

Article

Adolescent athlete's knowledge, attitude and practices about menstrual hygiene management (MHM) in BKSP, Bangladesh

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Received: 04 June 2019/Accepted: 24 June 2019/ Published: 30 June 2019

Abstract: Maintaining proper hygiene during menstruation prevents certain reproductive illnesses. For female athletes, they need to put an extra effort to keep themselves healthy at this time because of their daily strenuous activities. In this study, we assessed the level of knowledge, attitude and practices about menstrual hygiene management among adolescent trainee athletes. A cross-sectional study was carried out among adolescent trainee athletes from BKSP. Samples were chosen conveniently from different sports departments. In total, 143 Female athletes who regularly menstruate were included. A semi-structured questionnaire was used to determine the level of knowledge, attitude and practices and their associated factors. One-way analysis of variance (ANOVA) was used to compare means of outcome variables. The mean \pm SD age of our participant was 14.31 ± 1.48 . Majority of the participants were scared during their first menstruation (39.9%). Mothers were the main source of information (84.6%). Majority of the participants had poor knowledge (56.6%) and practices (68.5%) while the level of attitude was good (67.1) regarding menstruation. Age-group was associated with knowledge score ($p=0.034$) regarding menstruation while family income was associated with attitude ($p=0.014$). Educational level of father was associated with both knowledge ($p=0.049$) and attitude ($p=0.010$). Poor level of knowledge and practices were observed among the survey respondents, though the level of attitude was satisfactory. Mothers were the primary source of information regarding menstrual hygiene. It is important to provide menstrual hygiene education to the young athletes from a reliable and formal source.

Keywords: knowledge; attitude; practices; menstrual hygiene; athletes; adolescents

1. Introduction

Menstruation, a marker of adolescence in females, is a normal physiological process generally starts between the age of 9 to 12 years (Nayak *et al.*, 2016; Beek and Williams, 1996; Hall, 2015). If the health needs during menstruation are met, it would set down a sound base for both mental and physical wellbeing as well as capacity to respond the high demands of reproductive health in later life. Though the fact is known but given a very limited attention (Nagar and Aimol, 2010; House *et al.*, 2013).

Girls are using their own strategies to deal with their monthly regular cycle. These varies depending on their cultural practices, local customs, availability of resources, socio-economic conditions, their knowledge or education, and above all, their personal choices (Sumpter and Torondel, 2013). Adolescent girls in low- and middle-income countries (LMICs) often are not prepared to cope with menstruation due to lack of proper

knowledge and misconceptions and when they experience their first menstruation, they become really helpless (Chandra-Mouli and Patel, 2017). Many of them suffers from fear, shame and confusion during their menstrual cycle having a great deal of challenges to manage it due to lack of information and social support, and existing social taboos (Van de Walle and Renne, 2001; McMahon *et al.*, 2011). Menstruation and reproduction are considered as dirty and shameful and adults such as parents and teachers are reluctant to talk freely bearing a culture of silence while talking about menstruation (Chandra-Mouli and Patel, 2017; Garg *et al.*, 2001; Omigbodun and Omigbodun, 2004). The situation is in line with the context of Bangladesh (Haque *et al.*, 2014). Good menstrual hygiene includes adequate cleaning of external genitalia, use of sanitary pad and frequent changing to prevent odor, proper washing, drying and disposal of rags and sanitary pads (Omidvar and Begum, 2010). Many girls and women in Bangladesh are commonly using rags instead of sanitary pad because it is not affordable to all (Ahmed and Yesmin, 2008). Unhygienic practices during menstruation leads to various reproductive tract infections as well as other gynecological issues (Shanbhag *et al.*, 2012). Additionally, mismanagement of menstrual hygiene affects women's private and social life in many ways (Ahmed and Yesmin, 2008). Many girls do not attend their school or unable to concentrate properly in classroom ended up having poor performance in their examinations (Alam *et al.*, 2017). On the other hand, good knowledge of menstrual hygiene and practices reduces the risk of urinary and reproductive tract infections and complications (Kamaljit *et al.*, 2012). Moreover, expense of commercial pads, lack of water and sanitation facilities at schools, lack of gender specific toilets or private rooms for changing sanitary pads are some of the factors that affects menstrual hygiene management (MHM) at the social, cultural and economic level (Loughborough University, 2012).

Menstruation also affects the performance of athletes. Alongside with the regular training, a female athlete has to battle with pain and discomfort when she is having her menstruation. Majority of athletes in different disciplines do not know that untreated menstrual disorders have a negative health effects (Miller *et al.*, 2012; Feldmann *et al.*, 2011). Lack of awareness is one of the barriers to healthy menstrual practices in rural Bangladeshi adolescent girls. Many studies have revealed that the mothers, teachers and friends are the primary source of information regarding menstrual awareness (Aniehue *et al.*, 2009; Singh *et al.*, 2006; Lee *et al.*, 2006). Good knowledge regarding menstruation and menstrual hygiene tend to affect a girl's attitude and practices but does not guarantee it. It also requires self-motivation to maintain self-care of athletes beside their routine activities to maintain proper menstrual hygiene. We have conducted this study to assess the knowledge, attitude and practice of menstrual hygiene management (MHM) among adolescent trainee athletes participating in regular training in BKSP.

2. Materials and Methods

We have conducted this study using a cross-sectional method in BKSP (Bangladesh Krira Shiksha Protisthan), Bangladesh. Our participants were adolescent trainee athletes who are participating in regular training at different sports departments. BKSP, also known as Bangladesh Institute of Sports is one of the leading govt. institutes providing athletic training in 17 distinct sports departments since 1976. We have conducted this study from January 2018 to July 2018. We have divided our samples into different clusters according to their field of sports such as cricket, football, tennis etc. A total number of 143 samples were chosen conveniently from each cluster during our visit after the end of their regular training session for that day but could not cover all the clusters due to time limitation. The number of female students in the study area were also very few to fill up the target sample size. Adolescent trainee athletes participating in different games aged between 10 to 19 years were particularly included in this study. Female athletes who had menarche and menstruate regularly were included. Participation was entirely voluntary in this study, we also have ensured the confidentiality. Participants who were not willing to take part were excluded.

2.1. Data collection technique

Before the data collection, the researchers have visited all sports departments at BKSP and had a short meeting with the corresponding coaches; objectives of the study, methodology, and research outcome and permission procedures were discussed in the meeting. The researchers have received a written permission for data collection. After the permission was obtained, we have conducted a pilot survey to revise the designed research tools for the final data collection. We have collected the data using a semi-structured self-administered questionnaire facilitated by an expert. We have explained the objective of the research to the trainee athletes, asked about their willingness to participate (verbal consent) and privacy of their identity.

2.2. Questionnaire design

We have designed a semi-structured self-administered questionnaire. The knowledge, attitude and practice questions were adapted from similar studies previously done (Gultie *et al.*, 2014; Balqis *et al.*, 2016; Kanyadi and Metgud, 2017). The questionnaires were translated into the local Bengali language and were then modified according to the local context. The questionnaire was pretested for further modification according to the local context. The questionnaires had 5 distinct sections such as general and demographic questions, menstrual related questions, and menstrual hygiene knowledge, attitude and practice questions. In each section, relevant questions were asked from the respondents such as in the second section includes information about menstruation among trainee athletes and the sources where the athletes get information from, in third section the emphasis was given to assess the level of knowledge of respondents for menstrual hygiene. To assess knowledge, attitude and practices, 8 questions were asked in each section.

2.3. Knowledge, attitude, and practices (KAP) scoring

A scoring system was developed to show the results of knowledge, attitude and practices based on the response we have got from the participants. Students' menstrual hygiene management (MHM) knowledge attitude and practices (KAP) score was calculated out of the 8 specific questions in 3 distinct sections. Each correct response scored one point, whereas any wrong response attracted no mark and thus the sum score of knowledge, attitude and practices (KAP) was calculated (8 points). The score was then divided into 2 categories (good and poor) based on the mean score of the 3 sections.

2.4. Statistical analysis

Data were then entered into SPSS Version 22 (SPSS Inc., Chicago, IL) software for analysis. We have presented the numerical data into mean, standard deviation and percentages. We have also used frequency distribution to demonstrate the MHM knowledge, attitude and practice scores. Pearson's correlation coefficient was used to assess the correlation between knowledge, attitude and practice (KAP) and one-way analysis of variance (ANOVA) was used to compare means between MHM knowledge, attitude and practice and related factors. To compare MHM knowledge, attitude and practices between dichotomous variables, independent t-test were used. A p-value of ≤ 0.05 was considered to be significant for statistical results.

2.5. Ethical approval

The research was approved from the authority of Department of Sports Science, BKSP. Data was collected by the permission of coaches and trainers from the corresponding sports departments. A verbal consent was taken from participants to ensure their voluntary participation in this research.

3. Results

3.1. Socio-demographic details

In total, 143 adolescent trainee athletes from BKSP took part in this study. The mean \pm SD (Standard Deviation) age of our participant was 14.31 ± 1.48 with a range of 11-19 years. Nearly 80% (79.7%, n=114) participants were equal to or below 15 years of age. Majority of our participants were Muslims (n=115, 80.4%). In this survey population, majority of the girls were secondary school (Grade 6-10) students (84.6%, n=121) followed by higher secondary (college) level students (14.7%, n=22). None of them were also married.

BKSP has 17 sports disciplines, in this research, we have surveyed trainee athletes from 9 sports disciplines based on precise inclusion criteria using convenient sampling technique. Most of our participants were from football department (n=36, 25.2%) followed by Athletics (n=28, 19.6%), Archery (n=20, 14.0%), Cricket (n=20, 14.0%), and so forth (Table 1).

Table 1. Socio-demographic details (n=143).

Characteristics	Frequency	Percentage
Age (14.31 ± 1.48) in years		
≤ 15	114	79.7
> 15	29	20.3
Religion		
Muslim	115	80.4
Hindu	12	8.4
Christian	77	4.9
Buddhist	9	6.3
Educational Level (Current)		
High school (Secondary)	121	84.6
College (Higher Secondary)	21	14.7
Degree/ University (Bachelors)	1	0.7
Department of Training		
Archery	20	14.0
Athletics	28	19.6
Boxing	4	2.8
Cricket	20	14.0
Football	36	25.2
Gymnastics	6	4.2
Judo	13	9.1
Shooting	11	7.7
Tennis	5	3.5
Family Income		
< 10, 000 BDT (120 \$ approx.)	90	62.9
10,000- 20,000 BDT	34	23.8
> 20,000 BDT (240 \$ approx.)	19	13.3

We have asked our participants about their family income. Most of the participants have replied about their family income of 10, 000 BDT (Bangladeshi Taka) (n=90, 62.9%). Very few of them mentioned about their family income more than 20,000 BDT (n=19, 13.3%)

Education of Parents: We have asked our survey respondents about their parent's educational qualifications. Regarding mother's education, most of our participants replied that their mothers were educated up to the secondary level (n=53, 37.1) followed by primary level (n=46, 32.2%). Similarly, for father's education, majority of them have replied that their fathers have studied up to the secondary level (n=46, 32.2%) followed by higher secondary level (n=38, 26.6%) (Table 2).

Table 2. Education of parents of survey respondents (n=143).

Characteristics	Frequency	Percentage
Educational status of Mother		
Illiterate	11	7.7
Primary	46	32.2
Secondary	53	37.1
Higher Secondary	25	17.5
Graduate and above	8	5.6
Educational status of Father		
Illiterate	8	5.6
Primary	28	19.6
Secondary	46	32.2
Higher Secondary	38	26.6
Graduate and above	23	16.1

3.2. Menstruation Related Information

Regarding the first experience of menstruation, majority of them have replied that they were scared during their first menstruation (n=57, 39.9%) followed by usual or normal feeling (n=39, 27.3%). Regarding restrictions during menstruation, majority of our participants (n=132; 92.3%) have replied that they have certain restrictions

during menstruation. Many of them have cited about religious restriction (n=119, 83.2%) followed by restriction on physical activity or playing (n=23, 16.1%) during their menstruation. Nearly 75% of the respondents (n=107) have replied that they have normal level of blood loss during their regular menstruation. While asked about average duration of menstrual cycle, nearly 80% (n=111, 77.6%) have replied that, on average their menstrual cycle lasts for 3-6 days. Few of the reported of having menstruation more than 6 days (n=9, 6.3%) (Table 3). In this survey, majority of the participants said that they attend their school during their menstruation (n=132, 92.3%), though some of them replied that they do not attend their schools on the first day of menstruation (n=7, 4.9%). Majority of participants often experienced Pre-menstrual Syndrome (n=106, 74.1%) followed by lower abdominal pain (n=66, 46.2%). Few of them have also mentioned about loss of appetite, headache, waist pain and etc. (Figure 1).

Table 3. Menstruation related information (n=143).

Characteristics	Frequency	Percentage
First experience of menstruation		
Fear	57	39.9
Normal	39	27.3
Irritated	12	8.4
Disgusting	32	22.4
Others	3	2.1
Restrictions during menstruation		
Yes	132	92.3
No	11	7.7
Type of restrictions		
Religious	119	83.2
Physical activity/ playing	23	16.1
Schooling	3	2.1
Attending family functions	1	0.7
Household work	2	1.4
Avoiding visit to others home	1	0.7
Avoiding regular bath	1	0.7
Amount of blood loss		
Normal	107	74.8
Heavy	18	12.6
Scanty	18	12.6
Duration of menstrual cycle		
< 3 days	23	16.1
3-6 days	111	77.6
> 6 days	9	6.3
School attendance during menstruation		
Yes	132	92.3
No	4	2.8
Not on first day	7	4.9

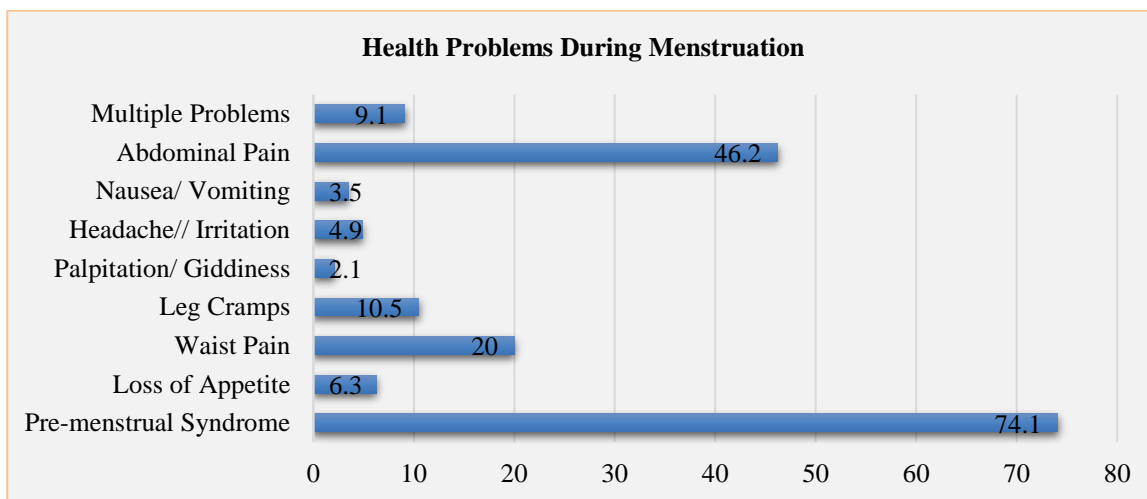


Figure 1. Health problems during menstruation.

3.3. Sources of information

For the source of information about menstruation and menstrual hygiene, the participants were allowed to answer only 1 of them as the primary source of their knowledge. Majority of the participants (n=121, 84.6%) have replied that they receive information on menstruation and menstrual hygiene from their mother followed by friends (n=9, 6.3%) and doctors/ health professionals (n=4, 2.8%). Only one of them has mentioned teachers or coaches as their primary source of information on menstrual hygiene (Table 4).

3.4. BKSP school environment

Most of the respondents were satisfied and replied that they have menstrual friendly restroom facilities and gender specific toilets in that school. They have also replied that they have adequate water supply, soap and cleaning facilities, and dustbins in their toilet.

Table 4. Source of information regarding menstruation (n=143).

Sources	Frequency	Percentage
Radio	1	0.7
Television	1	0.7
Parents (Mothers)	121	84.6
Newspaper	3	2.1
Internet	1	0.7
Relatives	1	0.7
Friends	9	6.3
Teachers/ Coaches	1	0.7
Doctors	4	2.8
Others	1	0.7

3.5. Knowledge about menstrual hygiene Management (MHM)

The maximum knowledge score was 8. The mean ± Standard Deviation (SD) of knowledge score for the total participant was 5.30 ± 0.95. The highest score was 7 whilst the lowest score was 3. We have divided the knowledge score into two categories as good and poor knowledge based on the mean score. More than half of the participants had poor level of knowledge (n=81, 56.6%) whilst forty-three percent respondents had good knowledge level on menstrual hygiene management (MHM) (n=62, 43.4%) (Figure 2).

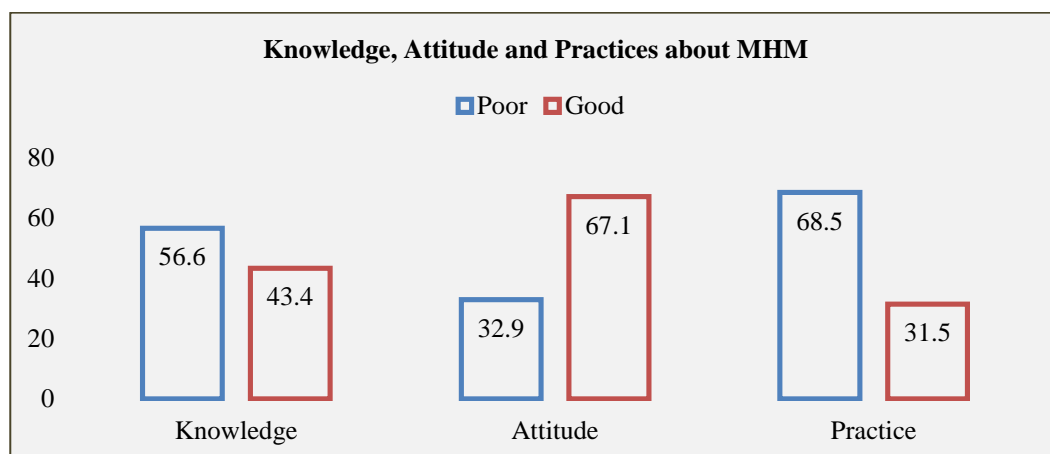


Figure 2. Percentage distribution of knowledge, attitude and practices of participants.

Age had a significant influence on knowledge score. Participants, more than 15 years of age had a lower level of knowledge than their juniors ($p=0.003$). Their mean \pm Standard Deviation (SD) knowledge score was 5.38 ± 0.90 which is higher than the comparison group. In this research, religion of our participants did not have any significant influence on their knowledge score ($p=0.203$). We did not find any significant relationship between educational status of participants and knowledge score ($p=0.216$). The relationship between family income and knowledge score was also not significant ($p=0.595$). Education of mothers did not have any influence on participants' overall knowledge score ($p=0.136$) but we have found significant relationship with the educational status of father and participants' knowledge score ($p=0.049$) (Table 5).

3.6. Attitude about menstrual hygiene management (MHM)

The mean \pm Standard Deviation (SD) of attitude score was 5.97 ± 1.04 . The highest score was 8 whilst the lowest score was 5. Nearly 70% participants had good attitude towards menstrual hygiene ($n=96, 67.1\%$) whilst only 32.9% had poor attitude towards menstrual hygiene ($n=47$) (Figure 2).

Participants below or equal to 15 years had a slightly higher level of mean attitude score than their comparison group, but the relationship was not statistically significant ($p=0.529$). Religious status did not also have any significant relationship with participant's attitude ($p=0.521$). We did not find any significant influence of educational level on their attitude towards menstrual hygiene ($p=0.552$). Unlike knowledge, family income had a significant relationship with attitude score ($p=0.014$). We have found a significant relationship between participant's attitude score and their mother's educational level ($p=0.027$). Similarly, educational level of fathers had also significant relationship with the attitude score of our participants ($p=0.010$).

3.7. Practice about menstrual hygiene management (MHM)

The mean \pm SD score for practices on menstrual hygiene was 6.02 ± 0.91 ranging from 3 to 8. Dividing into the categories as poor and good according to the mean score we have found that majority of them had poor level of practices on menstrual hygiene management ($n=98, 68.5\%$). (Figure 2).

Age-group did not have any significant influence on menstrual hygiene practices ($p=0.681$). In this survey population, religion did not have any significant relationship with the practice score ($p=0.808$). Educational level ($p=0.381$) & monthly family income ($p=0.651$) of our participants also did not have significant relationship with their practices. Education of father ($p=0.088$) and mother ($p=0.091$) of the participants also did not have any significant influence on their practices.

Table 5. Bivariate analysis of knowledge, attitude and practices (n=260).

Variables	Knowledge		Attitude		Practices	
	Mean ± SD	P value	Mean ± SD	P value	Mean ± SD	P value
Age group						
≤ 15	5.38 ± 0.90	0.034*	6.00 ± 0.98	0.529	6.04 ± 0.85	0.681
> 15	4.96 ± 1.08		5.86 ± 1.27		5.96 ± 1.11	
Religion						
Muslim	5.27 ± 0.96		6.03 ± 1.03		5.99 ± 0.93	
Hindu	5.50 ± 0.67	0.203	5.66 ± 1.30	0.521	6.16 ± 0.71	0.808
Christian	5.85 ± 0.89		5.85 ± 1.06		6.14 ± 0.69	
Buddhist	4.88 ± 1.16		5.66 ± 0.86		6.22 ± 1.09	
Educational Level						
High school (Secondary)	5.33 ± 0.93		6.00 ± 1.00		6.04 ± 0.85	
College (Higher Secondary)	5.14 ± 1.10	0.216	5.85 ± 1.31	0.552	5.85 ± 1.89	0.381
Degree/ University	5.00 ± 0.00		5.00 ± 0.00		7.00 ± 0.00	
Family Income						
< 10, 000 BDT (120 \$)	5.24 ± 0.96		6.15 ± 0.91		5.97 ± 0.91	
10,000- 20,000 BDT	5.44 ± 0.70	0.595	5.76 ± 1.23	0.014*	6.14 ± 0.82	0.651
> 20,000 BDT (240 \$)	5.31 ± 1.29		5.47 ± 1.12		6.05 ± 1.07	
Educational status of Mother						
Illiterate	5.18 ± 0.98		6.36 ± 0.92		5.45 ± 1.21	
Primary	5.21 ± 0.81		6.26 ± 1.08		6.06 ± 0.90	
Secondary	5.26 ± 1.00	0.136	5.90 ± 0.96	0.027*	5.96 ± 0.89	0.088
Higher Secondary	5.72 ± 1.00		5.56 ± 1.08		6.36 ± 0.86	
Graduate and above	4.87 ± 0.83		5.50 ± 0.92		6.00 ± 0.00	
Educational status of Father						
Illiterate	4.75 ± 0.88		6.25 ± 0.70		6.21 ± 0.64	
Primary	5.39 ± 0.83	0.049*	6.53 ± 0.83	0.010*	5.60 ± 1.03	0.091
Secondary	5.06 ± 0.90		5.89 ± 1.03		6.10 ± 0.92	
Higher Secondary	5.42 ± 0.97		5.84 ± 1.97		6.21 ± 0.77	
Graduate and above	5.65 ± 1.07		5.56 ± 1.27		6.04 ± 0.92	

*= Significant, P value < 0.05

3.8. Relationship between knowledge, attitude and practices

Using Pearson correlation analysis, we have determined the relationship between knowledge, attitude and practice score of our participants. We have found that knowledge score did not have any significant influence on the attitude towards MHM ($P=0.899$). But knowledge score was positively and significantly correlated with the practices of the respondents held towards MHM ($P=0.028$).

4. Discussion

Menstruation is an integral part of pubertal maturity among girls. For adolescent female athletes, it is more important to have a sound reproductive health to be active even when they menstruate. In this particular study, we have revealed the level of knowledge, attitude and practices of adolescent trainee athletes and the associated factors.

The age range of girls in this study (10-19 years) falls in line within the range in other similar study (Omigbodun and Omigbodun, 2004; Adinma and Adinma, 2008). In this study, majority of respondents were either scared (39.8%) or felt disgusted (22.4%) at their first menses. This was similar to findings of other studies carried out in Karachi in Pakistan, Nigeria and India (Ali and Rizvi, 2010; Fehintola *et al.*, 2017; Tiwari *et al.*, 2006). In this study restrictions were practiced by majority of the participants (92.3%) and the most common restrictions were religious and physical activity. This was similar to the findings of the study done in the past (Thakre *et al.*, 2011; Mudey *et al.*, 2010). In this study, 46.2% and 74.1% of adolescents experienced abdominal pain, pre-menstrual syndrome, respectively, which are similar to the results of a study in Bangladesh (Haque *et al.*, 2014) as well as studies from abroad (Lee *et al.*, 2006; Adinma and Adinma, 2008).

Lack of gender-specific toilets and water supply affects menstrual hygiene management leading to poor physical and psychological health outcome. In this survey, we have found toilet facilities were adequate and gender specific toilets in their school and respective training departments. In a study in Bangladesh found that, the absence of an available gender-specific toilet was one reason for school absence during menstruation (Alam *et al.*, 2017). It is also evident that improved toilet facilities for menstrual hygiene have significantly improved girls' attendance (Nepal, 2009).

Regarding the source of information, we revealed that, the mother was the primary provider of information about menstruation and related hygiene for most participants (84.6%). This finding was in accordance with those of other studies: 80% in Malaysia (Lee *et al.*, 2006), 64.9% in India (Singh *et al.*, 2006), and 86.9% in Lebanon (Santina *et al.*, 2013). Only 6.3% respondents mentioned about friends, followed by doctors (2.8%) and newspaper (2.1%) as their main sources of menstrual information. Involvement of other media was rarely cited. The possible reason could be students are not open to discuss about this due to shame or lack of information among other sources such as teachers or relatives. Quality of educators such as trained school teachers or health care workers can have a greater impact on sexuality education particularly information related to menstruation (UNESCO, 2014).

In this study, nearly half of the respondents have good knowledge on menstrual hygiene which was similar to the findings of other study carried out a study in Bangladesh (Haque *et al.*, 2014). This was contrary to the findings of a study carried out in Kano by Lawan that shows that only 4% of respondents have good knowledge of menstruation and its hygienic practices (UM *et al.*, 2010).

In this study, we found most of our participants had good level of attitudes towards menstrual hygiene (67.1%). The result was similar with other study conducted in one part of India (Balqis *et al.*, 2016). Another study has found good attitude level among urban residents due to the high socio-economic status, availability of media and educated people (Balqis *et al.*, 2016). Overall the hygienic practice during menstruation was good as only 31.5% of respondents had poor hygienic practice. The finding of this study was lower than studies conducted in Ethiopia and North-western Nigeria which were 90.9 % and 88.7 %, respectively (Gultie *et al.*, 2014; UM *et al.*, 2010). This means that not all who had good knowledge had practiced it. Knowledge had a positive relationship with practices in this study. Good knowledge and positive attitude towards menstrual hygiene management exerts influence on its practices which ultimately prevents the risk of developing reproductive health problems.

In a study conducted in Uttarakand, India suggests that girls had better level of knowledge whose father had tertiary level of education (Juyal *et al.*, 2012) which is similar to our study where level of education of fathers have greatly influenced the knowledge and attitude of our respondents. But the result was opposite for attitude section. It is also evident that the educational status of female students' mother had significant influence on having good knowledge about menstrual hygiene management (Gultie *et al.*, 2014; Bobhate and Shrivastava, 2011; Abioye-Kuteyi, 2000) which is in contrary with this study. Educational status of parents was also an important predictor of menstrual hygiene practices in some other relevant studies (Santina *et al.*, 2013; Abioye-Kuteyi, 2000; Upashe *et al.*, 2015). Educational status of father and mother in this study did not have any

significant influence on participant's knowledge and practices except the attitude about menstrual hygiene management. This can be partly explained that the participants are residential during their training period; they are more attached with their coaches, trainers and classmates or co-athletes. They get a very few chance to discuss issues about menstrual hygiene management with their parents particularly mothers.

Improving knowledge and changing attitudes about menstruation among adolescent girls boosts their confidence to manage their menstruation hygienically. Proper education can bring this change in their behavior (Naeem *et al.*, 2015). Teaching reproductive health is not common in Bangladeshi context. Though in school curriculum it contains a small portion of information on menstruation, but in most of the cases teachers tend to avoid this chapter. As a result, students do not receive any formal educational sessions on menstruation leaving a vast majority of adolescent girls uninformed about this important event of their life. Structured curriculum and regular educational sessions can help to improve this situation.

This study has revealed several important findings and insights for adolescent trainee athlete girls. However, it also has some limitations. First, the findings in this study were based on self-reported outcomes and may therefore differ from actual behavior. The structure of the study was cross-sectional study and this may limit causal conclusion. However, further research could focus on specific educational intervention on menstrual hygiene management in this population. It would also be beneficial to adopt qualitative approaches to produce more comprehensive findings emphasizing the management of menstrual hygiene during sport activities among the study population.

5. Conclusions

The knowledge and practices of participants regarding menstrual hygiene management were poor for majority of the participants, whereas the level of attitude was good. Mothers followed by friends were the primary source of information regarding menstrual hygiene. Age-group had significant relationship with knowledge score and family income had significant relationship with attitude score. Educational status of mother was associated with attitude score of the participants while the educational status of father was associated with knowledge and attitude score of the participants. Based on the above discussion cited above, there is a need to empower adolescent athletes with proper information regarding menstrual hygiene management through a formal source. Coaches and trainers could also be empowered in the same way to function as primary sources of information on menstruation and other reproductive health issues for dealing with adolescent issues and facilitate referrals during need.

Acknowledgements

We are grateful to our participants for their sincere response in this study. We are also grateful to the authority of BKSP and coaches of different sports departments for their help in conducting the data collection process smoothly.

Conflict of interest

None to declare.

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