



Age of menarche and menstrual hygiene of pubertal female students in Bhutan: a cross sectional survey, 2017

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ABSTRACT

Introduction: In Bhutan, pubertal and adolescent female students (10-19 years) make up 8.5% of the population. The need for menstrual hygiene management (MHM) is more urgent in post-menarcheal female students and in resource-poor settings. However, until recent time, there were strong socio-cultural barriers to discourses on menarche and MHM. This study was conducted to determine the age of menarche among Bhutanese female students to identify when to offer MHM support, their knowledge on menstruation and practices related to menstrual hygiene. **Methods:** This was a cross-sectional survey of female students studying in Grade 10 in Thimphu, Bhutan. A multistage clustered sampling was used. Data was collected using a self administered questionnaire developed for the purpose of this study. **Results:** A total of 439 post-menarcheal female students were interviewed. The mean age of menarche was 12.8±1.1 years, and fear (38.3%) and confusion (25.1%) were the commonest responses. The mean score on knowledge on menstruation and MHM was 5.9±1.5 out of 9. The proportion of students with good knowledge was 36.7%. The common sources of information were the mother, teacher, and sister. The majority used commercial pads (92.5%) while some used clean cloths (5.7%) and tampons (1.6%). The proportion who stayed absent from school during menstruation in the month prior to data collection was 9.8%. Visiting religious places (67.6%) and participating in sports (4.3%) were common restrictions during menstruation. **Conclusions:** Female students experience difficulties in menstrual hygiene management in schools. Menstruation could lead to missing schools and other activities.

Keywords: Developing country; Health behaviour; Menstrual hygiene product; Standard of living.

INTRODUCTION

Menstrual hygiene has important public health implications and is central to maternal and reproductive health in achieving the Sustainable Development Goals 3 and 6^{1,2}. The need for menstrual hygiene management (MHM) is more urgent in post menarcheal female students and in resource-poor setting^{3,4}. In 2017 in Bhutan, there were 67,903 female students in pubertal and adolescent age group (10-19 years), which was 8.5% of the population, that required support for MHM⁵.

MHM in women or adolescent female students involves the usage of a clean material to absorb or to collect menstrual blood, and this material is changed as often as necessary during the menstrual period. It includes soap and water for washing the body as required, and access to facilities to dispose off used menstrual management materials^{6,7}.

This study aimed to assess the age of menarche among Bhutanese female students, their knowledge on menstruation and their practices related to the practice of MHM in schools.

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METHODS

Study design and setting

This cross-sectional survey was conducted in six schools in Thimphu.

Study participants

The post-menarcheal female students studying in Grade 10 in the year 2017 were included in the study. To get a representative sample for this study, a confidence interval of 95% was decided with a margin of error of 0.05. In the absence of any sort of prior assessment in this field, variance or standard deviation was taken as 0.5 as standard practice^{8,9}. Allowing for a 15% drop out rate, the sample size was 441.

Sampling method

A multistage sampling was adopted. Six middle and higher secondary schools from Thimphu District (three from Thromdey and three from District) were randomly selected using lottery method from the list of sixteen schools mentioned in the Annual Education Statistics 2017 by the Ministry of Education, Bhutan. From each of the six schools, class sections from Grade 10 were

selected randomly using lottery method until we got 24 clusters. The average cluster size was 18.4 female students. Those students who had not attained menarche or absent on the days of data collection were excluded.

Study tool and data collection

A self-administered questionnaire in English was designed in consultation with a gynaecologist and a school health in-charge (teacher). The basic socio-demographic information, history on the onset of menstruation, knowledge and practices on menstruation and menstrual hygiene, and the use of absorbent (cloth, commercial pads, and tampons) were collected. The questionnaire was pre-tested in a group of 20 female students in a Middle Secondary School in Thimphu. Changes were made to the questionnaires to improve its face validity. Data was collected in June 2017

Data analyses

The data were entered into SPSS 23.0 (trial version) and cleaning done by two investigators. Data were then exported to STATA 13.1/MP (StataCorp. 2016. Stata Statistical Software: College Station, TX: StataCorp LP USA, serial number 501306208483) for analysis. Descriptive analyses were performed for each of the variables, continuous variables are presented as mean±standard deviation and categorical variables are presented as proportions. Knowledge was scored using nine questions – seven multiple choice questions and two fill in the blank question. The correct response for each question was given a score of 1/9. A total score of ≥7 was categorized as good knowledge and the rest were scored as poor knowledge. A higher cut-off for knowledge score was taken because the questions do not have overlapping themes. The effect of age, living arrangement, parent’s occupation and education, number of elder sisters on the knowledge categories were calculated using multivariable logistic regression.

Ethics considerations

Ethics approval was given by the Research Ethics Board for Health, Thimphu (REBH/Approval/2017/042 dated 12th June 2017) and the administrative approval by the Ministry of Education and the Thimphu District Education Office. The participants were given information about the study and were invited to participate. The participants signed the informed assent form and their guardian signed the informed consent form to allow participation in this study. The female students filling up the questionnaire were seated inside the classroom one individual per table, while the male students were allowed to play outside. They were given an option to withdraw from the study if the questionnaire gave them undue stress – two female students returned the questionnaires partially filled. No personal identifiers were collected.

RESULTS

A total of 439 questionnaires were returned, constituting a response rate of 99.6%. The mean age of the sample was 15.8±3.2

years, on an average three years beyond menarche at the time of the survey.

Menarcheal characteristics

The mean age of menarche was 12.8 ± 1.1 years, range 10-16 years (Figure 1). The various psychological responses to menarche were fear (168, 38.3%), confusion (110, 25.1%), feeling that menstruation was a bad thing (79, 18.0%) and anxiety (23,5.2%). The first person to share about menarche included mother (268, 61.3%), sister (91, 20.7%), best friend (38, 8.7%), father (17, 3.9%) and relatives (14, 3.2%).

Knowledge on menstruation

The mean score on knowledge on menstruation and MHM was 5.9±1.5 out of 9. The proportion of female students with good knowledge was 36.7% (161). The details on the themes of knowledge assessed, the sources of knowledge on menstruation and MHM are shown in Table 1. Knowledge was better among those who had two elder sisters (adjusted OR = 3.0, 95% CI = 1.3-6.9, p= 0.009).

Menstrual hygiene management

The majority (406,92.5%) of the female students used commercial sanitary pads. Amongst them, 385 (94.8%) bought it from within the school campus. On an average, the number of pads used per day was 3.3 ± 1.3. Among those who used cloths (25, 5.7%), 20 students reused the cloth after washing with soap or detergent.

The majority (400, 91.1%) cleaned their external genitalia with water and soap at school during menstruation. However, almost three-quarters (299, 74.8%) did not feel comfortable cleaning at school and almost half of them (137, 45.8%) did not have an adequate water supply. Among those who used sanitary pads and cloths, half of them (229, 53.1%) did not feel comfortable changing them at the school where half of them attributed to lack of adequate privacy to change (78, 33.3%).

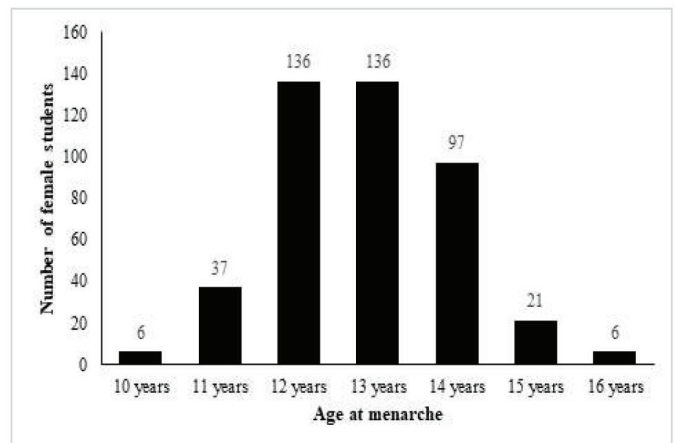


Figure 1. The age of menarche among post-menarcheal female students surveyed on menstrual hygiene management knowledge and practices in six selected schools in Thimphu, Bhutan, 2017

Table 1. The level and sources of knowledge on menstruation and menstrual hygiene management (MHM) among post menarcheal female students in six selected schools surveyed in Thimphu, Bhutan, 2017

Variables	n	(%)
Knowledge categories		
Good knowledge (score 7-9)	161	(36.7)
Poor knowledge (score 0-6)	278	(63.3)
Proportion of knowledge questions with correct answers		
Knows that menstruation is a normal event	421	(96.0)
Knew what is menstruation before their menarche	368	(83.3)
Knew the average length of a menstrual cycle (28-32 days)	230	(52.4)
Knew the average age of menopause (45-55 years)	269	(61.3)
Organ from where menstrual blood originates (uterus)	84	(19.1)
Can get pregnant after attaining menarche	406	(92.5)
MHM involves washing external genitalia with soap and water	285	(65.0)
Poor MHM leads to foul odour	266	(60.6)
Poor MHM leads to reproductive tract infection	279	(63.6)
Source of information on menstrual hygiene management*		
Mother	304	(69.3)
Teacher	168	(38.3)
Sister	137	(31.2)
Friend	93	(21.2)
Health worker	77	(17.5)
Social media	73	(16.6)
Television	51	(11.6)
Books	37	(8.4)

*Multiple responses were allowed

Table 2. Menstrual hygiene management and the impact of menstruation among post-menarcheal female students in six selected schools surveyed in Thimphu, Bhutan, 2017

Variables	n	(%)
Material used for menstrual hygiene		
Commercial sanitary pad	406	(92.5)
Clean cloth	25	(5.7)
Re-use of cloth after washing with soap or detergent	20	(80)
Tampons	7	(1.6)
None	1	(0.2)
Cleaning external genitalia in school	400	(91.1)
Access to clean water at school	226	(51.5)
Type of toilet in school		
Flush type	199	(45.3)
Pit latrine	240	(54.7)
None/outdoors	0	(0)
Disposal of soaked commercial sanitary pads* (n = 406)		
Dispose into dustbin	363	(89.4)
Throw into latrine	12	(3.0)
Bury	5	(1.2)
Take home to dispose	44	(10.8)
Reasons for absenteeism* (n = 43)		
Pain or discomfort	21	(48.8)
Fear of leakage	13	(30.2)
Feel culturally dirty	5	(11.6)
Shame	4	(9.3)
No place for disposal of pads	4	(9.3)
No privacy for cleaning	3	(7.0)
No water	2	(4.6)
Restrictions during menstruation*		
Visiting religious places	297	(67.6)
Sports	177	(40.3)
Playing	138	(31.4)
Household works	91	(20.7)
Food	73	(16.6)

*Multiple responses were allowed

Impacts of menstruation

In the last one month prior to data collection, 43 female students (9.8%) stayed absent from school during menstruation. The mean duration of absent days was 1.3 (\pm 0.6) days, range 1-4 days. The common symptoms and restrictions during menstruation and the reasons for absenteeism are given in Table 2.

DISCUSSION

This is the first assessment of menarche among female students in Bhutan. The age of menarche in Bhutan is similar to that of other countries in the region but lesser than that of 14.3 years reported in 2012¹¹⁻¹⁵. We report on the age of menarche from interviews among post-menarcheal girls while the National Health Survey reported from women aged 10-49 years, therefore our study has lesser recall bias¹⁵

The manner in which a girl learns about menstruation and its associated changes has an impact on her response to menarche. The responses to menarche are mostly fear, anxiety, anger, shame and disgust^{16,17} depending on awareness and knowledge about the problem^{18,19}.

In Bhutanese culture and the prevailing norms in the traditional system of healing (Sowa Rigpa), menarche is a sacrosanct event where the blood of menarche is considered holyzo. However, local beliefs and cultural factors have a strong influence on health perception²¹. Menstruation is associated with the cultural notion of “drip”. Anyone coming in contact with a woman during her menstruation gets affected by drip. It is believed that a person affected by drip becomes invisible to beneficial divine forces, and thus unprotected from the destructive forces²². Therefore, there is a strong societal inhibition in talking about menstruation. The source of information on MHM in our sample like in many South Asian countries are informal, through mother, elder sisters and friends. For this to change and for fathers and male teachers to promote MHM, efforts from all sections of our society are needed.

In low-income countries, the poor knowledge on the physiology of menstruation is coupled with poor resources for MHM. In our sample, the knowledge was poor in 63% of the respondents and institutional education system to teach and promote MHM practices have started only in recent years²³.

We studied MHM practices only in schools. The schools across the country are provided with toilets and water supply by the Ministry of Education and the Ministry of Works and Human Settlement. However, many female students reported that they did not feel comfortable cleaning their genitalia with soap and water in school as a part of MHM. This was due to lack of clean water and lack of adequate privacy to clean and even to dispose of their soaked pads. This highlights the need to build an environment where menstrual hygiene can be practiced with adequate privacy and dignity. It is assumed that these female students have adequate facilities for MHM at home. In 2017, there were only - 2.0% of households that did not have a toilet facility in Bhutan; 3.0% in

rural and 0.4% in urban areas according to the Population and Housing Census of Bhutan⁵.

We also report the common physical complaints related to menstruation. This is an important area of intervention to reduce absenteeism and restriction of activities such as playing sports doing household work. Restriction on visiting religious places in Bhutan need to be discussed in the broader scope of reducing gender disparity in health²⁴ and promoting social inclusiveness and empowerment of women²⁵. Perceptions and practices about menstruation changes across time and culture²³ with education and wider discourse on MHM, a future study is warranted to study the trend in these restrictions.

LIMITATIONS

This sample only included female students from urban and suburban areas of Thimphu district. The situation in rural areas may be different. A qualitative approach is required to assess the psychological responses around menarche and socio-cultural barriers to discourse and interventions on MHM. We did not make physical observations of the facilities for MHM in the schools.

CONCLUSIONS

Female students experience difficulties in menstrual hygiene management in schools. Menstruation could lead to missing schools and other activities. More knowledge on menstruation and menstrual hygiene need to be given. In addition to providing facilities, schools need to work towards ensuring privacy and dignity in practising MHM.

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