International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Ravindranath W et al. Int J Reprod Contracept Obstet Gynecol. 2023 Sep;12(9):2633-2639
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20232469

Original Research Article

Assessment of knowledge, attitude, and practice of menstrual hygiene amongst school students in rural India

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Received: 15 July 2023
Accepted: 31 July 2023

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ABSTRACT

Background: Lack of information access, traditions, socio-cultural taboos, and hence social embarrassment regarding menstrual hygiene has led to women's health deterioration which led to the development of an embarrassing attitude among women toward practicing menstrual hygiene in rural settings. The information gathered on this issue can be utilized by various NGOs and policymakers to make necessary changes. This study was undertaken to assess the knowledge and attitude about menstruation among school teachers, boys, and girls, including the menstrual hygiene practices of the school girls.
Methods: A cross-sectional study was conducted at two schools in Sawarde village, Ratnagiri, India, among 450 boys, 361 girls, and 20 teachers from 7th to 12th grade. Analysis of knowledge, attitude, and practice was done using descriptive analysis.
Results: 100% of teachers, 72.02% of female students had good knowledge, while only 32.44% of male students had good knowledge. It was found that 100% of teachers, 28.81% of female students, and only 2.89% of male students had positive attitudes about menstruation. It was found that 90.86% of female students used sanitary pads, 36.29% changed their pads three times or more a day, 52.08% used paper to wrap and dispose of pads, 87.26% disposed it into dustbins, 93.63% cleaned genitalia during menses.
Conclusions: IEC and behaviour change communication are needed to spread awareness and empower females regarding menstruation and menstrual hygiene. This program should include girls, their families, peers, and the community.

Keywords: Knowledge, Attitude, Practice, Menstrual hygiene

INTRODUCTION

Menarche is a crucial developmental stage, not only physical but also mental and emotional transitional process of a girl adopting womanhood. Knowledge, attitude, and practice of menstrual hygiene play a decisive role in the reproductive health of a woman's life. In the underdeveloped rural villages of western Maharashtra (Konkan: Sawarde) where menstruation is considered a social stigma, and the problems females face go unaddressed, thus causing a lack of knowledge and awareness amongst the localities here, therefore leading to the deterioration of the rural woman's health.

Another major issue in such places is poverty. The lack of economic support has led to poor washroom facilities in the households, inadequate water, and soap availability, in addition to sanitary pad affordability; thus, rural women tend to neglect or even opt for a cheaper, unsafe alternative that is hazardous to their reproductive health.[1,2] Lack of menstrual hygiene and unsafe practices adopted by villagers have led to the transmission of reproductive tract

infections and sexually transmitted infections (RTI and STI). Example, using a contaminated piece of rag instead of a clean, sanitary napkin due to the embarrassment of a lack of washing and inadequate sun drying and reusing the same piece of infected cloth for days and over multiple cycles.[3,4]

Girls learned about menstruation from their mothers primarily, according to studies done in low- and middle-income nations like Bhutan, India, Saudi Arabia, and Iran, which tended to concentrate on behaviours to be avoided due to cultural taboos.[5-10] Taboos result in socially imposed limitations, such as exclusion from daily prayers, avoidance of particular foods, participation in fasting rituals, avoidance of touching holy objects or flowers, and even exclusion from kitchens and temples due to the stigma attached to menstrual blood, which is deemed "dirty" by some.[6] Along with feelings of guilt, the refusal to properly recognize women's physical reality has several harmful consequences.[11]

The imposition of traditional, socio-cultural restrictions over menstruation has caused discomfort and led to an embarrassing attitude among women towards practicing menstrual hygiene in rural settings.[12,13] Superstitions and misinterpretations among boys and adults have given rise to teasing and mocking girls, harming them mentally and emotionally.[14,15] Sawarde being a rural region and an economically backward society, in addition to these cultural limitations, has led to deterioration in women's reproductive health, as menstruation and its hygiene-related affairs are seldom addressed, which has eventually led to an inadequate collection of data on this concern. The information gathered on this issue via the studies conducted can be utilized by various NGOs and national health programs to amend changes by reaching out to the poverty struck regions and providing funds and resources to facilitate awareness and practice of menstrual hygiene in an optimistic outlook. This study was undertaken to assess the knowledge and attitude about menstruation among school teachers, boys, and girls, including the menstrual hygiene practices of the school girls.

METHODS

The given study is a cross-sectional study that was conducted at two schools: SVJCT's English medium school, and Govindrao Nikam secondary and higher secondary school of Sawarde village, Ratnagiri, India, for eight months (December 2022 to July 2023). The study commenced after seeking approval from the institutional ethical committee.

It was a questionnaire-based study. A pretested questionnaire with several questions adapted from previous studies was validated by a pilot study conducted over a small group of students and teachers.

This questionnaire includes socio-demographic data and six questions to assess knowledge about menstrual hygiene, eight questions to assess attitude towards menstrual hygiene, and five questions to assess menstrual hygiene-related practice. The scores for knowledge items were given, one for each correct answer and a score of zero for an incorrect answer. Later all scores were summed up and classified into two categories, good (more than and equal to 80%score) and poor (below 80% score). Similarly, all the attitude statements were measured on a three-point Likert scale ranging from does not believe, do not know, and believe. A score of one was given for the correct statement and zero for the do not know or the wrong statement. Later, all scores were summed up and classified into two categories, positive attitude (more than and equal to 80% score) and need improvement (below 80% score).

A total of 811 students and 20 teachers were selected for the study by taking due verbal consent from the principals of both schools and the school authorities before conducting the study.

Our study population included school children, boys and girls from 7th to 12th standards, and their teachers. Due consent was taken from each candidate participating in the study, and explained the study's importance and the method of completing the questionnaire. After this, they were allotted their identification code and respective questionnaires (for males and females). They were given 20 minutes to answer, following which the questionnaire was collected and segregated for analysis.

Exclusion criteria included girls who had not attained menarche, girls who were not ready to consent, and boys and girls who were mentally and physically unfit to answer the questions given in the questionnaire.

Statistical analysis

The collected data were tabulated using a Microsoft excel sheet and subjected to statistical analysis using statistical package for the social sciences (SPSS) Windows version 20.0. The data was analyzed using proportions, percentages, frequency distribution, and measures of central tendency.

RESULTS

Knowledge

A total of 831 people participated in the study, out of which female students were 361 (43.44%), male students 450 (54.15%), and 20 teachers (2.41%). The mean age of the girls and boys are 14.68 and 14.83 years, respectively. Of the students, 555 (66.79%) were from Govindrao Nikam School, Sawarde, Ratnagiri, and 276 (33.21%) were from SVJCT's English medium school (Table 1).

The overall knowledge score with 426 (51.26%) participants scoring 80% or above (good knowledge) and 405 (48.74%) scoring below 80% (poor knowledge).

There were four questions that less than 80% of participants answered correctly, it being: what is menstruation (77.62%), what is the source of menstrual blood (29.12%), do girls experience headaches during menstruation (69.19), what is the average interval between two menstrual cycles (65.1%). There were two questions that over 80% of participants answered correctly, and they were: what is the cause of menstruation (86.88%) and what is the average cycle length (86.40%) (Table 2).

Table 1: Socio-demographic profile of participants.

Parameters	Value	%
Age (in years)		
Below 11	0	0
11-12	25	3.01
13-14	271	32.61
15-16	472	56.80
17-18	41	4.93
Above 18	22	2.65
Gender		
Male	458	55.11
Female	373	44.89
Grade		
7^{th}	57	7.03
8^{th}	173	21.33
9^{th}	303	37.37
10^{th}	234	28.85
11^{th}	13	1.60
12^{th}	31	3.82
School		
Govindrao Nikam		
Students	545	65.59
Teachers	10	1.20
Bkl Walawalkar		
Students	266	32.01
Teachers	10	1.20
Mothers education		
Illiterate	179	21.54
Primary	54	6.50
Secondary	450	54.15
Graduation	148	17.81
Fathers education		
Illiterate	43	5.17
Primary	16	1.93
Secondary	458	55.11
Graduation	314	37.79
Total no of family members		
>4	487	58.60
≤4	344	41.40
Total family income per month		
1000-10,000	171	20.58
10,000-1,00,000	590	70.99
>1,00,000	70	8.43

The knowledge levels were statistically different between Male and female students, where 72.02% of female students had good knowledge levels, while only 32.44% of male students had good knowledge ($p<0.0001$). Statistical difference was also found among the two schools, with $p=0.0006$. A statistically significant difference was noted between the knowledge level of teachers and students ($p=0.0001$) (Table 3).

Attitude

It was found that female students had a good attitude level was 28.81% while male students were 2.89%. 85.78% School boys do not believe men become sick on menstruating females touching them, 56% do not think that females should refrain from eating dairy or sour products during menses, 64.44% of school boys believe self-esteem boosts after menarche, while 75.11% of school boys think girls experience restriction during menstruation. 84.67% believe classic cotton clothes cause more infection than commercial pads, as insufficient sanitization is often possible. Although 49.78% do not believe girls attend school during menses, and 51.33% believe food and exercise have a role in the quantity and duration of menstrual flow (Table 4).

97.23% of school girls do not believe men become sick by the touch of menstruating females, 50.69% do not think that females while menstruating should refrain from eating dairy or sour products, 49.86 % do not think food and exercise have a role in quantity and duration of menstrual flow and 65.65% not believing menstruation should be kept a secret. 95.29% of school girls believe self-esteem boosts after menarche, 95.01% believe girls attend school during menses, and 91.97% believe classic cotton clothes cause more infection than commercial pads, as insufficient sanitization is often possible. 58.45% of school girls believe girls experience restriction during menstruation.

100% of school teachers do not agree that men become sick if touched by a menstruating female, 50.69% do not believe menstruating females should not be eating dairy or sour products, 91.97 believe classic cotton clothes cause more infection compared to commercial pads as insufficient sanitization is often possible, 80% do not believe food and exercise have a role in quantity and duration of menstrual flow, 95.29% believe self-esteem boosts after menarche, 90% believe menstruation should not be kept a secret, 95% believe girls attend school during menses, and 80% do not believe girls experience restriction during menstruation (Table 4).

Practices

It was found that 90.86% used sanitary pads, while 9.14% used rags, cloth, or toilet paper. 43.21% changed their pads twice daily, 36.29% changed them three or more times, and 20.5% changed them once daily. 52.08% used paper to wrap and dispose of the pads, 46.26% used plastic, and 1.66% disposed of unwrapped. It was found that only

87.26% disposed of it in the dustbin, while 6.37% disposed of it in the toilet, 5.54% disposed of it into drains, and 0.83% threw it into open fields. It was also noted that 93.63% cleaned their genitalia during menses, while 6.37% did not (Table 5).

Table 2: Menstruation and reproductive health knowledge results.

Parameters	School boys (%)	School girls (%)	School teacher (%)	Overall %
What is menstruation?	298 (66.22)	329 (91.14)	18 (90)	77.62 (645)
Causes of menstruation?	377 (83.78)	325 (90.03)	20 (100)	86.88 (722)
Source of menstrual blood?	116 (25.78)	108 (29.92)	18 (90)	29.12 (242)
Normal cycle length?	374 (83.11)	327 (90.58)	17 (85)	86.40 (718)
Girls can experience headache during menstruation?	252 (56)	305 (84.49)	18 (90)	69.19 (575)
Average interval between two menstrual cycles?	193 (42.89)	331 (91.69)	17 (85)	65.1 (541)
Knowledge score 80% and above	32.44 (146)	72.02 (260)	100 (20)	51.26 (426)
Knowledge score below 80%	67.56 (304)	27.98 (101)	0 (0)	48.74 (405)

Table 3: Knowledge levels by demographics.

Parameters	Knowledge, N%		P value
	Good knowledge	Poor knowledge	
Gender			
School girls	260	101	P<0.0001 (odds ratio: 5.36 CI 3.96–7.26)
School boys	146	304	
School			
SVJCTs English medium school	155	111	P=0.0006 (odds ratio: 1.629 CI 1.21–2.19
Govindrao nikam school	251	294	
Teachers	20	0	P<0.0001 (odds ratio: 40.90 CI 2.46–679)
Students	406	405	

Table 4: Menstrual attitude school girls, school boys and school teachers.

Participants	Parameter	Believes (%)	Does not believe (%)	Do not know (%)
School boys	Men will become sick if menstruating females touch them	30 (6.67)	386 (85.78)	34 (7.56)
	Females, while menstruating, should not eat dairy or sour products	158 (35.11)	252 (56)	40 (8.89)
	Classic cotton clothes cause more infection compared to commercial pads, as insufficient sanitization is often possible	381 (84.67)	46 (10.22)	23 (5.11)
	Food and exercise have a role in the quantity and duration of menstrual flow	231 (51.33)	186 (41.33)	33 (7.33)
	After menarche, self-esteem boosts	290 (64.44)	122 (27.11)	38 (8.44)
	Menstruation should be kept a secret?	230 (51.11)	214 (47.56)	6 (1.33)
	Girls should attend school during menses?	216 (48)	224 (49.78)	10 (2.22)
	Girls should have restrictions during menstruation? (visiting temple, entering the kitchen, touching foodstuffs)	338 (75.11)	100 (22.22)	12 (2.67)
School girls	Men will become sick if menstruating females touch them	7 (1.94)	351 (97.23)	3 (0.83)
	Females, while menstruating, should not eat dairy or sour products	161 (44.6)	183 (50.69)	17 (4.71)
	Classic cotton clothes cause more infection compared to commercial pads, as insufficient sanitization is often possible	332 (91.97)	23 (6.37)	6 (1.66)
	Food and exercise have a role in the quantity and duration of menstrual flow	160 (44.32)	180 (49.86)	21 (5.82)
	After menarche, self-esteem boosts	344 (95.29)	13 (3.60)	4 (1.11)
	Menstruation should be kept a secret?	120 (33.24)	237 (65.65)	4 (1.11)
	Girls should attend school during menses?	343 (95.01)	16 (4.43)	2 (0.55)

Continued.

Participants	Parameter	Believes (%)	Does not believe (%)	Do not know (%)
	Girls should have restrictions during menstruation? (Visiting temple, entering the kitchen, touching foodstuffs)	211 (58.45)	145 (40.17)	5 (1.39)
School teachers	Men will become sick if menstruating females touch them	0 (0)	20 (100)	0 (0)
	Females, while menstruating, should not eat dairy or sour products	1 (5)	17 (85)	2 (10)
	Classic cotton clothes cause more infection compared to 202 commercial pads, as insufficient sanitization is often possible	17 (85)	2 (10)	1 (5)
	Food and exercise have a role in the quantity and duration of menstrual flow	3 (15)	16 (80)	1 (5)
	After menarche, self-esteem boosts	20 (100)	0 (0)	0 (0)
	Menstruation should be kept a secret?	2 (10)	18 (90)	0 (0)
	Girls should attend school during menses?	19 (95)	1 (5)	0 (0)
	Girls should have restrictions during menstruation? (Visiting temple, entering the kitchen, touching foodstuffs)	3 (15)	16 (80)	1 (5)

Table 5: Menstrual hygiene practice amongst school girls.

Parameters	School girls	Overall, n %
Type of absorbent material used during menses?		
Sanitary pad	328	90.86
Rags /used cloth	26	7.2
Toilet roll	7	1.94
Frequency of changing absorbent material during menses?		
Once	74	20.5
Twice	156	43.21
Thrice or more times	131	36.29
Methods of disposing of used pads?		
Dust bin	315	87.26
Drain	20	5.54
Toilet	23	6.37
Open field	3	0.83
Type of pad wrap used?		
Papers	188	52.08
Plastic	167	46.26
Not wrapped	6	1.66
Do you clean the genitalia during menstruation?		
Yes	338	93.63
No	23	6.37

DISCUSSION

Our study shows that good knowledge levels were pretty high in female students (72.02%), which is considerably high as compared to Sangra et al and Isano et al.[16,17] While only 32.44% of male students had good knowledge as compared to the female students, although it is higher in comparison to studies done by Isano et al.[17] The knowledge levels were most lacking in the areas related to physiology as well as signs and symptoms of the menstrual cycle, similar observations were noted in studies done in Rwanda.[17]

All teachers' knowledge was better than students. Teachers are crucial in educating students, including menstrual health management and building a supportive environment, which is particularly important in rural areas where teachers are students' primary sources of information. Strengthening the menstrual health education programs in these areas for school students should be emphasized.

Findings showed that 91.14% of school girls had the idea that menstruation is a physiological process, which is significantly higher than the findings from other studies.[18,19]

Though most students know about menstruation which might be attributed to the inclusion of reproductive health education in school curricula and exposure to a wide range of information media like television, radio, internet, misperceptions persist. Still, 6.67% of schoolboys and 1.94% of schoolgirls believe men will become sick if menstruating females touch them, which is measurably less than the study done in Nepal.[20]

During menstruation, 4.43% of females feel the need to restrict their activities at home. Even today, 58.45% of girls still observe the taboo of avoiding temples, kitchens, and food items while menstruating, which is in line with research conducted by Pramodha et al and Sharma et al.[21,22]

Promotion of adolescent sexual and reproductive health and prevention of diseases are among the critical reasons for menstrual hygiene. Our study found that most school girls used sanitary pads during their menstruation, similar to reports from Lawan and colleagues from Nigeria and Yadav and colleagues from Nepal. However, in contrast to the study conducted in India and Nigeria, the majority were found to be using toilet rolls to manage menstrual blood.[20,23-25] This might be a result of widespread media coverage and the free provision of sanitary pads at primary health facilities. Our study showed that 93.63% follow

satisfactory cleaning of the external genitalia, which is in line with research conducted by Pundkar et al.[26]

Menstruation is a turning point and a regular event in a woman's life, a crucial indicator of her reproductive age and the start of her reproductive life. Women's reproductive health depends on good menstrual hygiene routines. Our results show that most school adolescents have a fair knowledge of menstrual hygiene management. However, there is still considerable scope for improvement of hygiene-related practices and attitudes toward taboos related to menstruation. IEC and behaviour change communication is needed to spread awareness and empower females regarding menstruation and menstrual hygiene. This program should include girls, their families, peers, and the community. One of the limitations of this study is that responses are self-reported. Additionally, a thorough investigation of menstruation behaviour was outside the purview of this study. It is advised to conduct additional research that is more qualitative to investigate the complex causes of poor menstrual hygiene practices.

CONCLUSION

IEC and behaviour change communication are needed to spread awareness and empower females regarding menstruation and menstrual hygiene. This program should include girls, their families, peers, and the community.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Ravindranath W, Ravindranath V, Chopade RR. Assessment of knowledge, attitude, and practice of menstrual hygiene amongst school students in rural India. Int J Reprod Contracept Obstet Gynecol 2023;12:2633-9.