

A study to assess knowledge, attitude, and practices related to menstrual cycle and management of menstrual hygiene among school-going adolescent girls in a rural area of South India

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Received: October 12, 2018; Accepted: November 09, 2018

ABSTRACT


Background: The onset of menstruation is the most important physical change that occurs among girls during adolescence. Menstrual hygiene management is an important issue for adolescent girls. Lack of education and communication regarding reproductive system further adds to the problem. Several studies have shown that the knowledge regarding menstrual cycle is not sufficient. Insufficient management of menstrual hygiene may result in symptoms involving genitourinary tracts. With this background, the present study was conducted. **Objectives:** This study aims to assess the knowledge, attitude, and practices in relation to menstrual cycle and factors influencing the same. **Materials and Methods:** The present study is a cross-sectional study conducted in the rural field practice area under the department of community medicine. Two schools, one government and one private, were selected for the study. A pre-designed, pre-tested, and semi-structured questioner used for the collection of data by personal interviews method. Statistical analysis used: Percentages and Chi-square. **Results:** A total of 226 girls were studied. Overall, the knowledge about menstrual cycle is very poor. Menstrual awareness was found in 35.8% of girls. Source of knowledge for most of the girls were mothers, followed by friends. 97% are using sanitary pads. Menstrual hygienic practices are found to be satisfactory but need improvement in disposal of menstrual waste. **Conclusion:** The knowledge about menstrual cycle is found to be very poor with schools playing no role in its improvement. Schools need to be encouraged in imparting right information and encouraging girls to speak.

KEY WORDS: Knowledge, Attitude, and Practices; Menstrual Cycle; Menstrual Hygiene Management; Adolescent Girls

INTRODUCTION

Adolescence is a transitional phase of growth and development between childhood and adulthood, which is not only physical but also emotional and psychological. According to the WHO, adolescent is defined as any person between the ages of 10 and 19 years. 1.2 billion adolescents stand at the crossroads between childhood and the adult

world. Around 243 million of them live in India.^[1] The onset of menstruation is the most important physical change that occurs among girls during adolescence. It is not uncommon for the girl to have many questions and concerns related to menstrual cycle. Menstrual hygiene management is an important issue for adolescent girls as they do not have experience. Even most of the parents lack the required information about the menstrual cycle and issues related to its management. Lack of education and communications regarding reproductive system further adds to the problem. Several studies have shown that the knowledge regarding menstrual cycle is not sufficient and correct.^[2-8] It can be seen from different studies that menarche awareness ranges from 29% to 80% in different parts of the country, highest seen in Chandigarh.^[3-8] Many religious practices, restrictions, and myths related to menstrual cycle create more confusion

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2019.1131809112018	

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about the correct practice.^[8-10] Studies done to assess the practices related to menstrual hygiene also indicate need for improvement.^[2-21] Many girls attain menarche, totally unaware of its physiological nature, as a puberty change and its role in reproduction. Prajapati and Patel reveal in her study that only 17% of girls are aware about uterus as the organ of menstrual bleeding similar to our study.^[18] It carries a lot of stress and anxiety as to know about the menstrual cycle and hygiene management, particularly in schools were proper facilities such as separate washrooms, water, and privacy may be an issue.^[9,11] The source of information for most of the girls was mother as seen in different studies (Srivastava and Chandra - 75%, Kumar *et al.* - 50.8%, Shanbhag *et al.* - 55.1%, and Thakur *et al.* - 35.7%), although it is expected to have a school teacher or a health worker to be the first source of information ensuring that right knowledge has been imparted.^[2,3,5,8] Good menstrual hygiene is very crucial for health of girls. The use of sanitary pads ranged from as low as 11.25% to 76%.^[2,5,11-20] Srivastava and Chandra in his study found that 9.3% of girls take bath on the 5th day of menstrual flow.^[2] Daily bathing habit ranges from 83.7% to 95.5%.^[5,16,18] Perineal hygiene was maintained by 76.9%, 41%, and 90.9% in different studies.^[16-18] Insufficient management of menstrual hygiene may result in symptoms involving genital and urinary tracts.^[11-13] Qualitative studies report girls' fear and humiliation from leaking of blood and body odor, inadequate water and sanitation facilities in school, and unhealthy and unsupportive environments, leading to school absenteeism by menstruating girls.^[22,23] Many countries resolve this through age and culture appropriate sex and relationship education in the school curricula, to familiarize children with puberty changes.^[24] Even though the promotion of sanitary napkins as a mean for safe and hygienic option for management of menstruation, we certainly cannot ignore the growing burden of non-biodegradable waste that is generated by it.^[25] Women having better knowledge regarding menstrual hygiene and safe practices are less vulnerable to genital and urinary infections and its long-term consequences. When a woman knows about her body and the changes that are likely to take place in her body at menarche, during reproductive phase and at menopause, she is expected to be well prepared and take a better care of herself. With this background, the present study was conducted with an objective to assess the knowledge regarding menstrual cycle, its management, and status of menstrual hygiene practices.

Objectives

The objectives of this study were as follows:

1. To assess the knowledge related to menstrual cycle and its management.
2. To assess the status of menstrual hygiene and related factors.
3. To know the restrictions associated with menstrual cycle.

MATERIALS AND METHODS

The present study is a cross-sectional study conducted in the rural field practice area under the department of community medicine. There are two schools present in this area, one government and one private, both of which were selected for the study. Before the study, a formal written permission was taken from the principal of the schools. All the adolescent girls present on the days of data collection were included in the study.

Type of Study

This was a cross-sectional study.

Period of Study

The study duration was from February 2018 to September 2018.

Study Population

The study was conducted among school-going adolescent girls in the age group of 11–19 years studying from VIIth to Xth standard.

Inclusion Criteria

The purpose of the study was explained and those willing to participate were included in the study. All the girls present were willing and gave consent for the study. Those girls who have not attained menarche were also subjected to the questionnaire with an intention to sensitize them about the issue.

Exclusion Criteria

Those girls not willing to participate in the study were excluded from the study.

Data Collection

A pre-designed, pre-tested, and semi-structured questioner were used for the collection of data by personal interviews method. A total of 226 girls were studied.

Data Analysis

The data collected were analyzed using SPSS-17v software.

Ethical Clearance

Ethical clearance was obtained from the ethics committee.

After completion of data collection, an awareness session was conducted in each school for the students and interested

faculty members. The session included information about menstrual cycle, management of menstrual hygiene, and its importance, with the help of Powerpoint presentation and display of anatomic models. The session was a two-way method in which questions were asked and were allowed. This was followed by group discussion to assess their understanding.

RESULTS

A total of 226 girls were interviewed, 93 (41.2%) were from private and 133 (58.8%) were from government school. Age of the girls ranged from 11 years to 18 years. Maximum girls ($n = 177$, 78.2%) were in the age group of 13–15 years. Nuclear family was the most common family pattern observed ($n = 191$, 84.5%) and most of the girl's mother were illiterate ($n = 117$, 51.8%). We were unable to assess the socioeconomic status of the girls as they were not knowing about the family income.

Of the total girls studied, 165 (73%) girls had attained their menarche. The average age at menarche was 12.3 years. 146 (88.4%) girls had attained their menarche between 11 and 13 years [Table 1]. Only 35.8% ($n = 81$) of all the girls knew about menstruation before they attained menarche. From Table 2, it can be seen that very few girls are aware of the physiological basis of menstrual cycle ($n = 42$, 18.6%), normal age at menarche ($n = 109$, 48.2%), and duration of cycle ($n = 128$, 56.6%). Only 11.9% of the girls know that bleeding takes place from uterus, 11.1% ($n = 25$) know the role of hormones in menstrual cycle, and 15.9% ($n = 36$) are aware of its relation to pregnancy. 81 girls (35.8%) know that women stop menstruating at a particular age as they grow old. Overall, the knowledge about menstrual cycle is very poor. Source of knowledge for most of the girls was mothers ($n = 71$, 43%), followed by friends ($n = 34$, 20.6%) and sisters ($n = 16$, 17.1%).

From Table 3, it can be seen that 39.4% are aware of the need for a medical attention for abnormal bleeding. 71.7% know the importance of perineal hygiene and 62.8% know the risk for genital infections in unhygienic conditions. Only 21.7% know that abnormal discharge and foul smell indicates infection and needs treatment. The knowledge about menstrual cycle and hygiene was not associated to any of the sociodemographic characteristics such as type of family, education of mother, or type of school.

Table 4 indicates various practices of menstrual hygiene. 97% are using sanitary pads and none used old cloths. Majority of the girls change their absorbent material twice (52%) and 43.6% change more than twice per day. It can be seen that 4.2% of girls change their absorbent only once, imposing a risk for infection. 87.3% of girls change their absorbent before going to bed. Safe disposal of sanitary pads is a

Table 1: Age of menarche

Age of menarche in years	Number of girls (%)
<11	4 (2.4)
11–13	146 (88.4)
>13	15 (9.1)
Total	165

Table 2: Knowledge of adolescent girls regarding menstrual cycle

Knowledge regarding menstrual cycle	Number of girls (%)
What is menstrual cycle?	
Impure blood flows out	49 (21.7)
Some disease	9 (4)
Physiological and natural process	42 (18.6)
Don't know	126 (55.8)
Normal age of menarche	
Know correctly	109 (48.2)
Incorrect information	11 (4.9)
Don't know	106 (46.9)
Normal duration of menstrual cycle	
Know correctly	128 (56.6)
Incorrect information	25 (11.1)
Don't know	73 (32.3)
Organ of menstruation	
Uterus	27 (11.9)
Some other organ (stomach, bladder etc.)	9 (4)
Don't know	190 (84.1)

Table 3: Perception about the menstrual cycle

Perceptions about menstrual cycle	n (%)
Irregular bleeding (menorrhagia, polymenorrhea, metromenorrhagia, oligomenorrhea) needs medical attention	89 (39.4)
Perineal hygiene important during menstruation	162 (71.7)
Unhygienic menstrual practices can cause infections	142 (62.8)
Abnormal discharge with foul smell needs medical attention	49 (21.7)
Aware of premenstrual symptoms	61 (27)
Emotional and psychological changes associated with menstrual cycle	81 (35.8)

growing problem across the world since its widespread use and high content of non-biodegradable substance. 23.6% of girls adopt inappropriate method of disposing used absorbent in drains, wasteland, or commodes, 4.8% burnt, and 8.5% buried it underground. 63% dispose of absorbent material in dustbin. 64.8% of girls wrapped their pads regularly and 6.7% wrapped sometimes. Most commonly (52.9%) paper was used for wrapping and 45.4% of girls used paper and plastic for wrapping.

It is seen from Table 5 that 100% of girls take bath daily. Regular hand washing practice after changing absorbent

Table 4: Practices of menstrual hygiene

Practice of menstrual hygiene	n (%)
Absorbent used	
Sanitary pads	160 (97)
New cloths	4 (2.4)
Both (pad and new cloths)	1 (0.6)
Frequency of changing absorbent per day	
Once	7 (4.2)
Twice	86 (52)
Thrice	66 (40)
More than thrice	8 (3.6)
Change of absorbent material at night	
Yes	144 (87.3)
No	21 (12.7)
Method of disposing absorbent	
Burn	8 (4.8)
Dustbin	104 (63)
Bury underground	14 (8.5)
Throw in drains, waste land or in commode	39 (23.6)
Wrap the absorbent before disposal	
Always	107 (64.8)
sometimes	12 (6.7)
Never	46 (28.5)
Material used for wrapping	
Paper	63 (52.9)
Paper than plastic	54 (45.4)
Only plastic	2 (1.7)

Table 5: Personal hygiene maintenance

Personal hygiene	n (%)
Daily bath	165 (100)
Hand washing practice after changing of absorbent	
Always	153 (92.7)
Sometime	10 (6.1)
Never	2 (1.2)
Washing hands with	
Water	41 (25.2)
Soap and water	122 (74.8)
Cleaning of external genitalia	
Always	114 (69.1)
Sometimes	40 (24.2)
Never	11 (6.7)
External genitals cleaned with	
Water	99 (64.3)
Water and soap	55 (35.7)
Privacy for washing and drying undergarment present	154 (93.3)
Drying of undergarment outside house in sun	109 (66.1)

is seen in 92.7% and mostly (74.8%) with soap and water. External genitals are cleaned regularly by 69.1% of girls and

most of the girls (64.3%) use water for cleaning. 93.3% of girls have privacy for washing and drying undergarment. 66.1% of girls dry their undergarments outside house in sun, whereas 33.9% dry them inside house, in bathrooms, or under other clothes due to shame, increasing the risk of microbial colonization of the cloths. Hygienic practices were not influenced by the type of school or sociodemographic characteristics. Overall, the practices related to menstrual hygiene were satisfactory.

Both the schools have separate bathroom for girls, adequate privacy with continuous supply of water. None of the girls have issues with hygiene management at school. 32.7% of girls reported absenteeism from school during their periods and the most common (87.7%) reason for absenteeism was pain, discomfort, or tiredness [Table 6].

Table 7 gives us an idea about the restriction practices followed by girls during menstruation. Most of the restrictions were related to praying (88.45%) followed by kitchen work (21.82%), whereas 11.51% had no restrictions in the house. Of those who had restrictions, 65.3% were comfortable with the restrictions as it keeps them away from the household work and gives them chance to take rest. Remaining 34.7% were not happy with the restrictions saying that it interferes with their freedom. Restrictions followed were not statistically different among government and private school girls or type of family.

Looking at the scenario, it is found that the knowledge about menstrual cycle is very poor, menstrual hygiene management is average and requires some improvement. Keeping this in mind, a session was organized for the girls and interested staff members of the school with a vision to improve their knowledge and practices related to menstrual cycle and hygiene.

DISCUSSION

In the current study, menarche awareness was found to be very low, that is, 35.8% and only 18.6% of girls considered menstrual cycle as physiological process. Only 11.9% of girls know that bleeding takes place from uterus. In our study, it is found that 15.9% are aware that pregnancy is associated to menstrual cycle and 35.8% know that females stop menstruating as they grow old. The source of information for most of the girls was mother (43%). In this study, 71.7% know the importance of perineal hygiene and 62.8% know the risk for genital infections in unhygienic conditions. Only 21.7% know that abnormal discharge and foul smell indicates infection and needs treatment. 97% of girls use sanitary pads, 95.6% change their pads at least twice in a day, and 87.3% changed pads before going to bed. In this study, 63% of girls dispose their pads in dustbin, whereas 23.6% throw in drains or wasteland or commode. 64.8% of girls wrapped their pads

Table 6: School absenteeism

School absenteeism	n (%)
Most of the times (≥ 3 days a month)	54 (32.7)
Sometimes (≤ 2 days a month)	52 (31.5)
Never	59 (35.8)
Reason for school absenteeism	
Afraid of staining	13 (12.3)
Pain, discomfort or tiredness	93 (87.7)

Table 7: Restrictions followed during menstrual bleeding

Restrictions followed	n (%)
School	3 (1.82)
Kitchen work	36 (21.82)
Prayers	141 (88.45)
Going out	25 (15.15)
Food	10 (6.06)
No restrictions	19 (11.51)

always and 52.9% used paper for wrapping while 45.4% used paper then plastic. It is seen that all the girls in our study bath daily which is a good practice. External genitals are cleaned regularly by 69.1% of girls and mostly with water (64.3%). Most of the restrictions in our study were related to praying (88.45%) followed by kitchen work (21.82%), whereas 11.51% had no restrictions in the house. School absenteeism due to menstrual problem was seen among 32.7%, the most common reason for absenteeism being menstrual symptoms such as pain, discomfort, and tiredness (87.7%).

It can be seen from different studies that menarche awareness ranges from 29% to 80% in different parts of the country, highest seen in Chandigarh.^[3-8] In the present study, only 18.6% of girls considered menstrual cycle as physiological process which is comparatively much lower than found in other studies (Srivastava and Chandra - 87%, Kumar *et al.* - 52.8%, Shanbhag *et al.* - 73.7%, Prajapati and Patel - 33.1%, and Dasgupta and Sarkar - 86.25%).^[2,3,5,18,19] In a study done by Srivastava and Chandra, 73.7% of girls know about this fact that bleeding takes place from uterus which was higher than our finding.^[2] A study done by Prajapati and Patel reveal that only 17% of girls are aware about uterus as the organ of menstrual bleeding similar to our study.^[18] In a study done by Shanbhag *et al.*, it is seen that 35.8% of females know about its association to pregnancy and 46.5% considered it to be a lifetime process.^[5] In this study, 56.6% of girls were able to tell the correct duration of cycle and menstrual flow which is very low as compared to the study done by Srivastava and Chandra where it is found to be 80%.^[2] There are substantial doubts about menstruation and were influenced by societal myths and taboos in relation to menstrual practices.^[6] Overall, we can see that the knowledge regarding menstrual cycle is unsatisfactory and there is need for improvement. The source of information for most of the girls was mother (43%)

as seen in other studies (Srivastava and Chandra - 75%, Kumar *et al.* - 50.8%, Shanbhag *et al.* - 55.1%, Thakur *et al.* - 35.7%, Prajapati and Patel - 48.9%, and Dasgupta and Sarkar - 37.5%).^[2,3,5,8,18,19] Although it is expected 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 the studies was mother and sister. Contrary to the observations made by different studies, it is seen that in Mumbai the source of information was usually through school teachers and family relations, especially mother.^[8]

Our study shows better practices related to menstrual hygiene as compared to other studies. In other studies, the use of sanitary pads ranged from as low as 11.25% to 76%.^[2,5,11-20] A study report use of some material inserted within vagina.^[4] In a study done by Jyoti, it is seen that 53.2% of girls change their pads once in a day.^[20] In another study reported that 72% and 57.2% of girls dispose their pads in dustbin.^[2,20] Srivastava and Chandra in his study found that 9.3% of girls take bath on the 5th day of menstrual flow.^[2] Daily bathing habit ranges from 83.7% to 95.5%.^[5,16,18] Perineal hygiene was maintained by 76.9%, 41%, and 90.9% in different studies.^[16-18] A study done by Shamima showed that external genitals were cleaned by water in 76.9%, Shanbhag *et al.* revealed that water and soap were most commonly used (56.8%), and also Dasgupta and Sarkar 97.5%, warm water was used for cleaning by 81.2%.^[5,16,19,20] There are studies which show that improper hygienic practices are associated with urogenital infections.^[11-13]

Most of the restrictions in our study were related to praying followed by kitchen work, whereas 11.51% had no restrictions in the house. Similar observations were made by Srivastava and Chandra, Shanbhag *et al.*, Thakur *et al.*, Shamima *et al.*, and Dasgupta and Sarkar.^[2,5,8,16,19]

School absenteeism due to menstrual problem was seen among 32.7%, as seen by Bodat *et al.*, it is 43.2%.^[20] The most common reason for absenteeism being menstrual symptoms such as pain, discomfort, and tiredness (87.7%), similar findings were made by Bodat *et al.*^[23] WASH studies have shown an association between toilet improvement and absenteeism.^[23] In the current study, none of the girls had any issues with hygiene management at school. Some studies show that improvement in the sanitation facilities at school will improve enrolment of adolescent girls and reduce their absenteeism.^[21-23]

Strength and Limitations

This study was conducted by interview method and any doubts were addressed there itself. A session was also conducted with an intention to impart the right education and to have a healthy group discussion so as to break the barrier of shame associated to menstruation, rather than just collecting

information from them. This study could not assess the change in the knowledge, attitude, and practices post-session.

CONCLUSION

The knowledge about menstrual cycle is found to be very poor with schools playing no role in its improvement. Schools need to be encouraged in imparting right information and encouraging girls to speak with their relatives as they can pass on the knowledge. The practices related to menstrual hygiene were satisfactory but need improvement in disposal of menstrual waste.

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How to cite this article: Chauhan P, Shaik RA, Anusha DVB, Sotala M. A study to assess knowledge, attitude, and practices related to menstrual cycle and management of menstrual hygiene among school-going adolescent girls in a rural area of South India. *Int J Med Sci Public Health* 2019;8(2):114-119.

Source of Support: Nil, **Conflicts of Interest:** None declared.