

Original Research



Knowledge, attitudes and practices on menstrual hygiene and associated factors among grade 10 schoolgirls in the district of Kalutara, Sri Lanka

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Abstract

Introduction: Menstruation is a natural phenomenon that occurs with sexual maturity of females. However, the topic is taboo for most female adolescents leading to improper practices on menstrual hygiene (MH) management.

Objectives: To assess the knowledge, attitudes and practices on MH and associated factors among Grade 10 adolescent girls in Kalutara District, Sri Lanka

Methods: A descriptive cross-sectional study was conducted. The final sample size computed was 720, applying a design effect of 3.8. As the cluster size decided was 15, 48 clusters/classes were selected using multi-stage stratified cluster sampling applying probability sampling techniques. A validated self-administered questionnaire was administered using Sinhala and Tamil versions. Bivariate and multivariate logistic regression was conducted to determine the associated factors.

Results: Response rate at the time of recruitment was 100%. Satisfactory level of overall knowledge was observed in 25% (95% CI: 21.9, 28.3), attitudes in 67.2% (95% CI: 64.0, 70.9) and practices in 17.3% (95% CI: 14.7, 20.3). Unsatisfactory knowledge was associated with menstrual information not provided by a science teacher (ScT) ($p < 0.001$) school types 1C and 2 combined ($p = 0.002$) and mothers having less than tertiary education ($p = 0.03$). Unsatisfactory attitudes were associated with menstrual information not provided by a ScT ($p < 0.001$) and lack of premenarcheal awareness ($p = 0.009$). Unsatisfactory practices were associated with school types 1C and 2 combined ($p < 0.001$), residing in urban sector ($p = 0.004$) and having extended families ($p = 0.034$).

Conclusions & Recommendations: Overall knowledge on menstruation and menstrual hygiene related practices were poor, whereas attitudes were satisfactory. School type, maternal educational level, lack of premenarcheal awareness, menstrual information not being provided by a science teacher, residing in urban sector and living with extended family were the factors associated with unsatisfactory knowledge, attitudes and practices.

Keywords: adolescents, knowledge on menstruation, menstrual hygiene practices, menstrual hygiene management, attitudes on menstrual hygiene

Introduction

Menstrual hygiene (MH) is defined as “the practice of cleanliness as a way of maintaining good health, and preventing diseases during the period of menstruation” (1), whereas MH management (MHM) refers to “the use of clean menstrual management material to absorb or collect blood that can be changed in privacy by women and adolescent girls, as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required and having access to facilities to dispose used menstrual management materials” (2). Puberty refers to the onset of sexual maturity (capability of reproduction) in a female, which is heralded by menarche. Adolescence is the time between 10 to 19 years of age, during which pubertal changes set in, culminating in menarche and menstrual cycles thereafter. Therefore, adolescence is a challenging period for the females physically, mentally and physiologically.

Menstrual hygiene management is an age-old challenge due to poor socio-economic context in the country (3). Most of the educational packages have excluded MH from their curricula due its sensitive nature, further aggravated by delayed introduction (during grade seven) of the subject on reproductive health (RH) into the school curricula. Owing to lack of required financial support, MH has not been included in water and sanitary programmes (4-8). In addition, gender inequality, discriminatory social norms, cultural taboo, poverty and lack of basic services like availability of toilets with water, soap and sanitary products to be used with privacy can lead to disruptions in their social, cultural, religious, occupational, economic and educational spheres (9-15).

A cross-sectional study done in 2003 in a defined area in Kalutara revealed that 38% of adolescents had knowledge on menstruation prior to menarche. However, only 12.3% had a good level (score >72%) of overall knowledge. With regard to attitudes, 60.9% had neutral and 23.2% negative attitudes (4). According to another study (7), the proportion of students with satisfactory knowledge on menarche and menstruation was very low, whereas another

study reported that more than 20% of students considered teachers as a reliable source of RH information and more than 90% had wanted teachers to provide more information on RH and the distributed reading material to be more informative (8). Both these studies (7-8) however have been conducted on RH education and not on MHM. According to a qualitative study done in Beruwala, menstruation has been identified as a major health problem among adolescent girls (6). According to global literature, knowledge on menstruation and MH has been satisfactory in Nigeria (16). However, it had been only 40.6% in Nepal (17) and one third among students in an Australian study conducted in 1985 (18).

High standards of MH is indispensable to health, wellbeing, dignity, empowerment, mobility and productivity of women and adolescent girls (19). Therefore, it is the right of a female to possess adequate knowledge on MH, through which positive attitudes and practices are developed on its management. Therefore, the objective of this study was to assess knowledge, attitudes and practices on MH and determine the factors associated with unsatisfactory knowledge, attitudes and practices among Grade 10 adolescent girls in Kalutara District, Sri Lanka.

Methods

A descriptive cross-sectional study was conducted in Kalutara District among female adolescents of Grade 10 in government schools in 2012. The study units included those who have attained menarche by the time of data collection. Those who were absent on the day of data collection were excluded. The sample size computed was inflated by applying a design effect of 3.8 (for cluster sampling) with a final count of 720. Schools which had classes with ≥ 15 students were subjected to multi-stage stratified cluster sampling. School types (1AB, 1C and 2) were considered as the strata. The number of schools and number of classes required from each stratum were based on probability proportionate to the size of students in individual stratum. The number of schools required from each stratum was selected

applying systematic sampling. The number of Grade 10 classes/clusters needed was 48 (which varied according to the type of the stratum) and the number of 15 students required from each chosen class were selected by applying simple random sampling if the total number in a class exceeded 15.

Data were obtained by using Sinhala and Tamil versions of self-administered questionnaires, which had undergone judgemental validity and pre-testing; and shown a Cronbach's alpha of 0.78 and Kappa coefficient of 0.77, indicating acceptable reliability (20-21). The questionnaire consisted of socio-demographic characteristics, general information on menstruation, knowledge on menstruation and MH, attitudes and practices related to MH, and routine activities affected during the period of menstruation. The knowledge was assessed under four sub-components: anatomy/function of the female reproductive system, physiology of normal menstrual cycle, MH and its effects, and problems related to menstrual cycle. The open-ended questions were assessed according to a point scheme developed based on expert opinion. The close-ended questions were assigned a score of one for correct and zero for incorrect/not known responses. A cut-off score of $\geq 50\%$ was categorized as 'satisfactory knowledge'. Thirteen statements on a five-point Likert scale were used to assess the attitudes, with 5 assigned for most positive attitude and 1 for least positive attitude. A cut-off score of $\geq 60\%$ was classified as 'satisfactory attitudes'. Practices on MH were assessed using 17 variables, out of which five variables were selected based on expert opinion as 'essential practices'. These comprised; 1) change of sanitary wear ≥ 4 times/day during first two days, and 2) third day onwards, 3) taking a daily bath during periods 4) washing genital area with soap and water in between change of sanitary wear and 5) maintaining a diary. Each satisfactory and unsatisfactory practice was given a score of one and zero respectively for which the total ranged from 0-5. A total score of ≥ 3 (60%) was classified as satisfactory.

Data analysis

Data entry and processing were conducted using

Statistical Package for Social Sciences (SPSS) Version 16. Categorical data were analysed as proportions and quantitative data using mean and standard deviation (SD). Bivariate and multivariate logistic regression was applied to determine the factors associated with unsatisfactory knowledge, attitudes and practices.

Results

Initial response rate was 100%. Mean age of the students was 15.8 years (SD=0.4), ranging from 14.7 to 17.2 years. Students had attained menarche at the average age of 12.1 years (SD=1.6). The majority were Sinhalese (n=605; 84.0%) and Buddhists (n=590; 81.9%); and living in rural areas (n=613; 85.1%). According to school type, 374 (51.9%) were in Type 1AB, 238 (33.1%) in Type 1C and 108 (15.0%) in Type 2.

A majority (n=460; 63.9%) had prior awareness on menstruation before attaining menarche and 600 (83.3%) reported mother as the preferred source. The proportion of students with satisfactory overall knowledge was only 25% (95% CI: 21.9, 28.3) (Table 1). The knowledge in more than 50% was unsatisfactory with regard to the components of anatomy (85.7%), physiology (57.3%) and problems related to menstrual cycle (76.9%). It was observed that 67.2% (95% CI: 64.0, 70.9) had satisfactory overall attitudes (Table 2), whereas 82.7% (95% CI: 79.7, 85.3) of the adolescents were having unsatisfactory practices related to "essential practices" (Table 3).

Factors associated with unsatisfactory knowledge, attitudes and practices

As shown in Table 4, factors significantly associated with unsatisfactory knowledge were mothers having less than tertiary education (OR=2.4), school Types of 1C and 2 (OR=1.8) and menstrual information not provided by a ScT (OR=3.4). Factors significantly associated with unsatisfactory attitudes were lack of premenarcheal awareness (OR=1.6) and menstrual information not provided by a ScT (OR= 13.7). Factors significantly associated with unsatisfactory

practices were residing in the urban sector (OR=2.2) and living with extended families (OR=1.9) and

school types 1C and 2 combined (OR=2.2) (Table 4).

Table 1: Distribution of adolescents by level of knowledge on menstruation and menstrual hygiene (N=720)

Components	Knowledge, No. (%)	
	Satisfactory (≥50 score)	Unsatisfactory (0-49 score)
Anatomy & function of female reproductive system	103 (14.3%)	617 (85.7%)
Physiology of normal menstrual cycle	307 (42.7%)	413 (57.3%)
Menstrual hygiene and its effects	590 (81.9%)	130 (18.1%)
Problems related to menstrual cycle	166 (23.1%)	554 (76.9%)
Overall knowledge	180 (25.0%)	540 (75.0%)

Table 2: Distribution of adolescents by level of attitudes towards menstruation and menstrual hygiene (N=720)

Items	Attitudes, No. (%)	
	Satisfactory (≥ 60%)	Unsatisfactory (< 60%)
Importance of premenarchial knowledge on menstruation	602 (83.6%)	118 (16.4%)
Menstrual blood is perceived as impure	84 (11.7%)	636 (88.3%)
Bathing should be avoided during menstruation	388 (53.9%)	332 (46.1%)
Should avoid eating fish during menstruation	214 (29.7%)	506 (70.3%)
Should avoid eating meat during menstruation	167 (23.2%)	553 (76.8%)
Should avoid eating fried foods during menstruation	101 (14.0%)	619 (86.0%)
Having extra sanitary napkin enhances my self-confidence	634 (88.1%)	086 (11.9%)
Vaginally inserted tampons may lead to side effects	80 (11.1%)	640 (88.9%)
Lack of sanitary facilities lead to absenteeism during periods	503 (69.9%)	217 (30.1%)
A female teacher should attend to students' problems	608 (84.4%)	112 (15.6%)
Providing sanitary facilities in school may ↑ my educational performance	608 (84.4%)	112 (15.6%)
I am distressed in presence of male teachers during menstrual periods	488 (67.8%)	232 (32.2%)
Male students should be made aware about menstruation & its hygiene	178 (24.7%)	542 (75.3%)
Overall attitudes	484 (67.2%)	236 (32.8%)

Table 3: Distribution of adolescents by menstrual hygiene practices

Practices	No. (%)
Types of sanitary napkins used (n=720)	
Cloth sanitary napkins only	35 (4.9%)
Commercial sanitary napkins only	324 (45.0%)
Both types	361 (50.1%)
Type of cloth used to prepare cloth sanitary napkins (n=396)	
Old cloth	136 (34.3%)
Brand new cloth	260 (65.7%)
Frequency of changing sanitary napkins during first two days (n=720)*	
Four or five times per day	148 (20.6%)
Less than four times per day	572 (79.4%)
Frequency of changing sanitary napkins from third day onwards (n=720)*	
Four or five times per day	50 (6.9%)
Less than four times per day	670 (93.1%)
Method of cleaning of cloth sanitary napkins (n=396)	
Wash with normal water only	1 (0.3%)
Wash with normal water and soap	274 (69.2%)
Wash with hot water only	14 (3.5%)
Wash with hot water and soap	94 (23.7%)
Other (wash with anti-septic, bleaching powder)	13 (3.3%)
Place of drying cloth sanitary napkins (n=396)	
In a confined place of the house	47 (11.9%)
In the bathroom	56 (14.1%)
Outdoors: in the open	219 (55.3%)
Outdoors: placed under other clothes	64 (16.2%)
Other (bedroom, separate hut & not mentioned)	10 (2.5%)
Place of storage of cloth sanitary napkins (n=396)	
With other clean clothes in cupboard/ drawer	65 (16.4%)
In a separate clean bag	307 (77.6%)
Store in any cupboard/drawer with no concern for cleanliness	12 (3.0%)
No specific place to store	12 (3.0%)
Number of cycles, a cloth sanitary napkin was used (n=396)	
One cycle	164 (41.4%)
2 – 3 cycles	168 (42.4%)
4 – 5 cycles	48 (12.2%)
Other (more than five cycles & not mentioned)	16 (4.0%)
Method of disposal of cloth sanitary napkins (n=396)	
Burning	181 (45.7%)

Burying	156 (39.4%)
Flushing into the toilet	37 (9.3%)
Throwing with domestic garbage	17 (4.3%)
Other (nonspecific &, combination of methods & not mentioned)	5 (1.3%)
Preparation before disposal of commercial sanitary napkins (n=685)	
Wrapped with a paper only	138 (20.1%)
Wrapped with a plastic bag only	83 (12.1%)
Wrapped with both paper and plastic bag	364 (53.2%)
Wrapped using other materials	22 (3.2%)
Totally unwrapped	78 (11.4%)
Method of disposing commercial sanitary napkins (n=685)	
Burning	331 (48.3%)
Burying	200 (29.3%)
Flushing into the toilet pit	109 (15.9%)
Throwing with domestic garbage	42 (6.1%)
Throwing into the roadside/field	1 (0.1%)
Other (not mentioned)	2 (0.3%)
Daily bathing (n=720)*	
Yes	210 (29.2%)
No	510 (70.8%)
Washing genitalia with soap & water with every change of sanitary napkin (n=720)*	
Yes	699 (97.1%)
No	21 (2.9%)
Maintaining a diary (n=720)*	
Yes	161 (22.4%)
No	559 (77.6%)
Prediction of next menstruation (n=720)	
Yes	539 (74.9%)
No	181 (25.1%)
Preparedness with sanitary wear when going to school (n=539)	
Yes	476 (88.3%)
No	63 (11.7%)
Methods adopted to avoid staining school uniform (n=720)	
Wear two cloth napkins/disposable napkins	163 (22.6%)
Wear two panties	176 (24.4%)
Sitting bear on the chair by lifting the uniform	383 (53.2%)
Restrict mobility	135 (18.8%)
Other (infrequent change of napkins/use of special under wear/not stated)	24 (3.3%)
Overall practices	595 (82.7%)

*Five essential practices (3, 4, 12, 13, 14) were considered for scoring on practices on menstrual hygiene

Discussion

This study revealed poor overall knowledge on menstruation and MH and practices on MH among adolescent schoolgirls in Kalutara District. However, their overall attitudes were observed to be satisfactory. Unsatisfactory knowledge, attitudes and practices were significantly associated with school type, maternal educational level, lack of premenarcheal awareness, menstrual information not being provided by a science teacher and residing in urban sector and extended family type. Although this study has been conducted in 2012, to the best of our knowledge, no new evidence has been generated since then on this topic and the school curricular remain the same.

With regards to having premenarcheal awareness, an improvement (63.9%) was noted in comparison to the previous study (38.4%) done in Kalutara (4) during 2003. Mothers were the preferred source in the present study, as well as in this previous study (4) and the studies from other countries (9, 11-13, 16). Despite above, early introduction of RH is recommended into the primary school curriculum instead of at Grade seven which is the current practice.

Overall knowledge was poor among study participants which was consistent with the Nepal (17) study. Both Types 1C and 2 schools fared poorly with regard to knowledge and practices related to MH and MHM. In addition, menstrual information provided by those other than science teachers was associated with unsatisfactory knowledge. This needs no explanation and the Education Department should be apprised about the need to take steps to ensure that the lessons on RH need to be conducted by science or non-science teachers specially trained in RH only, in all types of schools. The fact that low maternal educational level had a poor impact on enhancing knowledge of their adolescents, highlights the need to target female adults with higher educational levels to conduct educational programmes on menstruation and MH, especially for those who are less educated.

Despite being in Grade 10, knowledge related to theoretical aspects, which is mainly gained through the formal education system, was insufficient. This may be attributed to, the deficiencies in the curriculum and/or the lack of teaching skills among teachers to discuss topics on embarrassing and sensitive subject matter. Although science teachers as mentioned above are preferred to other teachers in this study, inadequacies in teaching skills have been reported in the study done by Senaratne on RH (8). Therefore, provision of in-service training programmes on RH to all teachers has been suggested by the author, to enhance their teaching skills.

Attitudes were tested mainly on factors related to practices during menstruation and the presence of facilities available at schools for which the overall satisfactory attitudes was 67.2%. Having a higher proportion of adolescents with satisfactory knowledge on “menstrual hygiene and its effects”, may have led to the satisfactory level of overall attitudes observed. Attitudes towards menstrual hygiene was consistent with the two previous Sri Lanka studies (4, 8). In addition to provision of menstrual knowledge by those other than science teachers, the other factor that was significantly associated with unsatisfactory attitudes was lack of premenarchial information. Therefore, there is a need to strengthen the awareness among mothers regarding the importance of providing premenarchial information related to MH and MHM to their female adolescents at a relatively young age. In addition, early introduction of RH into the curriculum will also be an added source of premenarchial information.

The five “essential practices” were decided based on expert opinion and dealt with basic sanitary practices, which would lead to a hygienic status devoid of unpleasant smell, discomfort and ill health. Significantly unsatisfactory practices were observed in Types 1C and 2 combined together, compared with Type1AB. This may be attributed to the different standards applied to schools based on the size of the student population. The residential sector

(urban) and family type (extended family) were the other two factors that became significant in relation to unsatisfactory practices. Therefore, it is necessary to target these adolescents and conduct awareness programmes to change their practices for the better.

The proportion of students who changed sanitary wear ≥ 4 times/day during the first two days and third day onwards during menstruation was consistent with that of other studies (9, 11, 13). The situation with regard to bathing during menstruation, was better than that in several other countries (14, 23-25), but lower than in Nigeria (16) and South India (13). These differences could be attributed to the cultural differences that exist between countries. The practice of washing the genital area with soap and water during every change of sanitary wear was much better in the present study than that reported in other studies (9, 11, 13, 16, 24, 26).

Cloth sanitary napkins (SNs) are readily available, and reusable. The added advantage of its use is the ability to wash and clean before disposal. It is important that cloth SNs are hygienically washed with soap and water and dried in the sun which has disinfecting properties and stored in a clean dry place for reuse. Commercial SNs on the contrary are expensive, non-reusable and environmentally unfriendly, as no appropriate disposal methods for the same have been identified yet in Sri Lanka (27).

Certain precautionary measures such as wearing two menstrual towels and two under pants and taking extra menstrual towels to school by the adolescents to prevent menstrual accidents should be encouraged. Providing improved leak proof menstrual wear and advising to change soiled SNs within short intervals of time should be the other measures which should be explored. However, the latter requires the supportive environment provided by the schools with all necessary facilities.

The above findings highlight the necessity to

improve knowledge of the female adolescents on menstruation and MH. The provision of formal education on RH to students through the school curriculum and health education through other targeted educational programmes for adult females is highly recommended. Having a higher proportion of adolescents with satisfactory attitudes and satisfactory knowledge on 'menstrual hygiene and its effects' which was 81.9% are positive findings that should be exploited, where further improvement could be provided to enhance the knowledge and practices, when conducting awareness programmes. Providing a supportive environment in schools is another aspect that need to be strongly considered with the collaboration of the Ministry of Education.

Based on the study findings, Health Promotion Bureau along with the Family Health Bureau made some key recommendations on establishing a national program for public health staff and an advocacy program for the general public to reduce stigma related to menstruation. As an outcome, information, education and communication (IEC) material were developed targeting the general public and the Ministry of Education prepared a booklet on menstruation and MHM, targeting Grade 6 students.

Multistage cluster sampling with application of probability sampling techniques used in the study will enable to generalize the study results to all Types (1AB, 1C and 2) of schools in Kalutara District. In addition, as the structure of schools island wide is the same, there exists the possibility of generalizing the results to other government schools in the country. The latter are considered as strengths of this study. However, the study excluded international schools with students having better socio-economic status. Also, the schools with ≤ 15 students in a given class predominantly comprise children of low socio-economic status, thus the worst affected could have been excluded from the sampling frame. Above are few of the limitations of this study.

Conclusions & Recommendations

Although the knowledge and practices on menstruation and MH among students were poor, attitudes were observed to be satisfactory. It is therefore recommended that the implementation of measures that enhance knowledge take place along with further improvements in attitudes. It is also important to ensure the provision of a supportive environment to practice menstrual hygiene in schools through the Ministry of Education. In addition, it is necessary to conduct feasibility studies to explore a mechanism to raise awareness among adolescent and adult females.

Public Health Implications

- Lack of knowledge on menstruation and MHM impose a deleterious effect on their practices.
- Poor level of practices can lead to ill health, as well as increased risk of menstrual accidents which might lead to regular school absenteeism with an overall effect on their educational performance.
- The need for policy change by the Ministry of Education for providing supportive environment for improvement of MHM in schools.

Author Declarations

Competing interests: The none of the authors claim competing interests.

Ethics approval and consent to participate: Written informed consent and assent were obtained from the parents/guardians and students respectively. Ethics Review Committee of the Sri Lanka Medical Association granted ethical clearance.

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