

## Knowledge, attitude, and practice on menstrual hygiene among adolescent girls in Coimbatore: A cross-sectional study

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### Abstract

**Background:** Menstruation is a phenomenon specific to women. The World Health Organisation states that it is a normal biological occurrence that is defined by the uterine passage of mucus and blood periodically. Many girls have a range of symptoms during their menstrual cycle, including headaches, stomach cramps, tiredness, migraines, and acne. Girls continue to experience social and cultural shame in our society, which is exacerbated by common misconceptions and beliefs. India may be more susceptible to improper menstrual management practices due to a lack of adequate hygienic facilities and limited access to feminine hygiene products.

**Objectives:** This study aimed to investigate teenage school girls' (10-19 years) KAP of menstruation, and to get their menstrual health-related health-seeking behavior.

**Methodology:** Using a semi-structured, pretested questionnaire, 1137 teenage schoolgirls participated in a cross-sectional study conducted between March 2021 and July 2024 regarding their knowledge, practices, and hygienic methods for managing problems related to menstruation.

**Results:** Most of them learned about menstruation and its issues from mothers (77.1%) and friends (15.9%). Nearly 4.5% were aware of menstrual problems, and 41.9% and 42.9% were aware of unexcepted menstruation, and the physiological changes respectively. According to the investigation of menstrual health management, 59.7% reported psychological symptoms and 59.2% of monthly absences from school. Approximately 34.8% exercised or performed yoga to reduce pain, and 47.4% sought medical assistance for menstrual health difficulties. Around 94.5% use disposable pads and, 58.9% use three to four napkins daily.

**Conclusion:** This study emphasizes the importance of providing complete education on menstruation, reproductive health before puberty, appropriate menstrual hygiene management, and the negative consequences of a lack of information about hygiene practices among adolescent girls. Furthermore, through the provision of health cards to track and manage menstrual health and cleaning practices, it is advised that healthcare professionals hold regular workshops to raise awareness among parents, educators, and young girls. This will increase their attitudes and behaviors around menstrual hygiene.

**Keywords:** Menstrual Problems; Menstrual Hygienic Management; Knowledge; Menstruation

### 1. Introduction

An individual who is not yet a teenager or an adult is said to be in adolescence. It is characterized by changes in an individual's physical, psychological, and social outlook. The most obvious change in teenage girls is the commencement

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of menstruation. It is a natural biological process that involves the periodic release of mucous tissue and blood from the uterus [WHO,2006]. During their menstrual cycle, many girls suffer from a range of symptoms, which include fatigue, migraines, acne, fainting, headaches, and cramping in the abdomen. It is significant to educate adolescent girls about typical symptoms. It has been noted that around 23% of Indian schoolgirls drop out after puberty [Rose,2013].

It is estimated that 300 million women and girls will have menstruation in a single day demonstrating that it is a normal occurrence. Menstruation is still fraught with social and cultural stigma for women, even though it's such a frequent occurrence. The most prevalent ones include being prohibited from using the cooking area, participating in daily tasks around the house, exercising, and playing sports, as well as being prohibited from social gatherings [Eijk,2015]. In addition to the rules different families adhere to, some have certain beliefs. For instance, one such belief is that if a female places broomsticks or certain plant leaves around her during her menstrual cycle, evil will not be allowed to enter her body [Patil,2011]. A prevalent notion is that an adolescent girl has to take a bath to cleanse herself following her period.

These myths need to be addressed and dispelled as there is no scientific or empirical evidence to support them, and doing so will help to avoid societal stigma against women who menstruate. A woman's food, health, and cleanliness must all be properly attended to during her menstrual cycle. Adolescent females are an especially accountable demographic in India. Even while "coming of age" is given ceremonial emphasis, relatively little information regarding the reality of menstruation is provided. Restrictions are used to convey a lot of the information. [Narayan,2001] Managing menstruation is linked to embracing feminine characteristics from the moment of menarche and implementing sanitary habits. To help adolescent girls who are anxious about their periods, all misconceptions and taboos that include not having a bath, avoiding hot and cold meals, and not exercising need to be dispelled because they are unsupported by science.

Developing a habit of adhering to stringent cleanliness measures during menstruation is crucial in avoiding reproductive system infection. The lack of proper water, sanitation, and hygiene facilities in schools causes teenage females in rural regions to struggle with menstruation hygiene, particularly when attending school [Yadav,2017]. It has been noted frequently that many girls do not know the reason or source of their monthly blood, nor even that they menstruate before they menarche [Agarwal,2017]. To encourage a more positive attitude towards menstruation, girls should be well-informed about it from an early age.

Numerous research has revealed that adolescent girls differ in their knowledge, attitudes, and menstrual hygiene practices. These are a few conclusions drawn from these surveys, as per Bourah's 2022 report, around 96.51% of females are conscious of their menstrual cycle, and 83.72% know it's a natural phenomenon. Around 42.94% of adolescents know that improper menstruation hygiene might result in infections at the time. According to the investigator, Belayneh, in 2019, of nearly 791 adolescent girls who took part in this survey, 68.3% did not know much about menstruation. Schoolgirls utilize absorbent products in around 48.1% of cases, and 69.5% wash their external genitalia. In general, menstrual hygiene practices were inadequate for 60.3% of girls. Inadequate knowledge of menses [OR = 1.48:95% CI (1.04, 2.1)], longer days of menstrual flow [OR = 2.51:95% CI (1.66, 3.80)], and age under 15 years [OR = 1.71:95% CI (1.22, 2.39)] were all significantly correlated with poor menstrual hygiene practices. Thus, this study assessed teenage girls' knowledge, attitudes, and practices regarding menstruation.

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## 2. Materials and Methods

The current study was a cross-sectional investigation carried out among teenage females enrolled in schools from the 6<sup>th</sup> to 12<sup>th</sup> grades, first and second-year nursing college students in the urban area surrounding the Coimbatore district of Tamil Nadu. The research was carried out between March 2022 and July 2024. The research comprised 1137 adolescent girls between the ages of 10 and 19. Before the study began, institutional ethics committee consent was acquired from PSGIMS and R. The college's principal, school headmasters, parents, and children gave their consent. The consent document explained the process and guaranteed their confidentiality. The inclusion criteria were adolescent girls aged 10 to 19 who had reached menarche and provided informed consent from students and their parents. On the other hand, the exclusion criteria included those who had not attained menarche, were younger than 10 or older than 19 years of age, with any non-communicable disorder, and, not interested in participating in the study. The pre-tested questionnaire was used to collect information about their knowledge of menstruation, problems related to it, typical age, and hygiene practices they followed during the menstrual. Subsequently, a health education session on menstrual hygiene management was held, covering subjects such as the anatomy and physiology of menstruation, the regular menstrual cycle, and irregularities, dispelling myths about menstruation, and the pros and cons of menstruation, common materials were displayed to aware them about the menstrual cycle. Additionally, menstrual hygiene practices

were mentioned by distributing pamphlets. Results of the data analysis were presented in the form of descriptive statistics after the data were imported into Microsoft Excel and SPSS IBM version 20.

### 3. Results and Discussion

#### 3.1. Knowledge of Menstrual Problems among Adolescent Girls

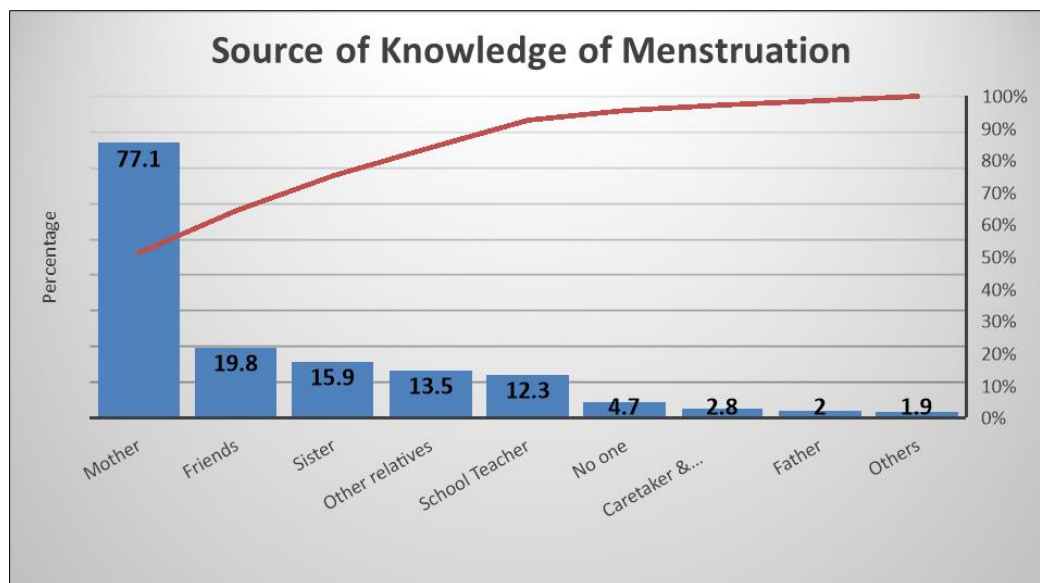
Participating in the study were 1137 teenage girls from metropolitan settings. They ranged in age from 10 to 19 years, with the average age of the participants being  $13 \pm 2.036$ . Most respondents' mothers were housewives, and those who worked as unskilled laborers had less understanding of managing menstruation problems and hygiene.

**Table 1** Knowledge of Menstrual Problems among Adolescent Girls

| Knowledge of Menstrual Problems among Adolescent girls | Adolescent Girls<br>(10-19 years) N=1137 |             |
|--|--|-------------|
|  | N  | Percent (%) |
| Do you know menstrual health problems?                 | 51                                       | 4.5         |
| Do you know at which age menarche occurs?              | 292                                      | 25.7        |
| Does menstruation start suddenly with the overflow?    | 476                                      | 41.9        |
| Are you aware of physiological changes in the body?    | 488                                      | 42.9        |
| Did you discuss menstrual health problems with others? | 689                                      | 60.6        |

From Table: 1 Only 4.5% of the 1137 respondents knew information about menstrual difficulties, but 25.7% knew about menarche age for girls, 41.9% knew about the overflow when menstruation comes unexpectedly, 42.9% of the girls knew the knowledge on physiological changes that happen from the age of 8 in the body, and 60.6% of them discussed their menstrual health issues with others. According to Purva (2017), roughly 82.9% of girls who did not reach menarche replied with "don't know" when asked about their perceptions of menstruation. According to Ruby Khatoon et al.'s study from 2023, the majority of the females (52.8%) in this survey are between the ages of 17 and 19. The girls' knowledge of menstruation before menarche was stated by 87.6% of them. About 68.2% of the girls agreed that the main cause of menstruation was physiological and unrelated to any specific sickness, but 41.6% of the girls were unaware of which organ was the source of bleeding. Around 42.6% of the girls reached menarche between the ages of 10 and 13. The majority of participants (60.80%) accurately responded to the question on the average length of a typical menstrual cycle. The girls' knowledge of the appropriate menarche age was only 35.27 percent. Nearly 65.50% of them knew that, they were suffering from reproductive health problems.

From Figure :1 Around 77.1% obtained their knowledge about menstruation from their mother, followed by friends (19.8%), a sister (15.9%), relatives (13.5%), a school teacher (12.3%), and no one (4.7%). Approximately 2.8% come from guardians, 2% from fathers, and 1.9% from others. In many studies—mothers were the most frequent sources of information about menstruation and its problems [Prajapati,2015]. According to Ade *et al.*, (2013) over 50% of the girls cited their mothers as their primary information source, with friends and family coming in second, and 10% identifying teachers and the media as other sources. About 27.7% of teenage girls, according to Belayneh, Z. (2019), lacked knowledge about menstruation and proper hygiene practices before menarche. Out of 72.3% of schoolgirls who had information about menstruation before the start of their periods, 38.3% cited their mother as the primary source, while 16.3% obtained this information from their classmates.



**Figure 1** The source of Knowledge about menstruation obtained from (if yes)

Additionally, 6.4, 2.4, 7.6, and 1.3% of girls with information cited relatives, teachers, the media, and others respectively as sources of information on menstrual bleeding along with ways to properly manage it.

### 3.2. Attitude of Menstrual Problems among Adolescent Girls

Menstrual hygiene was the subject of both good and negative sentiments, according to the study's findings. This can be explained by the fact that many of the young girls had never heard of menstruation before when they first experienced it and that the girls had grown up in a setting where menstruation is frowned upon in rural places. For instance, they forbid girls from cooking or cleaning utensils because they think that menstruation makes them dirty. These findings are consistent with other research conducted in Nepal and Saudi Arabia, which found that girls had unfavorable opinions on menstrual hygiene [Yadav,2018; Sharma,2020].

**Table 2** Attitudes of Adolescent Girls about Menstrual Problems

| Attitudes of adolescent girls about Menstrual Problems                              | Adolescent Girls (10-19 years) N=1137 |             |
|---|---------------------------------------|-------------|
|   | N                                     | Percent (%) |
| Do you get any psychological symptoms during the menstrual cycle?                   | 679                                   | 59.7        |
| Do you think psychological symptoms affect the quality of life?                     | 384                                   | 33.8        |
| Do you think the absence of menstruation causes any health issues?                  | 673                                   | 59.2        |
| Do you think physical changes in menstruation are inevitable and, hence acceptable? | 580                                   | 51          |
| Do you observe menstrual problems as a loss of teenagers?                           | 548                                   | 48.2        |

From Table 2, the study's goal was to ascertain the target Participants' attitudes. The investigation revealed that, of about 59.7% of psychological symptoms, 33.8% impact quality of life, 59.2% of monthly absences result in health difficulties, 51% can accept the physical changes associated with menstruation, and 48.2% view menstrual troubles as a sign of teenage loss. In a 2023 analysis, researcher Shah found that 17.1% (n = 64) of participants admitted to not exercising, and almost 37.6% (n = 141) of respondents said they didn't wash their bodies while they were menstruating. Around 29% (n = 104) of the girls mentioned their sisters, and 38.2% (n = 137) felt comfortable discussing or asking their mothers for help on menstruation. About 67.3% (n = 202) reported feeling anxious and stressed during their menarche. To deal with this problem, the majority, or 68.3% (n = 205), stated that their friends, family, sisters, or others should inform them beforehand. Furthermore, almost 42.8% (n = 238) of respondents said that their moms, sisters, friends, or relatives should tell them, and 91% (n = 273) agreed that girls should be informed of their first cycle.

### 3.3. Practice of Menstrual Hygienic Management among Adolescent Girls

Various sexually transmitted diseases, urinary tract infections, and severe reproductive tract infections might result from unsanitary and inappropriate behaviors during this time. It may also be a factor in the development of serious illnesses like cervical cancer. The tradition was to wash the cloth pieces and then let them dry in the sun in a quiet location where no one could see them, as many of the girls wanted to do. One of the main causes of reproductive tract infections in people who use cloth is how often they wash or reuse the fabric. Because of their erroneous views and incorrect conceptions regarding menstruation, the majority of the girls in our study practiced various limitations.

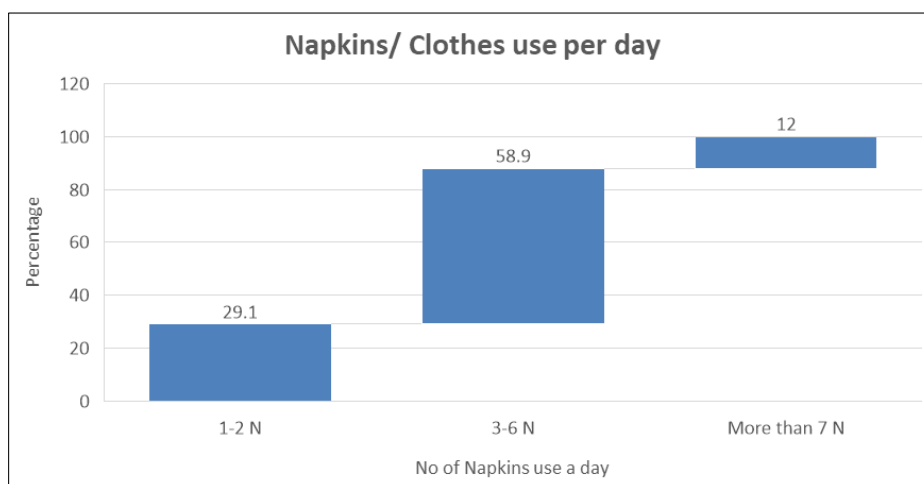
Adolescent girls and their families accept traditional customs and superstitions because they are ignorant. Every teenage female adhered to several rules, such as not going to temples or going into the kitchen. The practice of restrictions including sleeping outside the home, avoiding contact with family members, and being separated from the family during monthly flow was also discovered.

From Table:3 Nearly 47.4% of them visit a doctor when menstrual health issues arise, 43.9% consent to receiving medical care, if necessary, 81.4% practice personal hygiene, 34.8% engage in yoga or other exercise to relieve menstrual pain, and 46.8% eat particular foods to relieve pain. Among 1137 participants using materials during their menses nearly 94.5% were using disposable pads, the remaining 2.5% were using old cloth, 1.4% using reusable pads, 0.5% using new clothes, and both (old and Disposable pads), 0.2% re-used cloth and 0.4% Both (reusable and disposable pads).

**Table 3** Practices among Adolescent Girls regarding Menstrual Problems

| Practice among adolescent girls about menstrual problems                    | Adolescent Girl's<br>(10-19 years) N=1137 |             |
|---|---|-------------|
|   | N   | Percent (%) |
| Did you consult a gynecologist at the onset of a menstrual health problem?  | 539                                       | 47.4        |
| Have you taken any medical treatment for menstrual problems?                | 499                                       | 43.9        |
| Are you giving importance to personal hygiene during the menstrual cycle?   | 926                                       | 81.4        |
| Are you doing any exercise or yoga to relieve the menstrual health problem? | 396                                       | 34.8        |
| Are you taking any special food to get rid of pain?                         | 532                                       | 46.8        |
| Practice about Menstruation   |   |             |
| Materials Used During Menses  |   |             |
| New Cloth   | 6   | 0.5         |
| Old Cloth   | 28  | 2.5         |
| Re-used Cloth   | 2   | 0.2         |
| Reusable Pads   | 16  | 1.4         |
| Disposable Pads   | 1075                                      | 94.5        |
| Both (old and Disposable Pads)  | 6   | 0.5         |
| Both (reusable and disposable pads)   | 4   | 0.4         |
| Disposal of Pads  |   |             |
| Unwrap and dispose of in the open bin                                       | 61  | 5.4         |
| Flush in latrine  | 48  | 4.2         |
| Discard it from the window  | 17  | 1.5         |
| Burn it   | 310                                       | 27.3        |
| Don't dispose by themselves   | 494                                       | 43.4        |

|  |     |      |
|--|-----|------|
| Disposed by mothers and others                     | 643 | 56.6 |
| Buried under mud/disposed in the ground            | 36  | 3.2  |
| Throw it in regular trash on the street            | 23  | 2    |
| Wrap with newspaper and use a black cover properly | 482 | 42.4 |
| Cleaning agent for External Genitalia              |     |      |
| Only water   | 605 | 53.2 |
| Neem water   | 19  | 1.7  |
| Turmeric water                                     | 20  | 1.8  |
| Water and Chemical                                 | 13  | 1.1  |
| Gel  | 22  | 1.9  |
| Soap   | 378 | 33.2 |



**Figure 2** Napkins use per day among participants

From **Figure: 2** Nearly 58.9% of them use 3 to 4 Napkins per day, 29.1% of subjects use 1 to 2 napkins per day, and 12% use >7 napkins. The current study revealed the practice of disposal methods among the respondents, approximately 56.6 % of mothers and others dispose of it on their behalf, 43.4 % don't dispose of it by themselves, 42.4% properly wrap the material in the newspaper and dispose of it in a dustbin covered in black, 27.3% burn them, 5.4 % dispose of absorbent materials unwrapped and thrown in open bins, 4.2 % flush in the latrine, 3.2 % being buried in the earth or disposed of in the ground, 2% throw it in regular trash in the street, and the remainder 1.5% discard it from the window.

The study revealed the report about cleaning agents on external genitalia around 53.2% used only water, 33.2% used soap, 1.9 % used gel, 1.8% used turmeric water, 1.7% used neem water, and 1.1% used chemicals (anti-septic) to wash their external genitalia.

In research conducted by Maji S, the majority of participants used sanitary pads, and one-third of them reused their old clothes [Maji,2016]. In contrast to the results of our study, which showed a larger number of girls using solely sanitary pads (73.6%), Dabade KJ et al. found that only 52.3% of girls in rural Gulbarga used sanitary napkins [Dabade,2017]. The majority of the teenage girls in our research disposed of their menstrual waste products in bins, a practice previously seen in the study of rural school-going girls by Chauhan P et al. [Chauhan,2019]. Contrary to our study's findings, Dabade KJ et al (2017). discovered that about 75% of the girls regularly cleaned their intimate areas with soap and water. In 2019, 218 females, or 79.9% of the total, opted to wrap their pads and dispose of them in closed containers, according to Patel's report on disposal methods. Menstrual pads may be disposed of in three different ways: nearly 6 (2.2%) girls flushed them down the toilet, seven (2.6%) girls wrapped and threw them in open bins, and forty-one (15%) girls chose to burn. According to the findings of the different hygiene methods used, 130 girls (47.6%) and 140

girls (51.3%) respectively cleaned their private areas with soap and water and plain water. A total of 244 females, or 89.4%, reported taking a daily shower.

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#### 4. Conclusion

This study found that despite advancements in menstrual health and cleanliness, there is still a lack of knowledge on menstruation, problems, and practices. Even though menstruation is a normal occurrence, many homes nevertheless practice unscientific limitations around it. This research emphasizes the need to educate adolescent girls about menstruation and reproduction before they reach puberty. Menstruation-trained counselors must be employed in every school to ensure that girls are educated about the menstrual cycle and its significance. The present study also showed that most of the girls learned about menses from their mothers before they reached menarche, which highlights the significance of mothers in laying the groundwork for future generations menstrual health and the need for parent counseling programs. Encouraging routine medical visits and providing medical health cards is necessary to ensure that menstrual problems and hygiene are adhered to.

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#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

There is no conflict of interest in this manuscript.

##### *Statement of ethical approval*

There is a subject involvement in this manuscript. The institutional ethics committee consent was acquired from PSGIMS and R, (ref.no- PSG/IHEC/2022/Appr/FB/013).

##### *Statement of informed consent*

Owing to the cross-sectional design of this study. Parents and students provided written, informed consent, and confidentiality was guaranteed.

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