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Original Research Article

Knowledge, attitude and practice regarding menstrual hygiene among adolescent girls in Imphal East, Manipur: a cross-sectional study

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ABSTRACT

Background: Adolescent girls' understanding of menstruation is characterized by poor knowledge and erroneous beliefs about menstruation. This study aims to determine the knowledge, attitude and practice regarding menstrual hygiene among adolescent schoolgirls and to assess any factors associated with menstrual hygiene.
Methods: A cross-sectional study was conducted from May 2017 to April 2019 among 1963 school girls of class 8 to 12 standards in Imphal-East District, Manipur. From the list of schools in the district, schools were selected randomly by lottery method and all eligible girls in the selected schools were included. A predesigned self-administered questionnaire was used to collect data. Data were analyzed using SPSS IBM Statistics version 21. Univariate and multivariate logistic regression analysis were performed to test for association. A p value<0.05 was taken as statistically significant.
Results: The mean (±SD) age was 15.45 (±1.59) years. More than half (51.3%) of the respondents had good knowledge regarding menstruation. Majority (60.2%) of the respondents have good attitude regarding menstruation. Studying in higher class AOR (95% CI) of 1.399 (1.157-1.675), Christian by religion AOR (95% CI) of 1.640 (1.038-2.591), higher educational level of father AOR (95% CI) 4.492 (1.492-13.52), studying in private schools AOR (95% CI) of 1.370 (1.031-1.172) and belonging to rural community AOR (95% CI) 1.266 (1.025-1.500) were significantly more likely to have good knowledge about menstruation.
Conclusions: More than half of the respondents had good knowledge and three-fifth of them had good attitude. Health education on menstruation and menstrual hygiene should be incorporated early enough in the school curriculum to prepare girls for menstruation.

Keywords: Adolescents, Manipur, Menstrual hygiene, School girls

INTRODUCTION

Adolescence is defined by World Health Organisation (WHO) as the period between 10-19 years of life and adolescent girls constitute about 1/5th total female population in the world.[1,2] Adolescent girls represent a vulnerable group, particularly in India where a female child is neglected. Menstruation is still regarded as something unclean or dirty in Indian society. Although menstruation is a natural process, it is linked with several misconceptions and practices, which sometimes result into adverse health outcomes. Health behaviours and practices vary from culture to culture, and ignorance of culturally divergent beliefs and practices may lead to failure in health care delivery, thereby complicating various reproductive health problems.[3] Adolescent girls' understanding of menstruation is characterized by poor knowledge and erroneous beliefs about how and why menstruation occurs.[4] Menstrual hygiene and its management is an issue that is insufficiently acknowledged and has not received adequate attention in reproductive health in developing countries. It has been reported that as many as 40-45 per cent of the adolescent girls have menstrual problems.[5] Moreover, poor personal

hygiene and unsafe sanitary conditions have also primarily resulted in gynaecological problems among the adolescent girls. There is interplay of socio-economic status and menstrual hygiene practices which lead to increased risk of RTI.[4,5] 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.[6] Although menstrual hygiene is an important health issue, there has been little data published from Manipur. This study aims to determine the knowledge, attitude and practice regarding menstrual hygiene among adolescent schoolgirls and to assess any association between knowledge, attitude and practice regarding menstruation with selected socio-demographic variables of interest.

METHODS

The study was carried out from May 2017-April 2019 among adolescent girls studying in classes 8th to 12th standards in High schools and Higher Secondary schools located in Imphal East District which is one of the sixteen districts of Manipur state in North-eastern India. As of 2011 census it is the second most populous district in the state occupying an area of 469.44 sq. km with a population of 452,661.[7] Those who were absent on the day of visit and those who refused to participate were excluded from the study. The sample size was calculated based on the formula, $n=4P(1-P)/L^2$, where P= prevalence, L= absolute allowable error. Taking prevalence as 48.75% based on a study done by Dasgupta et al with absolute error as 5% at 95% confidence interval, the calculated sample size was 1597.[6] Estimating a non-response rate of 10%, the final sample size was 1756. Hence, 1900 girls were targeted for data collection. The schools were stratified into government and private schools. Government aided schools were regarded as government schools. In Imphal-East district, there are 53 government and 83 private schools. Total school girls' enrolment in government schools were 20% (3842) and 80% (15183) in private schools respectively.[8] Based on the school enrolment proportion, 80% (1600) and 20% (400) of the calculated sample size were selected from private and government schools respectively. From the list of private schools in the district, schools were selected randomly and all eligible girls in the selected schools were included in the study till the required sample size was reached. Similarly, from the list of government schools in the district, schools were randomly selected and all the eligible girls in the selected schools were included in the study till the required sample size was reached. If the required sample size was not met since the school enrolment was very poor in government schools, the rest of the required sample were selected from private schools which were selected randomly. A predesigned self-administered questionnaire was used to collect data. The questionnaire consisted of socio-demographic profile, a total of 07 knowledge questions, 20 attitude statements and 12 practice questions.

Operational definitions

Of the knowledge score ranging from 0-7, respondents scoring above 5 were taken as having 'Good knowledge', those scoring between 3-5 as having 'Average knowledge' and less than 3 as having 'Poor knowledge'. A total of 20 statements were given according to which attitude was assessed using 3 point Likert scale (agree/undecided/disagree). Those responses to the attitude statements as undecided were grouped together with those who responded as disagree. Those who answered 15-20 statements with the attitude statements correctly was assessed as good attitude and less than 15 statements with the attitude statements answered correctly as poor attitude.

Statistical analysis

Collected data were entered in Microsoft Excel software and data cleansing were performed. Data were analyzed using SPSS IBM Statistics version 21 (Chicago, IL, USA). Analysis was done using descriptive statistics like mean, standard deviation and proportion. Analytical statistic like Chi-square test was used for comparing the proportions. P-value of less than 0.05 was considered statistically significant.

Ethical issues

Approval was taken from the Institutional Ethics Committee, vide letter no. Ac/06/IEC/JNIMS/2017 (PGT) dated 26th August 2017 for study Protocol No. 62 (18) PGT 2017 before the start of research. Written permission from all the participating school authorities and verbal assent or consent from all the participants were obtained. Their participation was completely voluntary and right to refuse to participate in the study was respected.

RESULTS

A total number of 19 schools were approached out of which 9 (52.6%) were government and 10 (47.4%) were private schools. The total number of participants approached were 2496 out of which 1963 participated with a response rate of 78.6%. The age of the participants ranged from 12 to 19 years. The mean age of the respondents was 15.45 (±1.59) years and median age was 15 years. Majority of the participants belonged to age group 15 years (467, 23.8%); majority of the respondents were studying in class 12 (485, 24.7%) followed by class 11 (428, 21.8%). Most of the respondents were Hindu/Sanamahi by religion 1339 (68.2%) followed by Muslim (538, 27.4%); about 1205 (61.4%) were residing at urban area and majority 1219 (62.1%) of the respondents were studying in private schools. Most of the mothers (863, 44%) and fathers (917, 46.7%) had completed 12th standard. Majority of mothers (1248,

63.6%) were homemakers and only 5.6% (110) were government employees. Only a fifth (399, 20.3%) of the fathers were Government employees while majority (1371, 69.8%) were either self-employed or work in private organizations. All of the respondents had attained their menstrual period. Majority (740, 37.7%) of the respondents attained their first menstrual period at the age of 12 years.

Table 1: Responses to knowledge questions (n=1963).

Questions	Response	N (%)
What is period/ menstruation?	Normal/physiological process	1491 (74.6)
	Disease/pathological process	26 (1.3)
	Curse of god	299 (15.2)
	Don't know	147 (7.5)
What is the cause of menstruation?	Hormones	1263 (64.3)
	Caused by disease	41 (2.1)
	Curse of god	280 (14.3)
	Don't know	379 (19.3)
What is the source of menstrual blood?	Uterus	785 (40)
	Urinary bladder	444 (22.6)
	Abdomen	127 (6.5)
	Don't know	607 (30.9)
What absorbent should be ideally used during menstruation?	Sanitary pad	1655 (84.3)
	Cloth	304 (15.5)
	Others	4 (0.2)
For how many days does a normal menstrual period last?	<2 days	247 (12.6)
	2-6 days	1341 (68.3)
	>6 days	375 (19.1)
What is the time period of one normal menstrual cycle (time from which the bleed starts to the start of the next bleed?	<21 days	662 (33.7)
	21-35 days	1091 (55.6)
	>35 days	210 (10.7)
How much is the normal menstrual bleed amount?	<20 ml (1 pad per day)	692 (35.3)
	20-80 ml (2-4 pads per day)	1166 (59.4)
	>80 ml (>4 pads per day)	105 (5.3)

Table 2: Responses to attitude statements (n=1963).

Statement	Agree N (%)	Undecided N (%)	Disagree N (%)
Menstruation affects normal daily physical activities	1344 (68.5)	311 (15.8)	308 (15.7)
Menstruation affects your attendance	1012 (51.6)	378 (19.3)	572 (29.2)
Menstruation affects interpersonal relationships like going out with friends and family	1520 (77.4)	203 (10.3)	240 (12.2)
Menstrual blood is unhygienic	1463 (74.5)	376 (19.2)	124 (6.3)
Girls should be forbidden to enter places of worship during menstruation	1439 (73.3)	208 (10.6)	316 (16.1)
Girls should be forbidden to enter kitchen during menstruation	960 (48.9)	327 (16.7)	676 (34.4)
Fruits should be allowed to eat during menstruation	696 (35.5)	512 (26.1)	755 (38.5)
Bitter food should be allowed to eat during menstruation	386 (19.7)	885 (45.1)	691 (35.2)
During menstruation, girls should attend religious functions	924 (47.1)	456 (23.2)	583 (29.7)
During menstrual period, girls can do household work	1371 (69.8)	240 (12.2)	352 (17.9)
A girl should be kept separated during her menstrual period	78 (4)	121 (6.2)	1763 (89.9)
A girl should be allowed to go outside her house during her menstrual period	1614 (82.2)	171 (8.7)	178 (9.1)
A girl should attend school during her menstrual period	1662 (84.7)	221 (11.3)	80 (4.1)
A girl should sleep on her routine bed during her menstrual period	1657 (84.4)	144 (7.3)	162 (8.3)
A girl can touch family members and males during her menstrual period	1342 (68.4)	325 (16.6)	296 (15.1)
A girl can touch plants while she is on her periods	1267 (64.6)	400 (20.4)	295 (15)
Girls can cook during their menstrual period	1216 (61.9)	262 (13.3)	485 (24.7)
Girls can exercise/play sports during their menstrual period	1072 (54.6)	485 (24.7)	406 (20.7)
Girls should take bath daily during their menstrual period	877 (44.7)	392 (20)	694 (35.4)
A girl should wash her hair on any day during her menstrual period	721 (36.7)	471 (24)	771 (39.3)

Table 3: Distribution of respondents according to practices (n=1963).

Practice	N (%)
Material used	
Sanitary pads	1659 (84.5)
Cloth	268 (13.7)
Both	36 (1.8)
Cloth pieces after use	
Wash and reuse	268 (88.1)
Throw after one use	36 (11.9)
Dried in sunlight after washing	
Yes	287 (94.4)
No	17 (5.6)
Disposal after use	
Throw after wrapping	1528 (92.1)
Throw without wrapping	131 (7.9)
No. of times pads/clothes changed in a day	
<3	1396 (71.1)
>3	567 (28.95)
Storage of unused pads/clothes	
With routine clothes	1829 (93.2)
Bathroom	134 (6.8)
Take bath daily during menstruation	
Yes	1587 (80.8)
No	376 (19.2)
Material used for cleaning private parts	
Only water	1573 (80.1)
Soap and water	390 (19.9)

Regarding knowledge, about 74.6% responded that menstruation is a normal/physiological process; about 63.2% responded that menstruation is caused by hormones and 785 (40%) responded that uterus is the source of menstrual blood (Table 1). However, most of the girls (1662, 84.7%) agreed that girls should attend school during her menstrual period and about 54.6% agreed that girls can exercise/play sports during their menstrual period (Table 2).

Regarding practices, majority (1659, 84.5%) of the respondents used sanitary pads during menstruation and about 88.1% of the respondents who used cloth, washed and reused the cloth pieces (Table 3). The odds of having good knowledge about menstruation significantly increases with increase in class of the adolescents [AOR (95% CI): 1.399 (1.157-1.675)]. Those belonging to Christian by religion [AOR (95% CI): 1.640 (1.038-2.591)], higher educational level of father [AOR (95% CI): 4.492 (1.492-13.52)], studying in private schools [AOR (95% CI): 1.370 (1.031-1.172)] and belonging to rural community [AOR (95% CI): 1.266 (1.025-1.500)] were significantly more likely to have good knowledge about menstruation as shown in the multivariate logistic regression analysis (Table 4).

Practice like use of soap and water was significantly higher among students residing at urban areas (p=0.03) and taking bath daily during menstrual period was significantly higher among the students who were Hindu/Sanamahi (p=0.0001).

Table 4: Association between knowledge score and selected variables (n=1963).

Variable	Categories	COR (95% CI)	P value	AOR (95% CI)	P value
Age		1.296 (1.21-1.37)	0.0001	0.993 (0.854-1.154)	0.923
Class		1.409 (1.308-1.518)	0.0001	1.399 (1.157-1.675)	0.001
Religion	Hindu/Sanamahi	1			
	Muslim	0.520 (0.409-0.603)	0.001	0.655 (0.504-0.851)	0.002
	Christian	2.121 (1.369-3.287)	0.0001	1.640 (1.038-2.591)	0.0001
School type	Govt.	1			
	Private	0.797 (0.654-0.972)	0.025	1.370 (1.031-1.172)	0.029
Residence	Urban	1		1	
	Rural	1.446 (1.187-1.761)	0.0001	1.266 (1.025-1.565)	0.032
Mother's education	Illiterate	1		1	
	Primary	1.162 (0.736-1.834)	0.520	0.995 (0.614-1.610)	0.982
	Middle	0.845 (0.565-1.264)	0.411	0.631 (0.410-0.971)	0.036
	Secondary	1.267 (0.885-1.812)	0.196	0.863 (0.575-1.296)	0.477
	Tertiary	1.923 (1.293-2.859)	0.001	0.958 (0.597-1.537)	0.428
Father's education	Illiterate	1		1	
	Primary	3.184 (0.985-10.29)	0.053	3.267 (0.972-10.97)	0.056
	Middle	3.398 (1.202-9.610)	0.021	4.332 (1.439-13.04)	0.009
	Secondary	3.398 (1.202-9.610)	0.021	3.316 (1.115-9.86)	0.031
	Tertiary	5.662 (1.999-16.03)	0.001	4.492 (1.492-13.52)	0.008

DISCUSSION

This study was conducted among 1963 school girls of class 8-12 standards. The mean age of the respondents was 15.45 (±1.59) years similar with the findings reported by other studies.[8-10] Menstruation was perceived as normal physiological process by majority 74.6% as similar to the findings observed in other studies while a study done by Adhikari et al observed that majority (82%) regarded it as a curse.[6,11-15] In a study done by Kanchan et al, majority (85.9%) were not aware of the cause whereas in a similar study, nearly 70% believed that menstruation was not a natural process.[3,16] This difference could be attributed to the differences in the socio economic background of the two regions. In this study, 64.3% responded hormones as the cause of menstruation similar to another study done by Adhikari et al in which majority (43.3%) reported enzymes as the cause.[12] Only 40% responded that uterus as the source of menstrual blood. Similar studies by Kanchan et al and Dasgupta et al reported only 8.3% and 2.5% respectively regarding the same.[6,16] While a study by Drakshayani et al detected that around 78.5% knew menstrual bleeding originated from the uterus.[17] The above observations might be due to absence of proper health education programmes in schools. It was observed that 60.2% had correct attitude regarding menstruation. Majority of the girls (89.9%) did not agree that a girl should be kept separated during her menstrual period. Most of the respondents agreed that a girl should attend school (84.7%). A study by Das et al reported 45.79% of the girls were not allowed to go to school.[18] This may be due to fear of leakage and lack of proper toilet facilities and privacy for changing the pads or cloth. Majority of the girls agreed that a girl should sleep on her routine bed (84.4%) and be allowed to go outside her house (82.2%) during her menstrual period. A study done in New Delhi reported that the majority of the participants (86.8%) agreed that a woman can sleep on the same bed during her menses.[19] While the study reported that more than half of the women (54.6%) subjects disagreed that a woman need not avoid any foods, the present study observed that only 35.5% and 19.7% respectively agreed that fruits and bitter food should be allowed to eat during menstruation.[19] Most of the girls agreed that a girl can do household work (69.8%), cook (61.9%) and exercise or play (54.6%) during her menstrual period. Another study reported restrictions on cooking (52.34%), cooking (42.99%) and playing (47.66%) respectively.[18] In the study, 68.5% and 51.6% respectively agreed that menstruation affected normal physical activities and their school attendance. This observation may be due to discomfort and pain experienced by the girls during their menstrual period. Sadly, it was also observed that most of the girls (77.4%) agreed that menstrual blood as unhygienic. More than half of the respondents (73.3%) and 48.9% agreed that girls should be forbidden to enter places of worship and kitchen during menstruation respectively. While a study by Goel et al reported that majority (95.1%) of the study participants strongly disagreed that a woman can enter temple/pray during menstruation and 82.9% agreed that a woman can enter kitchen.[19] This variation in attitude may be attributed to practice and beliefs that have been prevailing for years. Only 47.1% of the respondents agreed that girls should attend religious functions during menstruation. Another study observed that 97.27% of the respondents did like not attending religious ceremonies.[18] A little less than half (44.7%) agreed that girls should take bath daily during their menstrual period while the study reported 89.1% of the study participants agreed that a woman can take bath during menses.[19] Only 36.7% agreed that a girl should wash her hair on any day during her menstrual period while another study observed that more than half of the participants (60.9%) agreed that a woman can wash hair during menstruation.[19] Similar types of restrictions were practised by most of the adolescent girls in the present study and similar restrictions were found by other studies.[12,20-23] This may be possibly due to ignorance and false perceptions regarding menstruation. This study shows that majority (84.5%) of the girls preferred to use sanitary pads as menstrual absorbent during menstruation. Other studies reported similar results.[16,24-27] But in other similar studies conducted in Rajasthan, only 25% and 28% reported the use of readymade sanitary pads respectively.[3,28] Only 13% reported using cloth in the study while other studies found that cloth was used as the major absorbent.[29,30] Out of those who used cloth, majority (88.1%) washed and reused the cloth pieces. Similar studies reported reuse of cloth in 14.5%, 25.9% and 62.67% respectively.[14,25,28] This difference may be due to socioeconomic condition, high cost of disposable sanitary pads, unavailability of sanitary pads, easy accessibility to cloth and to some extent ignorance dissuaded the study population from using the menstrual absorbents available in the market. Most of the girls (94.4%) dried the cloth pieces in the sunlight after washing them similar to the findings reported by Das et al (77.78%), Kshirsagar et al (62%) and Raina et al (50.66%).[18,23,28] Regarding the method of disposal of the used sanitary pads, majority (92.1%) of the girls disposed the sanitary pads after wrapping them. Similar observations were made by studies done in Assam and West Bengal.[18,20] Majority of the respondents in this study (80.8%) did not take bath daily during their menstrual period. In a similar study conducted in Mansoura, Egypt by EL-Gilany et al, different aspects of personal hygiene were generally found to be unsatisfactory, such as not bathing during menstruation with lack of privacy being an important problem.[31] Majority (80.1%) of the girls used only water to clean their private parts during their menstrual period while a study by Dasgupta et al reported 97.5% rural adolescent girls cleaned their external genitalia with soap and water.[6] This difference in observation may be due to more use of sanitary napkin among the girls in this study. Most of the girls (80.1%) used only water for cleaning their private parts daily during their menstruation. Studies done by Kavitha et al, Raina et al and Seenivasan et al reported that 66.3%, 58% and 47.6% of the girls respectively used only water as the

cleaning material.[28,30,32] While other studies reported use of soap and water mainly for cleaning purpose.[16,32,33] This difference may be due to the fact that many girls were not aware enough about the effect of using soap. A significant association was seen between respondents' age and knowledge. Similar finding was observed in a study by Goel et al and Akther et al.[19,34] Statistically significant associations were seen between good knowledge score and participants' class where significantly with increasing class, those following Christianity and higher education statuses of mothers and fathers. Similar finding was reported in a study done by Kansal et al in Varanasi.[35] This difference may be due to having gained more information in accordance with the academic curriculum in this age. Only a few studies have been published from Manipur regarding menstrual hygiene even though it is an important health issue. The sample size was covered during the stipulated time. The study provided a true picture of knowledge, attitude and practices of menstrual hygiene among adolescent girls as it was a community based cross-sectional study.

CONCLUSION

Almost half of the respondents had good knowledge and three-fifth had good attitude regarding menstruation. Considering the public health importance of the social and academic limitations associated with menstruation, health education on issues related to reproductive health should be incorporated early enough in the school curriculum to prepare girls for menstruation and inform them about menstruation and menstrual hygiene.

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