unpaired t-test value

## Discussion

The transition from childhood to adulthood occurs during adolescence period which is characterized by major biological changes like physical growth, sexual maturation and psycho-social development. During this phase of growth the girls first experience menstruation and related problems which is marked by feelings of anxiety and eagerness to know about this natural phenomenon. However, they do not get the appropriate knowledge due to lack of a proper health education programme in schools. Moreover, the traditional Indian society regards talks on such topics as taboo and discourages open discussion on these issues. This leads to culmination in repression of feelings which can cause intense mental stress and seek health advice from quacks and persons who do not have adequate knowledge on the subject<sup>8</sup>. Moreover, the routine health services do not have provisions for adequate care of adolescent health problems<sup>8</sup>. This further exaggerates the problems manifold. Understanding the health problems related to menstruation and the health seeking behavior of the adolescent girls, their awareness about pregnancy and reproductive health will help us in planning programmes for this vulnerable group.<sup>8</sup>

Several issues impact the health and well-being of women as they go through their reproductive age group. The most under recognized of these are water, sanitation and hygiene, yet the benefits of these basic interventions are extensive and self perpetuating, impacting women and their daughters from generation to generation.<sup>9</sup>

This study has tried to assess the knowledge, attitude and practices regarding menstrual hygiene among high school girls in resource poor settings like a rural area which has direct repercussions on their health and well being. The present study showed a majority of girls interviewed belonged to the age group of 14 - 15 years (58.7%) and 329 (65%) had attained menarche though mean age of attainment of menarche was 13.4 years. In a similar study done in Rural West Bengal, the age of menstruating girls ranged from 14 to 17 years, maximum (76.25%) number of girls being between 14 and 15 years of age group.<sup>2</sup>

In a similar study in rural Andhra Pradesh on high school girls, all students had attained menarche at 12-13 years.<sup>10</sup> Since it has been observed that the age of attaining menarche has shown decreasing trend in India there is an immediate necessity of early initiation and sensitization of young girls as early as 10-11 years of age especially in resource poor settings.

Hygiene related practices of women during menstruation are of considerable importance as it affects health by increasing vulnerability to infection especially the infections of urinary tract and perineum. In the present study, only 57.9% had a prior knowledge of menstruation before attaining menarche which was also similar to the findings of the study done in Rural Gujarat which showed 62.7%.<sup>2</sup> Though it is desirable to have a school teacher or a health worker to be the first source of information ensuring that right knowledge has been imparted, it was seen that the major source of information in this study was mother followed by elder sister which is also similar to other

studies<sup>3,8,10,12</sup>. It was seen that even though 99.6% of the girls had heard of menstruation, the level of knowledge was poor which is similar to the study done by Unni et al.<sup>11</sup> It was observed in this study that the mothers who are the most common source of information to these girls were illiterates and hence the quality of knowledge imparted might have been poor. This reiterates the fact that mothers of adolescents should be an integral part of all programmes on adolescent health and especially on menstrual hygiene.

Even though most of (74.2%) the adolescents felt that it was a normal phenomenon, only 43(13%) had a positive attitude to menstruation and all of them had poor menstrual practices. And even though 99.6% had just heard of menstruation, their knowledge regarding menstruation was poor despite 8-9 years of schooling. This can be explained by the fact that reproductive health is a taboo subject and this topic is never discussed openly in the class or even talked about among the peer group. This is similar to the study done in rural Gujarat<sup>3</sup>, which showed that only 31% felt it was a normal phenomenon. There are other similar studies<sup>2,10</sup> with similar results with most of the girls thinking that it is a curse of God or sin or a disease. The reason for this could be that even though there has been a positive influence of urbanization, there is still a gap in the knowledge and a further scope for improvement in the adolescent reproductive health coverage in our study area.

In the present study even though most of them had heard about menstruation, a large majority of the students experienced fear (44.1%), followed by anxiety in 26.1% during menarche. In the study done in rural Gujarat,<sup>3</sup> at the time of first menstruation, 28.3% felt shame, 12.6% felt guilt and 20.6% had a sense of fear. The reason for fear and anxiety may not be due to lack of prior knowledge regarding menstruation but may be attributed to inadequate knowledge, wrong knowledge and low levels of education especially among the mothers.

In this study it was seen that 44.1% used sanitary pad and 21.2% used both cloth and sanitary pad. The use of sanitary pad was higher which was probably due to the fact that the availability was high in these areas and also due to influence of television which has increased their awareness regarding the availability and use of sanitary pads.

In the present study, a large proportion of 56.8% of the study population used soap and water to clean their private parts and 43.2% used only water. This when compared to another study<sup>2</sup> done in rural West Bengal showed that 97.5% of the girls used both soap and water. This shows that personal hygiene practices were unsatisfactory in the study population. A similar study which was undertaken among adolescent school going girls in Saoner, in the Nagpur district<sup>12</sup> reported the use of old clothes in 45.74% of the subjects. Satisfactory cleaning of the external genitalia was practiced by 33.85% of the girls. Three fourth of the study girls practiced various restrictions during menstruation. It has been inferred from this study that a variety of factors are also known to affect menstrual behaviours, the most influential being economic status and residential status (urban and rural)<sup>12</sup>

Regarding the practices followed, in a study done in Rural West Bengal,<sup>2</sup> 11.25% girls used sanitary pads during menstruation, 42.5% girls used old cloth pieces. 40% girls used both cloth pieces and sanitary pads during menstruation.

More than 50% were restricted from household work, taking part in religious activities, attending marriages, and playing during menstruation. 13 were restricted from attending school during menstruation. 38 would rest more often during menstruation than at other times. Foods restricted during menstruation included milk and milk products (20), vegetables (14).<sup>10</sup>

A cross-sectional study conducted in educational institutions from a major city in South India<sup>13</sup>, socioeconomic Status (SES) of the selected girls and their age influenced choice of napkin/pads and other practices such as storage place of napkins; change during night and during school or college hours and personal hygiene. Older girls had better hygienic practices than the younger ones. Seventy six percent of the participants desired for more information regarding menstruation and hygienic practices. A variety of factors are known to affect menstrual behaviours most influential being age and SES. Awareness regarding the need for information about healthy menstrual

practices is on rise among young women. It is probable that a mechanism be introduced to provide knowledge about menstrual health and self maintenance among women.<sup>13</sup>

In another study done in Rajasthan schooling, residential status, occupation of father, caste and exposure to media to be the major predictors of safe menstrual practices among adolescent girls. Importantly, this study found a significantly strong relationship between practices during menstruation and prevalence (reported symptoms) of Reproductive Tract Infections (RTI). The prevalence of RTIs was more than three times higher among girls having unsafe menstrual practices.<sup>14</sup>

Although often not acknowledged, it is clear that measures to adequately address menstrual hygiene and management will directly contribute to Millennium Development Goal-7 (MDG) on environmental sustainability. Additionally, due to its indirect effects on school absenteeism and gender discrepancy, poor menstrual hygiene and management may seriously hamper the realization of MDG-2 on universal education and MDG-3 on gender equality and women empowerment.<sup>15</sup>

Family life education has been recognized as an important component of school health programme. It emphasizes upon developing a healthy attitude towards human reproduction and family life among older school students. One of the strategies for achieving this goal is by including topics on normal physiological aspects of menstruation and pregnancy for the adolescent girl students in health education sessions conducted by health professionals. Our study shows that majority of the girls intended to seek advice from mother for any menstrual practices or problems or nutrition or any health problems. This brings out an important issue of the feasibility of involving parents in educating their children regarding reproductive health problems. Health professionals should organize educative sessions for parents so that they can be trained to give adequate knowledge on reproductive health problems to their children.<sup>8</sup>

### **Conclusion and Recommendation**

A large of majority of 99.6% of the students had heard of menstruation and 57.9% had acquired this knowledge before attaining menarche. The most common source of information was the mother. Even though the term “menstruation” was heard by most of the study population, the actual knowledge regarding the process of menstruation was unsatisfactory. Personal hygiene practices were also found to be unsatisfactory. Avoidance of certain foods and practices during the time of menstruation was some of the cultural factors in play. Reproductive tract infections, which has become a silent epidemic that devastates women's life is closely interrelated with poor menstrual hygiene. Therefore, proper menstrual hygiene and correct perceptions and beliefs can protect the women from this suffering.

All mothers irrespective of their educational status should be taught to break their inhibitions about discussing with their daughters regarding menstruation much before the age of menarche.

This study reveals that menstrual hygiene is not very satisfactory among a large proportion of the adolescents while ignorance, false perceptions, unsafe practices regarding menstruation continue to exist.

Thus, the above findings reinforce the need to encourage safe and hygienic practices among the adolescent girls and bring them out of traditional beliefs, misconceptions and restrictions regarding menstruation.

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