



A Study on Knowledge Regarding Menstruation and Menstrual Hygiene among School Girls of Karad

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Menarche is an important milestone in women's life usually occurring between 12-14 years of age. It reflects the health status of the population as it marks as the beginning of sexual maturation. The adolescent girls usually undergo menarche unprepared and they lack the knowledge of menstruation and also practice poor hygiene. Poor hygiene and inadequate self-care practices have major determinants of morbidities and other complications. Therefore, it is important to spread awareness of menstruation and its proper hygiene practices.

Materials and Methods: A community-based survey was conducted among 84 school girls of Karad. Data was collected using a questionnaire including the demographic information of each participant. The duration of study was 6 months.

Results: The study revealed that the mean age of menarche was 11.05 years. Out of total participants, 44.05% girls had poor knowledge of menstruation and 35.71% girls had poor hygienic practices during menstruation.

Conclusion: The study concluded that there is a prevalence of early menarche and it is associated with various factors. The adolescent girls should be made aware about menstruation and its hygiene at an early age. The girls who attained menarche early had a poor knowledge than that of the girls who attained menarche at a normal age.

Keywords: Menstruation; hygiene; knowledge; menarche.

1. INTRODUCTION

Menstruation occurs during the adolescent age group. The World Health Organization (WHO) defines age group 10-19 years as adolescence. In India one-fifth of total population comprises of adolescence [1,2]. This period is considered as a vulnerable, especially for girls as they go through many hormonal and bodily changes during this period. Menstruation is a normal and unique phenomenon to this age group which indicates the woman's capability of procreation. But this is not easy for every growing female. Some woman experience problems during this period [3].

Menarche is one of the most important milestones in women's life. The onset of menstruation is one of the important changes occurring among the girls of this age group [4]. This is an important milestone that signifies transformation from girlhood to womanhood. Age at menarche and maintaining adolescent menstrual hygiene reflect the health status of population as it marks the beginning of sexual maturation and is affected by various factors like socio-economic status, body mass index, lifestyle, genetic factors, level of education and many more [1,3]. Some bodily changes occur in girls in this phase. Changes are associated with puberty like changes in girls physical, psychological and social development. It is clinically very important in the diagnosis of delayed puberty and pathological and hormonal disorders [1].

Studies have suggested that, menarche tends to appear early in life as the alterations in sanitary, nutritional, environmental and economic conditions of society occur. The mean age at menarche is known to be a sensitive characteristic as in most females, it occurs between the ages of 12- 14 years, however, it shows remarkable variation. A study revealed that, every decade there is decrease in the mean age of menarche [5].

The Indian society is interwoven into set of as traditions, myths, misconceptions and superstitions about the menstruation and its hygiene. Isolation of the menstruating girls, social restrictions imposed on them create as negative attitude of them towards menstruation. This leads to some misconceptions about menstruation due to lack of knowledge about

menstruation and its hygiene in the family and society. Studies have suggested that most of the girls enter this phase with incomplete and inadequate information about menstruation, its physiology and hygiene [6].

There is a taboo related to menstruation and its hygiene practices in India. Girls' menstrual hygiene and self-care is a critical issue that determines the health status. Poor hygiene and inadequate self-care practices have major determinants of morbidities and other complications [3]. Good hygienic practices which include use of sanitary napkins, washing genitals and disposal of sanitary napkins are essential during this period and should be taught to the girls during their first experience of menarche. During this period, women need soft absorbent sanitary products which will also protect them from infections and protect their health [6].

Studies have revealed, reproductive tract infections are more common due to lack of hygiene during menstruation [6]. A study of Indian women shows that, young girls are generally not educated about menstruation until their first experience. Limited knowledge available to their mothers is informally passed to their daughters [3]. Knowledge about menstrual hygiene is important among school girls. Menstruation is an important cause of absenteeism and even school dropouts.

There may also be difference in knowledge of menstruation and menstrual hygiene in early and late menarche age group or some may even not be aware about it yet. Therefore, increased knowledge about menstruation and its hygiene right from childhood may impose safe practices and may help in reducing the suffering of millions of women. During menstruation, a woman comes across various problems related to menstrual hygiene; especially in public places [7]. Many women face problems like inadequate expenses for commercial sanitary products, lack of water, and toilet facilities, lack of private rooms for changing pads, and limited education regarding hygiene. Menstrual hygiene is essential during menstruation; use of sanitary napkins, disposal of pads, cleaning of genitals is important [2,8].

The adolescent's population is a vulnerable group therefore, they should be taught about

menstruation and its proper hygiene and self-care practices as poor hygiene and inadequate self-care practices have major determinants of morbidities and other complications in adolescents [3]. Therefore, if the knowledge about menstruation and its proper hygiene is given right from childhood, it may escalate safe practices and may help in mitigating the suffering of millions of women [8]. A key priority for all women and girls is having a proper knowledge, adequate facilities and a good cultural environment so as to manage menstruation with proper hygiene and dignity [6].

This study aims to find out the knowledge and practice of menstrual hygiene among the school girls in Karad and also to find out the prevalence of early menarche among these girls. This data about their level of knowledge and hygiene practices would be beneficial for planning programs for improving awareness level and promoting quality of life.

2. MATERIALS AND ETHODOLOGY

Study type: It was a community based observational study

Place of study: Karad

Population and sample size: Eighty-four school girls between the age group of 10-15 years.

Sampling method: Simple random sampling technique.

Sample size formula: $4pq/l^2$
Where $p=70$, $q=30$, $L=10$

Study duration: 6 months

Inclusion criteria: Age group: - 10-15 years and girls who attained menarche.

Exclusion criteria: Students having disabilities or who were Non Residential Indians, foreigners, refugees and migrants were excluded from the study.

Procedure: Participants were selected from a school on the basis of inclusion and exclusion criteria. The procedure was explained to the teachers, parents and the students. The questionnaire was handed to the girls and the instructions to fill out the questionnaire was

given and the data was collected. After the filling of questionnaire, the session was taken for explaining what menstruation is and the importance of menstrual hygiene during this period. After the data collection the statistical analysis was done and the results were calculated.

Statistical analysis: After collection of the data, each questionnaire was coded and arranged an entered into the in-stat graph-pad. Frequencies of variables were used to check the missed values. The errors were identified and corrected using the original data. The descriptive analysis including frequency, percentage and measures of central tendency was done. Bivariate analysis was performed between the dependent variables and each independent variable one at a time. The odds ratio at 95% confidence interval and p-values were obtained. Statistical calculation also showed no significant changes in knowledge and hygiene practices of early and late menarcheal age groups

3. RESULTS

3.1 Age of Menarche and Factors Affecting it

A total of 84 high school girls participated in the study. Out of which 36(42.85%) girls were 10-12 years old and the remaining 48(57.15%) were 13-15 years old. Out of 84 respondents, a total of 57(67.86%) respondents attained menarche at early age, out of which 36(42.85%) respondents attained menarche between the ages of 10-11 years and 21(25%) respondents attained menarche between the ages of 11-12 years, and the remaining 27(32.15%) respondents attained menarche between the ages of 12-14 years. The mean age of menarche was 11.05 years. Fifty-four (64.29%) respondents' mothers were housewife and 53(63.09%) respondents' mothers had secondary education. Forty-two (50%) respondents' fathers were farmers and 36(42.85%) respondents' fathers were employed at services and 6(7.15) were self employed [Table1].

Socioeconomic status of the girls was obtained from the demographic information and was obtained by the scores of modified kuppusswamy scale 2012 and the results showed that out of 84 participants, 18 (21.42%)

participants were from lower-class, 23 (27.38%) girls were from middle-class and 43 (51.19%) participants were from upper-class. Thirty (35.71%) of girls were from upper-class, 15 (17.85%) girls from middle-class and 12 (14.28%) girls from lower-class attained menarche early.

The height and weight of girls were obtained and the BMI was calculated which revealed that, 49 (58.33%) girls had ideal BMI, 27 (32.14%) girls were overweight and 8 (9.52%) girls were obese. Out of all 84 girls, 27 (32.18%) girls with ideal BMI, 24 (28.57%) overweight girls and 6 (7.14%) obese girls attained menarche at an early age.

The lifestyle and physical activity of the girls were studied which showed that, 61(72.61%) girls had a sedentary lifestyle and 23 (27.38%) girls were active and also 37 (44.04%) girls, 26 (30.98%) and 21 (25%) girls were involved in mild, moderate and heavy physical activity. Out of the 84 participants 41 (48.80%) girls having sedentary life style and 16 (19.04%) girls who were active had early occurrence of menarche. Twenty-two (26.19%) girls with mild physical

activity, 18 (21.42%) girls with moderate physical activity and 17 (20.23%) girls with heavy physical activity attained menarche at an early age.

Out of all 84 participants, 47 (55.95%) girls had mixed type of diet and 37 (44.05%) girls consumed only vegetarian diet. And it revealed that, 35 (41.66%) girls who had mixed diet and 22 (26.19%) girls consuming vegetarian diet had attained menarche early.

3.2 Knowledge of Menstruation and its Hygiene

According to the data obtained from the participants, 47(55.95%) respondents had a good knowledge about menstruation and its hygiene. Out of total 84 participants, 36(42.85%) believed that menstruation was a physiological process, 41(48.81%) respondents did not know the cause of menstruation, 2(2.39%) respondents believed that it was because of a curse from god and 5(5.59%) respondents thought that there may be other causes of menstruation.

Table 1. Socio-economic characteristics of participants

Age during the interview	Number(n)	Percentage (%)
10-12 years	36	42.85
13-15 years	48	57.15
Age at menarche		
10-11 years	36	42.85
12-13 years	21	25
14-15 years	27	32.15
Education of father		
None	0	0
Primary	14	16.67
Secondary	48	57.14
Tertiary	22	26.19
Education of mother		
None	4	4.76
Primary	8	9.52
Secondary	53	63.09
Tertiary	19	22.63
Occupation of father		
Farmer	42	50
Employed at service	36	42.85
Self-employed	6	7.15
Occupation of mother		
Housewife	54	64.29
Employed at service	21	25
Self-employed	9	10.71
Mean age at menarche	11.05 years	

Table 2. Knowledge of menstruation among school girls

Variables	Frequency	Percentage (%)
Cause of menstruation		
Don't know	41	48.81
Physiological process	36	42.85
Curse of god	2	2.39
Other	5	5.95
Menstruation is a disease		
True	38	45.24
False	46	54.76
Women stop menstruating as they grow old		
True	32	38.10
False	52	61.90
Menstrual blood comes from womb		
True	41	48.81
False	43	51.19
Pain during menstruation means that someone is sick		
True	11	13.09
False	73	86.91
Knowledge score		
Good	47	55.95
Poor	37	44.05

Table 3. Knowledge and practice of menstrual hygiene among school girls

Variables	Frequency	Percentage (%)
Materials used during menstruation		
Sanitary napkins	82	97.61
New cloth	2	2.39
Reused old cloth	0	0
Alternate use of above all	0	0
Frequency of cleaning genitals during menstruation		
Not at all	24	28.57
>2 times a day	11	13.09
<2 times a day	28	33.34
As per convenience and privacy	21	25
what do you clean your genitals with		
Only water	48	57.15
Soap water	31	36.90
Any intimate washes	5	5.95
Piece of cloth	0	0
Frequency of changing pads		
After 2 hours	0	0
After 4 hours	16	19.04
After 6 hours	8	9.52
Until its full	60	71.44
Method of disposing the sanitary pads		
Throwing in dustbin	79	94.05
Flushing in toilets	3	3.57
Washing and reusing	2	2.38
Burning	0	0
Practice		
Good	54	64.29
Poor	30	35.71

Thirty-eight (45.24%) respondents thought menstruation is a disease. Forty-one (48.81%) knew the origin of menstrual blood. Majority of respondents (85.71) received information about menstruation from their mothers before attainment of menarche, followed by teachers, 9(10.72%) and fathers, 3(3.57%) and 82(97.62) respondents received information concerning menstruation from their mothers followed by 2(2.38%) from their friends after attainment of menarche. Thirty-nine (46.43%) respondents knew about the physiological changes in females: 81(96.43) respondents told their mother when they attained menarche followed by teachers, 2(2.38%) and friends (1.19%). Out of 84 participants, 14(16.67%) respondents learnt about menstruation and its hygiene in school.

3.3 Hygiene Practices during Menstruation

According to the data obtained, out of 84 participants, 54(64.29%) respondents had good hygiene practices. Majority of the girls 82(97.62%) used sanitary napkins during menstruation and only 2(2.38%) girls used cloth as the absorbent during menstruation. Out of 84 participants, 48(57.14) girls, menstrual products were easily available. Twenty eight (33.34%) washed their genitals <2 times a day. 48(57.15%) girls washed their genitals using only water, Thirty-one (36.90%) girls used soap and water and 5(5.95%) girls used commercial intimate washes.

Sixty (71.44%) girls changed their sanitary pads after it was full and 79(94.05%) girls were disposing their used sanitary pads in the dustbin.

3.4 Attitude towards Menstruation and its Hygiene

As per the data collected, out of 84 participants, 62(73.80%) girls remained absent to school during menstruation while 44(52.38%) girls, were restricted from activities like sports, dance and daily activities due to menstruation. Only 4(4.76%) girls knew about other menstrual products like tampons, menstrual cups, etc. and only 1(1.19%) girl knew how to use the menstrual cups and tampons.

4. DISCUSSION

The current study was conducted among 84 participants from age groups of 10-15 years and

it was seen that 57 out of them had early menarche. This study was done to assess the prevalence of early menarcheal age in adolescent girls and the level of knowledge about menstruation and menstrual hygiene practices in the adolescent school girls in Karad. This study showed that the mean age of menarche was 11.05 years. They lack the knowledge regarding menstruation and menstrual hygiene and usually attain menarche unprepared. The girls who attained menarche early had less knowledge as compared to the girls who attained menarche during the normal age. Also, the girls lack awareness about the practice and care that is to be taken during the menstruation period.

In this study, the mean menarcheal age among 84 participants was 11.05. A similar study was conducted in Mangalore, Karnataka on age of menarche and its relations with exogenous factors: the study showed the average age of menarche was 12.05 years. This study also showed that most of the girls from urban population had prevalence of early menarche. A study conducted by Joyce Okagua et al on menarchial age and nutritional status showed that the menarchial age was between 10-13 years and that every decade there is decrease in the mean age of menarche [5].

In this study, 67.86% respondents attained menarche early. Most of the girls (46.43%) knew about the physiological changes in the female body. Majority of the participants (85.71%) knew about menstruation before attainment of menarche from their mothers. Similarly, the study conducted in Saoner, Nagpur (Thakre et al) reported that (36.9%) of the respondents knew about menstruation before menarche [6]. Upashe et al conducted a study with the girls of 9th and 10th grade, reported that (79.3%) of girls knew about menstruation before menarche [7]. Raina et al conducted the similar study in Dehradun, Uttarakhand reported that (34.67%) of girls were aware of menstruation before attainment of menarche [9]. A study conducted in Aligarh by Tarannum et al reported that (41%) of girls knew about menstruation before menarche (16.67%) respondents reported that they learnt about menstruation in schools [1]. The study conducted in Amhara Province Ethiopia Gultie et al showed that (74.2%) girls learnt about menstruation in school [10].

In this study the information about menstruation was usually given by the mothers in (85.71%)

participants, followed by teachers (2.38%) and friends 1.195. The results were lower in the study conducted by Mudey et al, 40.67% of participants got information about menstruation from their mother followed by television 23.67% and friends 19% [4]. The study conducted by Upashe et al revealed that 67.8% of participants got information from their friends followed by mass media 57% teachers 50.4% and mothers 35.1% [7]. Gultie et al conducted the study in Amhara province in Ethiopia reported that 43.1% of participants got the information from teachers, followed by mother 22.96% [2]. Tarannum et al conducted a study in Aligarh showed that mothers 64.9% were the main source of information followed by sister 17.3% and friends 11.1% whereas the teachers constituted 2.8% [1,11].

This study revealed that 55.95% of girls had good knowledge of menstruation. Most of participants 42.85% believed that menstruation was a physiological process, 48.81% respondents did not know the cause of menstruation 2.39% respondents believed that it was because of curse of god and 5.59% respondents thought that there may be other causes of menstruation. The study conducted by Upashe et al in Western Ethiopia reported that 60.9% girls had good knowledge about menstruation. Some of the girls (7.1%) did not know the cause of menstruation, 76.9% knew that menstruation was a physiological process and 9.7% of them believed that it was a curse from god [7]. The results in the study conducted by Raina et al in Dehradun Uttarakhand showed that 52% of girls did not know the cause of menstruation, 28.67% believed that menstruation is the curse from god and 19.33% girls thought it was a physiological process [3]. In the study conducted at Saoner Nagpur Thakre et al reported that 80.62% of girls did not know the cause of menstruation, 18.35% believed that menstruation is a physiological process whereas 1.03% girls thought it is a curse from god [6].

This study reported that, (64.29%) girls had good hygienic practices, (97.61%) girls used sanitary napkins during their menstrual cycle and (2.39%) girls used cloth. Majority of the girls (94.05%) disposed the sanitary napkins in the dustbins, (3.57%) girls flushed it in the toilets. Most of the girls (57.15%) cleaned their genitals using only water, (36.90%) girls cleaned with soap and water and (5.95%) used

intimate washes to clean the genitals. Similar results were seen in the studies conducted by different authors; In study conducted in Saoner, Nagpur Thakre et al reported that (40.57%) girls washed the genitals using only water, (58.18%) girls used soap and water (1.29%) girls used water and antiseptics [6]. Similar results were seen in the study conducted in Dehradun Raina et al; (58%) girls use only water for cleaning the genitals, (39.33%) girls used soap and water and (2.67%) girls used water and antiseptics [3]. Mudey et al conducted the similar study in Wardha district that showed (31.67%) girls use only water and (59.33%) girls use soap and water to clean the genitals [4]. The results of the study conducted in Western Ethiopia Upashe et al revealed that (39.9%) girls had good hygiene practices, (95%) of girls was their genitals during their menstruation and (85%) girls wash genitals using soap and water [7].

This study revealed that (73.80%) girls remain absent in school during menstruation and (52.38%) girls' activities are affected during menstruation. The study conducted in Amhara Province in Ethiopia Gultie et al indicate that (51.2%) girls remain absent from school, (40.9%) girls felt that menstruation interferes with the school performances and (64.4%) girls report that the activities were restricted during menstruation [2].

5. CONCLUSION

On the basis of the result of the study, it was concluded that there is a prevalence of early menarche in high school girls of Karad. The knowledge about menstruation and menstrual hygiene was observed to be less, in school going girls. It was also observed that the early menarche age group were less aware about menstruation and menstrual hygiene than those who attained menarche at appropriate age group. There is need to create awareness and properly educate adolescent girls about menstruation and menstrual hygiene. They should be given information about safe hygiene practices during menstruation. Older woman should also be educated about menstruation and safe hygiene practices during the period in order to pass on the right knowledge and practices about menstrual hygiene to adolescent girls.

6. RECOMMENDATION

The study can be conducted with large sample size and focusing on rural population.

7. LIMITATION OF THE STUDY

The study was conducted in a local geographic area focusing on urban population. Also, the study was conducted with small sample size.

CONSENT

The consent and assent form was given and consent was taken from participants.

ETHICAL APPROVAL

Ethical approval was taken from institutional ethical committee of Krishna Institute of Medical Sciences, Karad.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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