Received: 19.04.2019; Revised: 04.05.2019; Accepted: 19.05.2019

RESEARCH ARTICLE ISSN: 2394-1405

Study of the Menstrual Hygiene and Misconceptions among the Rural School Girls in District Sambhal (U.P.)

SHWETA GUPTA*1 AND POONAM PANDEY2

¹Research Scholar and ²Principal ¹Shri Venkateshwara University, Amroha (U.P.) India ²Greater Noida College of Education, Greater Noida (U.P.) India

ABSTRACT

The present study was intended to assess the knowledge, attitude and practice related to menstruation and menstrual hygiene and their determinants among rural school girls of the district of Sambhal in Western Utter Pradesh. Adolescence is a crucial period for girls, marked by the onset of menstruation and associated morbidities. Basic information about the socio demographic characteristics of the rural school girls, their exposure to mass media and the events related to menarche were also assessed to establish their relationship with the dependent variables. Studies conducted worldwide on menstrual hygiene revealed critical gaps in awareness, sanitation practices and policy. Using a descriptive analytical survey design and multistage sampling, the knowledge, attitude and practices on menstrual hygiene among 563 school girls of 13 to 17 years studying in standards 7 and 8 were identified. Among the respondents, 34.8% had poor knowledge, 41% had favourable attitude and 80.5% had poor practice. About 49% had menstrual pattern disorders, 39% reported symptoms of urinary tract infection. Dysmenorrhoea (67.2%) and back pain (53%) were the predominant physical problems and anger (49.5%) was the major emotional problems. Statistically significant correlation was obtained between knowledge and attitude (p=0.016) and between attitude and practice (p=0.01); no significant correlation existed between knowledge and practice (p=0.77). Statistically significant difference was observed in the knowledge scores on menstruation with respect to the educational level of the respondents (p=0.0001), education of their mother (p=0.003), and their habits of reading newspaper (p=0.034), health magazines (p=0.006) and periodicals (p=0.01). Significant difference was also observed in the attitude scores towards menstruation in respect of educational level of students (p=0.001), monthly family income (p=0.016), presence of grandmother in their house (p=0.015), education of mother (p=0.018), reading newspaper (p=0.034) and periodicals (p=0.043). Multivariable regression analysis has shown that the knowledge of the respondents on menstrual hygiene was significantly associated with mother's education, attitude of student, and their habits of reading newspaper and periodicals. It was found that the attitude was significantly associated with the educational level of student, presence of grandmother in their house and mother's education. The practice of menstrual hygiene was significantly associated with age of the student and their standard of living index. The study concludes to mandate health education in schools by professional nurses, on menstruation and its hygienic management; community education on the scientific aspects of menstruation; and policy implementation towards the construction of girl friendly toilets in houses, schools and public places so that the nation becomes healthy and productive with empowered women.

Key Words: Knowledge on menstruation, Attitude towards menstruation, Practice of menstrual hygiene, Menstrual morbidities, Health seeking behaviour, Determinants of menstrual hygiene, rural school girls.

INTRODUCTION

Context of the study:

Women empowerment is a significant topic of

discussion necessary for development and economics and is gaining increasing attention in India. This means providing an environment wherein women can make independent decisions on matters pertaining to their

How to cite this Article: Gupta, Shweta and Pandey, Poonam (2019). Study of the Menstrual Hygiene and Misconceptions among the Rural School Girls in District Sambhal (U.P.). *Internat. J. Appl. Soc. Sci.*, **6** (6): 1558-1566.

development and adores a position equal to men in society (Ahuja, 2014; Krishnadas, 2014). Though, women, the backbone of any society, do play multiple roles, they have been ignored. They often bear inequality, oppression and financial dependability. Sustainable development of any society requires the full potential of women and girls (Shettar, 2015). Empowerment is a multidimensional process that helps people to maximize the social, economic, political and spiritual strength of individuals and communities. Major principles supporting women empowerment include the health and wellbeing, education, gender equality and respect of human rights (UN Women, 2014). Moreover, empowerment of Indian women is dependent on various factors like geographical location, educational status, social status and age. However, women are found to be deprived of decision-making power, freedom of movement, access to education, access to employment and exposure to media. This has been well recognized and eventually policies have been framed at the national, state and local levels in many sectors including health. Women's empowerment is mainly determined by three factors, namely security, decision making power and mobility (Upadhyaya, 2010). But data from National Family Health Survey (IIPS, 2007) depicted low indicators with regard to these three aspects. School years are a remarkable period in the life of girls. They enter school probably at the age of five or six years and exit at about 16-17 years. This is a transitional period from girlhood to womanhood. Apart from the academic achievement, the girls undergo many physical, physiological and emotional developments during the school years. Puberty is a major milestone in the girl's life, which is historically associated with adolescence (Gilles, 2014). Girls attain reproductive maturity during this period. Menarche, the beginning of menstruation, is a challenging experience, which is usually associated with taboo and surrounded by silence and shrouded by myths (Pandey, 2014).

Even then menstruation and menstrual hygiene are emerging as pivotal issues for gender equality, human rights and development (Patker *et al.*, 2014).

Menstrual hygiene management (MHM) is a basic human right, which contributes to many of the Sustainable Development Goals (SDG) set by the United Nations (UN). These goals are aiming to achieve good health and well being, quality education and gender equality. Menstrual hygiene management is said to be a key factor in implementing the global strategy for women's,

children's and adolescents' health (Weinstock and Singer, 2014). School years are a highly significant period when the adolescent girls and boys can be equipped with practical, accurate and age appropriate menstrual, reproductive and sexual health, and rights education (Roy, 2014). Menstrual hygiene challenges incorporate many broad aspects like gender norms, sexual violence, behaviour change and cultural and social attitudes and stigma. Other aspects that gain attention are adequate water, sanitation and hygiene, infrastructure and products, privacy and safe disposal, safe environment and policy (Pugalenthi, 2013). Recently the need to strengthen the evidence linking MHM to health, education and empowerment has been recognized. Menstruation, though a normal physiological process can cause serious issues like pelvic infections, urinary tract infections, reproductive tract infection, increased risk for Human Immunodeficiency virus (HIV) and cervical cancer (Nielson, 2010). School dropouts are a major issue during menstruation. Safe menstrual hygiene management is crucial to achieve educational and financial equity. It is estimated that in India, 23% of girls drop out after attaining puberty (Sohn, 2014).

Menstrual hygiene:

Hygiene refers to conditions and practices that help to maintain health and prevent spread of diseases. Hygiene is defined as the science of health and embraces all factors contributing to healthful living. Therefore, menstrual hygiene includes a specific set of practices during menstruation associated with the preservation of health (Arunmozhi and Anitharam, 2013).

Menstruation is part of the female reproductive cycle that starts when girls become sexually mature at the time of puberty, and so it is essential that females are able to manage menstrual bleeding hygienically. It has been estimated that half of the female population is of reproductive age globally, and at any given time about 25% of them will be menstruating. Menstruation is a natural process in a women's life and needs special care from physical and psychological point of view. In order to live a healthy, productive and dignified life, women must be able to managemenstrual bleeding hygienically (Gultie *et al.*, 2014).

Effective menstrual hygiene management implies that everyday life of a girl is not interrupted by menstruation and the girls can continue with daily routine such as going to school, going to work or doing household chores. It should also prevent potential situations of embarrassment to herself and her body. Proper menstrual hygiene management is important for the wellbeing and development of the girl (Menstrupedia, 2015).

Sampath (2015) has suggested several tips to practice personal hygiene during menstruation, reminding the selection of menstrual protective material and its method of disposal. It is safe to carry extra menstrual protection pads and some paper tissues in a clean pouch and a hand sanitizer, so that it can be used whenever needed. The girls must choose the best sanitation that suits her, from among the many materials available like the sanitary napkins, tampons or menstrual cups or even pads made of cloths. These protective items must be changed regularly; the standard time to change a sanitary pad is once in every six hours, while for a tampon, it is every two hour. Once the menstrual blood has left the body, it gets contaminated with the body's innate organisms and can lead to infections of the urinary tract and reproductive tract. It might also lead to skin rashes. In the case of tampons, a severe life-threatening condition like toxic shock syndrome (TSS) might result.

The girl must remember to wash the perineum regularly, from front to back, before changing into a new pad and after each urination and defecation. The used pads can spread infections and are foul smelling and so they must be discarded safely. Wrapping the pad before disposal ensures that smell and infection are controlled. Flushing the pad or tampon down the toilet is not advised because they are capable of forming a block. Proper hand washing with soap and water also is to be done once the used pads have been handled (Menstrupedia, 2015).

Further, the girl must stay dry during period, as there is chance of developing a pad rash, when the pad has been wet for a long time and rubs along the thighs. It is better to use only one method of sanitation at a time, which ensures regular changing and thereby prevention of infection. Moreover the girl should have bath at least once daily during menstruation because, apart from cleaning body, it helps to relieve menstrual cramps and backache, and helps to improve mood. Clean dress and undergarments are recommended which need to be changed regularly. There is no need to have vaginal douching because this might interfere with the self cleaning mechanism (UNICEF, 2008).

Menstrual morbidities:

Normal pattern of menstruation is explained in terms

of frequency, 26 regularity, duration and volume of flow. If the cycle is less than 24 days, it is referred to as frequent menstruation, and if more than 38 days, it is infrequent menstruation. A cycle is considered to be irregular when there is more than 20 days variation in 12 month; it is prolonged when the bleeding persists for more than 8 days and shortened when there is bleeding only for less than 4 days. When the blood loss is more than 80ml, the period is described as heavy (Maybin, 2013).

Various terminologies are used to describe the menstrual abnormalities. Hypomenorrhea refers to scanty flow, and menorrhagia is abnormally profuse flow. Metrorrhagia denotes frequent periods and oligomenorrhea is infrequent periods. Dysmenorrhea is painful menstruation. Multiple symptoms have been reported by women during menstruation which include irritability, bloating, edema, emotional lability, decreased ability to concentrate, depression, headache and bowel abnormalities (Widmaie *et al.*, 2006).

Numerous causes have been described for irregular periods, which include pregnancy/breast feeding that may lead to amenorrhea, excessive exercise, polycystic ovary syndrome (PCOS), premature ovarian failure, pelvic inflammatory disease, uterine fibroids, dieting, stress, birth control pills, thyroid disorders, diabetes, eating disorders and endometriosis. Medical consultation is often required when the period suddenly stops for more than 90 days and the girl is not pregnant, if the period becomes erratic after having been normal, if bleeding doesn't stop after seven days, if heavy bleeding occurs, if periods are less than 21 days or more than 35 days, if bleeding occurs between periods, if severe pain develops and if sudden fever occurs after using tampons. Heavy flow often leads to anemia (Pick, 2013; NHS, 2015).

Menorrhagia is usually diagnosed when a woman needs to change pad in less than two hours or she passes larger clots. It is possible in tumors of the uterus, cancer of uterus, hormone related problems, platelet function disorder, diseases of liver, kidney or thyroid gland and pelvic inflammatory disease (Guyton, 2006).

Any vaginal bleeding that occurs between periods (intermenstrual bleeding), spotting or metrorrhagia can be abnormal uterine bleeding. Many causes like growth in the uterus (fibroids) or cervix, stress, change in medication, infection of reproductive organs, miscarriage, vaginal dryness, hormone imbalance, anovulation, disorders of hemostasis or cancer are being explained (Behera, 2014; Kaunitz, 2014).

The most common of all gynaecologic disorders is dysmenorrhea, meaning difficult or painful menstruation. It is believed to be caused by an imbalance between oestrogen and progesterone. Dysmenorrhea is reported to be the greatest cause of loss of working hours or school days in young girls and women; about 140 million hours are lost annually from school or work because of dysmenorrhea (Jyothy and Chandralekha, 2000; Hailemeskel et al., 2014)). Indian literature indicated a 45-90% prevalence of dysmenorrhea among college students. Many remedial measures are being suggested for dysmenorrhea, which included simple analgesics like aspirin or paracetamol, dietary modification and yoga. Yoga has been revealed as effective in relieving other discomforts during menstruation like back pain, vomiting, leg pain, breast discomforts, anger and restlessness (Agarwal and Agarwal, 2010; Gupta et al., 2013).

Many schools do not have adequate sanitation facilities to support girls and female teachers to manage menstruation hygienically and with dignity. Limited access to functioning toilets remains a barrier for proper menstrual hygiene. Surveys conducted in 2012 have revealed that 40% of the government schools lacked functioning toilet and another 40% did not have a separate toilet for girls (Nisha, 2014). Several studies have reported that girls do not change their pads while at school (Thakre et al., 2011; Paria et al., 2014). Even when toilets are available, the use of such toilets during menstruation is limited because of existing cultural practices and taboos. Disposal of menstrual waste is another challenge faced by girls. It varies from throwing the used item unwrapped or wrapped into fields, keeping pads somewhere in the toilet itself, flushing the pads into the closets, disposing them with kitchen wastes or burying and burning. Incinerators installed in some of the schools also possess several negative impacts. It is estimated that India generates about 9000 tons of menstrual waste every year, which is sufficient to fill about 24 hectares (Jamwal and Nidhi, 2015). Poor quality sanitation protection can cause stress and embarrassment due to the fear of staining clothes. Teachers also may not give due consideration to the girls' needs. Girls may become absent from school during menstruation or drop out completely, violating their right to equality and education.

Apart from the social issues, girls often suffer from many physical and emotional problems during menstruation. The morbidities associated with menstruation can be warning signs of many serious gynecological problems. It has been revealed that poor menstrual hygiene can even lead to cervical cancer. Heavy bleeding makes the girls prone to develop anemia. The secret nature, and the myths and misconceptions associated with menstruation prevent the girls from getting appropriate medical care for their menstrual morbidities.

Menstruation is a normal physiological phenomenon having many issues, challenges and consequences for all women around the world, regardless of their age, geographic location or social class. Policies to improve menstrual hygiene in India have been initiated yet did not receive top priority. Little attention has been given to identify the perception of rural school girls regarding menstruation, their menstrual morbidities and their treatment seeking behaviour. Hence the current study was undertaken to focus the rural school girls and their menstrual hygiene management.

Results:

Socio-demographic data Socio-demographic characteristics of the rural school girls analyzed in this study have been described on the basis of the standard in which the girls study, their age in completed years, birth order, monthly income of family, presence of grandmother in the family, educational level and occupation of parents, the standard of living index (SLI) and the respondents' exposure to commonly available massmedia.

- In the present study, 56% of the girls were 7th standard students and 44% were 8th standard students.
- More than 17% of the students had completed 13 years of age, 21% had completed 14 years, 22% were 15 years and 19% completed 17 years. The Mean age of the students was calculated as 15.03 years.
- Classification of the students based on their birth order disclosed that an equal proportion (42.5%) belonged to first and second ordinal positions.
 Twelve percentages of the girls were the third child and only three percentage reported as the 4" or 5" child in the family.
- Reports about the occupation of the parents of the students in this study unveiled that 84% of the fathers and 61% of the mothers were manual labourers, mainly engaged in agricultural works.
 About eight percentages of the parents were self employed. Slightly more than seven percentage were employed either in private offices or govt.

offices. About 28% of the mothers were unemployed.

As the research question was related to menstrual hygiene, an attempt was made to understand the events related to the first menstruation (menarche) of the respondents.

- In this study, majority of the students (58.3%) attained menarche at the age of 12 years, 23% before 12 years and 18% after the age of 12. The mean age of menarche in this group was 11.97 years.
- It is quite natural that the event of menarche will be reported to somebody else, and in this study, 56% of the girls reported the event to their mothers first, followed by friends (26%). About nine per cent of the students reported the first occurrence of menstruation to their teachers, 6.4% to their sisters, 2.4% to their grandmother.
- It was identified that 86% of the girls in this study were aware about menstruation prior to its occurrence and only 14% were not aware of. The girls who were aware of menstruation got the information from many sources -friends (27%), teacher (24%), mothers (21%), grandmother (10%), health personnel (11%), sisters (7%).
- Further enquiry on the type of information the students have received from the different persons revealed that, it mainly focused on the cultural aspects of menstruation.
- Exploration of the students' reaction during menarche identified that 56% felt afraid of the event and 18% felt anxious. About 17% reported to be happy about the event whereas nine per cent of the girls did not have any special reaction. It was reported that about 72% of the students used cloth pad during menarche and only 28% used sanitary pad. Nobody has reported the use of any other materials for menstrual protection other than sanitary pad and cloth.

Knowledge on menstruation and menstrual hygiene:

Analysis of the cumulative score on knowledge on menstruation and menstrual hygiene revealed that the score obtained varied from 3.34 to 15.84 (the maximum possible score was 20) with a mean score of 10.75 and S.D.+2.08

Based on the cumulative knowledge score, the respondents were classified in three categories: poor (<10), average (10.01 to 15) and good (15.01 to 20). Accordingly, in the present study 34.8% of the respondents had poor knowledge on menstruation, 64.2% had 'average' knowledge and only 1% had 'good' knowledge.

Attitude towards menstruation:

The maximum possible cumulative score for attitude towards menstruation was 90. The obtained score ranged from 56 to 85 with a mean score of 73.2 and S.D 5.53. Accordingly, the respondents were classified into three categories — unfavorable (score \leq 60), neutral (61-75) and favourable (76-90). Based on the obtained score in this study, only about 2.8% of the girls expressed an unfavourable attitude and 40.8% had favourable attitude towards menstruation. Rest of the students, (56.4%) belonged to the 'neutral' category.

Practice of menstrual hygiene:

Total score obtained for practice of menstrual hygiene in this study varied from 0 to 5, with mean score 2.7 and S.D.+0.97. Based on the practice of menstrual hygiene the respondents were classified into three categories: poor (score \leq 3); average (4-5) and good (6). Accordingly, it was shown that 80.5% of the respondents had poor practice, 19.5% had average practice and none of them had good practice.

None of the students reported any harmful practices in cleansing the perineum or using any undesirable substances as menstrual absorbents. The reasons for not changing the pad during school time included the short interval between classes, queue to use toilet and lack of privacy for disposing the pad.

Menstrual disorders and morbidities:

The menstrual disorders and morbidities among Rural school girls have been identified and described under three categories — menstrual pattern disorders, symptoms of UTI/RTI and physical/emotional symptoms.

- It was found that one or more of the menstrual pattern disorders were reported by about 49% of the respondents. These disorders were irregular periods (15.5%), periods occurring in 35 days or longer (10.7%), scanty bleeding (8.9), periods occurring in less than 21 days (6.2%) and excessive bleeding (5.4%).
- None of these girls reported symptoms

- suggestive of reproductive tractinfection.
- Pain during micturition (15.7%) frequent urination (10.1%), urgent urination 3% and urethral discharge (0.2%) were the symptoms of urinary infection reported by the respondents.
- One or more of the physical/emotional symptoms were reported by about 90% of the participants.
 Of these, dysmenorrhea (67.2%, back pain (53%) fainting (31%) and anger (49.5%) were the predominant symptoms.

Treatment seeking behaviour in relation to menstrual morbidities:

- Out of the respondents who suffered from menstrual pattern disorders (n=248) 71% did not get treatment.
- Those who had symptoms of UTI, (n=194) 56% did not seek any treatment.
- Those who suffered from physical/emotional symptoms during menstruation (n=450), 31% did not get treatment.
- It was unveiled that those respondents who had been for treated their menstrual morbidities, done it mainly from allopathic doctors (16% with menstrual pattern disorders, 15% with symptoms of urinary infection and 11% with physical / emotional symptoms). It was also revealed that, a few of them had been treated with Ayurvedic medicine and local herbs. Some of them have tried their own methods like application of hot water bags over the abdomen, wrapping shawl tightly around the abdomen, drinking ginger water and taking rest and analgesics ((48%) when they had physical/emotional symptoms.
- Probing into the reasons for not taking any treatment for the menstrual problems could reveal many of their misconceptions. About 50% reported there is no need for treatment because these problems are quite normal during menstruation, about 20% recorded these problems will be resolved after marriage, about 9% reported their parents did not agree for treatment and only 0.2% could not treat because of financial problem. It was also noted that about 21% were of opinion that women have to bear these problems, and if treatment of any kind is taken in the younger ages, it will lead to greater problems in married life.

Correlation between the dependent variables:

- Statistically significant correlation was found between knowledge on menstruation and attitude towards menstruation.
- Negative correlation was obtained between knowledge vs. practice
- Statistically significant negative correlation was found between attitudes vs. practice.

Determinants of knowledge, attitude and practice:

The present study identified many variables that attribute to the knowledge on menstruation and menstrual hygiene among the rural school girls which included age of the student, total attitude score, educational level of student, education of mother, reading newspaper, health magazines and periodicals.

The determinants of attitude towards menstruation identified in this study were, educational level of student, monthly family income, presence of grandmother, education of mother, and reading newspaper and periodicals.

The influencing factors for practice of menstrual hygiene in this study were age of the student and standard of living index.

Discussion:

The main objective of the study was to assess the knowledge, attitude and practice of rural school girls regarding menstruation and menstrual hygiene. Basic information about the socio demographic characteristics of the rural school girls, their exposure to mass media and the events related to menarche were also assessed to establish their relationship with the dependent variables.

Age of attaining menarche:

The age of attaining menarche, reported in this study ranged from 9 to 15 years with mean age 11.97 years and median 12 years. The mean age of menarche obtained in this study is congruent with the results obtained in a study conducted in India (Yasmin, 2013), where the mean age of menarche was found to be 11.95 years, and another study conducted in Nigeria (Ofuya, 2007), where it was found to be 11.71 years.

However, this finding did not agree with the findings in several other studies, where the mean age of menarche was higher. It was 12.5 years in the U.S. (Anderson, 2005), 12.41 years in Kuwait (Awadhi, 2013) 13.66 years in Northern Ghana (Ameade and Garte, 2016) 13.72 in

Thripura (Saha, 2015) and 13 years among rurals in Kanyakumari District (Johnson 2014). It shows that there is no cut off age to start menarche and the timing is influenced by female biology, genetic, environmental and nutritional factors (Karapanou& Papadimitriou, 2010). Worldwide, age of menarchevaries significantly by geographic location, race, ethnicity and other characteristics.

Awareness about menstruation prior to menarche:

Majority of the rural school girls (86%) in this study were aware of menstruation prior to its occurrence. The higher percentage of girls aware of menstruation prior to its occurrence in this study could be due to their peer interaction and the special celebrations during menarche.

Most of the studies conducted in India and abroad agree that a certain proportion of the study participants had prior awareness about menstruation. A study conducted in Andhra Pradesh among 489 girls, consisting of scheduled tribes, dalits, other backward castes and other castes from different economic background and occupations revealed 94% had awareness prior to menarche (Sudha, 2011). Gothankar, Patil and Plkar (2015) reported that in their study conducted in a private University in Pune, more than 86% of the participants were aware of menarche. A descriptive cross sectional study conducted in West Bengal revealed that 67.5% of the adolescent secondary school girls had prior awareness (Dasgupta, 2008).

Many other studies reported less awareness among the participants. An epidemiological study conducted in Manipal, India (among 550 adolescent school girls showed that only 34% of them had prior awareness (Kamath, 2013). A community based cross sectional study on 387 school girls conducted in Nagpur reveled that 37% were aware of menstruation (Thakre, 2013).

Practice of menstrual hygiene:

Assessment of the practice of menstrual hygiene among rural school girls showed, about 80.5% of them had overall poor hygiene practice during menstruation. Of the total respondents, 42% had used sanitary pad during menstruation and 34% used cloth pad. A combination of sanitary pad and cloth pad was used by rest of the girls (24%).

With regard to the method of disposal of sanitary pad, only 36% of the girls disposed it ideally. 61% of them they flushed it down the toilet and 3% either left it

on toilet floor or thrown into surrounding area. Those who used cloth pad, though reported they washed, dried and kept for next use. Only 2.58% of the girls changed the pad 4 times daily, 62% of the girls did not change during school time.

These findings regarding the practice of hygiene during menstruation in the present study were compared with the findings in similiter studies (Chadalawada, 2016; Sangeetha, 2015; Sudha, 2011). The results of an epidemiological study done among 550 school girls in India agreed with the type of menstrual protective pads used.

Correlation between knowledge attitude and practice:

There was a positive correlation found between knowledge on menstruation and attitude towards menstruation. But a negative correlation was found between knowledge and practice and that between attitude and practice. The negative correlation of practice of menstrual hygiene with the knowledge and attitude need to be considered with serious importance, because knowledge and attitude alone will not contribute to good practice, unless and otherwise conducive infrastructure with access to water and sanitation facilities are available.

Implications:

The present study identified that rural girls are attaining menarche even at the age of nine years (mean 11.97 years and mode 12 years). This age is far below the average age of menarche attainment in India (12.43 years) and in many other countries. Studies also have proven that there is a decline in monarchial age of 0.11 years per decade. Many biological and environmental factors have been identified, which are contributory to the early occurrence of menarche. These findings make it imperative that the girls must be prepared by making them educated about menarche even when they are studding at the primary school level itself.

There is no specific time or place for the onset of menstruation. It can occur at any time and at any place occupied by the girl: house, school, hostel or during journey. Moreover, nobody can have a control over the onset. Studies have revealed that the girls report the event to her mother, friend, relatives, teacher. The present study identified that the information thus conveyed to the girls mainly included the cultural aspects rather than the scientific facts on menstruation and menstrual hygiene. This finding makes it necessary that the menstrual hygiene

education need to be initiated at the community level also to dispel the myths and taboos on menstruation.

This study revealed that about 61% of the girls have flushed down the used menstrual pads in the toilets. Subsequently this act will lead to clogging of the toilets and which leads to environmental pollution. It was also found that there was a negative correlation existing between knowledge and practice and with attitude and practice. The infrastructure of the school, particularly the toilets must be in good hygiene condition, proportional to the number of students, must have continuous water supply, and user friendly to suit the need during menstruation.

REFERENCES

- Adukia, A. Sanitation and Education (2014). Available: http://scholar.harvard.edu/files/adukia/files/adukia_sanitation_and_education.pdf. Accessed: 29 January 2014.
- Anand, E., Singh, J. and Unisa, S. (2015). Menstrual hygiene practices and its association with reproductive tract infections and abnormal vaginal discharge among women in India. *Sex Reprod Healthc.*, **6**:249–54. doi: 10.1016/j.srhc.2015.06.001. [PubMed] [CrossRef] [Google Scholar]
- Chandra-Mouli, V. and Patel, S.V. (2013). Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reprod Health*, **14**: 30. doi: 10.1186/s12978-017-0293-6. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Das, P., Baker, K.K., Dutta, A., Swain, T., Sahoo, S., Das, B.S. et al. (2015). Menstrual hygiene practices, WASH access and the risk of urogenital infection in women from Odisha, India. PLoS One, 10:e0130777. doi: 10.1371/journal.pone. 0130777. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Devi, B.S. and Swarnalatha, N. (2007). Prevalence of RTI/STI among reproductive age women (15-49 years) in urban slums of Tirupati town, Andhra Pradesh. *Health Popul. Perspect Issues*, **30**: 56–70. [Google Scholar]
- Garg, R., Goyal, S. and Gupta, S. (2012). India moves towards menstrual hygiene: subsidized sanitary napkins for rural adolescent girls-issues and challenges. *Matern Child Health J.*, **16**: 767–74. doi: 10.1007/s10995-011-0798-5. [PubMed] [CrossRef] [Google Scholar]
- Garg, S. and Anand, T. (2015). Menstruation related myths in India: strategies for combating it. *J. Family Med. Prim. Care*, **4**: 184–6. doi: 10.4103/2249-4863.154627. [PMC free

- article] [PubMed] [CrossRef] [Google Scholar]
- Garikipati, S. and Boudot, C. (2013). To pad or not to pad: towards better sanitary care for women in Indian slums. J Int Dev. 2013;29:32–51. doi: 10.1002/jid.3266. [CrossRef] [Google Scholar]
- Government of Tamil Nadu, Department of Social Welfare and NMP. Health Services (2013). Available: http://icds.tn.nic.in/Convergence.html. Accessed: 29 January 2014
- Guterman, M., Mehta, P. and Gibbs, M. (2007). Menstrual taboos among major religions. *Internet. J. World Health Soc. Polit.*, **5**:8213. [Google Scholar]
- Health Education to Villages. Toilet facilities in all schools (2013). Available: http://hetv.org/programmes/toilets-in-all-schools.htm. Accessed: 29 January 2014.
- Ministry of Drinking Water and Sanitation, Government of India. Menstrual Hygiene Management: National Guidelines. 2015. Available: http://www.mdws.gov.in/sites/default/files/Menstrual%20Hygiene%20 Management%20-%20Guidelines_0.pdf. Accessed: 29 January 2014.
- Ministry of Environment and Forests, Government of India. Solid waste management rules, 2015. Available: http://www.indiaenvironmentportal.org.in/content/414155/solid-waste-management-rules-2015/. Accessed: 29 January 2014.
- Muralidharan, A., Patil, H. and Patnaik, S. (2015). Unpacking the policy landscape for menstrual hygiene management: implications for school Wash programmes in India. *Waterlines*, **34**:79–91. doi: 10.3362/1756-3488.2015.008. [CrossRef] [Google Scholar]
- Narayan, K.A., Srinivasa, D.K., Pelto, P.J. and Veerammal, S., (2001). Puberty rituals reproductive knowledge and health of adolescent schoolgirls in south India. *Asia Pac. Popul. J.*, **16**: 225–38. [Google Scholar]
- Office of the Registrar General and Census Commissioner India, Ministry of Home Affairs, Government of India. Census in India. 2013. Available: http://censusindia.gov.in. Accessed: 29 January 2014.
- Parashar, A., Gupta, B.P., Bhardwaj, A.K. and Sarin, R. (2006).

 Prevalence of RTIs among women of reproductive age group in Shimla City. *Indian J. Community Med.*, **31**:15–7. doi: 10.4103/0970-0218.54924. [CrossRef] [Google Scholar]
- Phillips-Howard, P.A., Nyothach, E., Ter Kuile, F.O., Omoto, J., Wang, D., Zeh, C. *et al.* (2014). Menstrual cups and sanitary pads to reduce school attrition, and sexually transmitted and reproductive tract infections: a cluster

- randomised controlled feasibility study in rural Western Kenya. *BMJ Open*, **6**: e013229. doi: 10.1136/bmjopen-2014-013229. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Ronitzsch, S. (2015). Dropping out of school because of menstruation? An analysis of factors of success for menstrual hygiene management-projects in low and lower-middle income countries: Philipps-University Marburg, Germany, Google Scholar]
- Saha, D. (2014). PMs claim of toilets for girls in every school fails scrutiny. Available: http://factchecker.in/pms-claim-of-toilets-for-girls-in-every-school-fails-scrutiny/. Accessed: 29 January 2014.
- Sahoo, P. (2015). Ladies, be careful when you throw away the napkin. Hindustan Times 24 Aug 2015.
- Sambyal, S.S. (2014). Government notifies new solid waste management rules. 2014. Available: http://www.downtoearth.org.in/news/solid-waste-management-rules-2014-53443. Accessed: 29 January 2014.
- Sommer, M., Caruso, B.A., Sahin, M., Calderon, T., Cavill, S., Mahon, T. et al. (2014). A Time for Global Action: Addressing Girls' Menstrual Hygiene Management Needs in Schools. PLoS Med., 13:e1001962. doi: 10.1371/ journal.pmed.1001962. [PMC free article] [PubMed]

- [CrossRef] [Google Scholar]
- Sommer, M., Vasquez, E., Worthington, N. and Sahin, M. (2013). WASH in schools empowers girls' education. Proceedings of the menstrual hygiene management in schools virtual conference 2012. New York, USA: UNICEF and Colombia University, 2013. [Google Scholar]
- United Nations Development Programme. Sustainable Development Goals: Goal 5 Gender Equality Targets. 2013. Available: http://www.un.org/sustainabledevelopment/gender-equality/. Accessed: 27 February 2013.
- UNICEF. WASH in Schools (2014). Available: https://www.unicef.org/wash/schools/washinschools_53115.html. Accessed: 29 January 2014.
- van Eijk, A.M., Sivakami, M., Thakkar, M.B., Bauman, A., Laserson, K.F., Coates, S. *et al.* (2014). Menstrual hygiene management among adolescent girls in India: a systematic review and meta-analysis. *BMJ Open.* **6**:e010290. doi: 10.1136/bmjopen-2015-010290. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Yagnik, A.S. (2012). Construction of negative images of menstruation in Indian TV commercials. *Health Care Women Int.*, 33:756–71. doi: 10.1080/07399332. 2012.684814. [PubMed] [CrossRef] [Google Scholar].
