



Assessing the Knowledge Regarding Menstrual Hygiene among the Adolescent Girls in Selected Secondary and Higher Secondary Schools in Nadiad City

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Menarche represents a significant psychological, social, and behavioral transition for an adolescent girl as she moves from girlhood to womanhood. Despite its importance, menstrual hygiene is often neglected. Adolescence, defined as the period between age 12 and 18 for both girls and boys, is a time of significant change. For girls, this phase marks the beginning of puberty and the journey towards reproductive maturity. This developmental period is characterized by numerous physiological, behavioral, and psychological changes, with the onset of menstruation being one of the most notable milestones.

Aim: The goal of the study is to assess the knowledge regarding menstrual hygiene among the adolescent girls in selected secondary and higher secondary schools of Nadiad city.

Methodology: A Quantitative research approach with descriptive research design used in this study. The study was conducted in the secondary and higher secondary schools of Nadiad city. The sample was selected through a Non-Probability Convenient Sampling technique. The tool validation from various experts, all questions were given to the adolescent girls and information given by the samples are kept confidential. Prior to data collection written setting permission obtained from selected school principals of Nadiad city. The total sample size was 100 samples. The data were analyzed using SPSS and the results were recorded as frequencies, means \pm standard deviations (SD) and P values. Tables and figures were used for comprehensive viewing of the results. The Chi-square test was used for categorical variables. A p value of < 0.05 was taken as the criteria of significance for all purposes. There are total 16 multiple choice questions. Each question has 1 mark, so the total marks are 16. Knowledge regarding menstrual hygiene among adolescent girls classified with different categories, Good Knowledge (8%), Average Knowledge (73%) and Poor Knowledge (19%).

Results: The results of the study provide insights into the knowledge regarding menstrual hygiene among the adolescent girls in selected secondary and higher secondary schools of Nadiad city. The majority of participants aged, the participant's age is 14-15.1 years (22%), 15.1-16 years (26%), 16.1-17 years (29%) and 17.1-18 years (13%). Regarding education, the participant's education is 9th (17%), 10th (21%), 11th (32%), and 12th (30%). Regarding age of menarche, the participant's age of menarche is 12-13 (45%), 13.1-14 (48%), and 14.1-15 (7%). Regarding education of family, the participant's family education is illiterate (11%), primary (40%), secondary (42%), and graduate (7%). Regarding type of family, the participant's family is nuclear (20%), joint (80%), and any other specified (0%). Regarding family income, the participant's family income is 5000-10,000 Rs (42%), 10,001-20,000 Rs (24%), 20,001-30,000 Rs (22%), and $>30,000$ Rs (12%). Regarding toilet facility, the participant's availability of toilet facility is yes (98%) and no (2%). Regarding prior information, the participants have prior information yes (99%) and no (1%). Regarding source of information, the participant's source of information are parents (74%), teachers (3%), friends (6%), and health workers (17%). Regarding topic included in the syllabus, the participant's topic included in syllabus is yes (37%) and no (63%). Regarding use of sanitary pads, the participants using sanitary pads yes (99%) and no (1%).

Conclusion: The study reveals that the Knowledge regarding menstrual hygiene among adolescent girls classified with different categories, Good Knowledge (8%), Average Knowledge (73%) and Poor Knowledge (19%).

Keywords: Assess; adolescent girls; menstrual hygiene; knowledge.

1. INTRODUCTION

Menarche marks a crucial psychological, social, and behavioral transition for adolescent girls as they shift from girlhood to womanhood. Despite its significance, menstrual hygiene is often overlooked. Adolescence, typically defined as the period between ages 12 and 18, is a time of profound change for both girls and boys, but for girls, it specifically signals the onset of puberty

and the journey toward reproductive maturity. This stage is characterized by numerous physiological, psychological, and behavioral shifts, with menstruation being one of the most prominent milestones Rajavardhana et al. (2021).

There exists a considerable knowledge gap regarding menstruation among adolescent girls. Numerous studies have shown that many girls

lack proper awareness about menstruation when they first experience it. This lack of understanding is largely due to social taboos and the reluctance of parents to openly discuss the topic, leaving girls with limited access to accurate information, particularly in schools. Research indicates that the primary sources of information for these girls—mothers, television, peers, teachers, and relatives—often provide incomplete or incorrect details. Despite the importance of menstrual hygiene, this issue has not received adequate attention in gender-focused sanitation efforts, with much of the literature overlooking the importance of menstrual management. It is essential for girls to have the necessary knowledge, facilities, and cultural support to manage menstruation in a hygienic and dignified manner Bulto (2021).

The issue of adolescent health remains poorly structured in terms of program implementation, both in health facilities and communities. The Rastriya Kishor Swasthya program, aimed at addressing these concerns, has not been uniformly implemented across regions. While many studies focus on menstruation knowledge and sanitary napkin use, few explore the broader aspects of menstrual hygiene practices. This study seeks to provide a deeper understanding of the early hygiene behaviors and social factors that can inform service delivery and demand generation in adolescent health programs. By examining the menstrual knowledge and practices of school-going adolescent girls, this study aims to shed light on their menstrual patterns and hygiene habits Kailasraj et al. (2020).

The World Health Organization (WHO) defines adolescence as the period from 12 to 18 years of age, with menarche marking the beginning of reproductive capability. However, a significant lack of awareness about menstrual preparedness and management persists among adolescent girls. In India, menstruation is often still seen as "unclean" or taboo, which, combined with socioeconomic factors, affects hygiene practices and increases the risk of reproductive tract infections. Menstruation, a natural process, marks a significant period of physical, psychological, and reproductive development in women. However, the stigma surrounding it often complicates the issue Kalyan et al. (2021).

Menstrual hygiene management is a critical aspect of healthcare. The United Nations defines adequate menstrual hygiene as the use of clean

materials to absorb or collect menstrual blood, which can be changed privately and frequently during menstruation. It also involves using soap and water for washing and having access to proper facilities for the disposal of used materials. In lower-income countries, girls and women face substantial challenges in managing menstruation adequately Ghai (2013); Nair (2013).

Despite menstruation being a natural biological process, it is often surrounded by psychological and cultural barriers due to a lack of understanding about its scientific nature. Many girls, particularly in marginalized areas, remain unaware of the actual processes of the menstrual cycle. This lack of awareness, coupled with cultural practices, can result in negative health outcomes. Proper menstrual hygiene is vital for women's overall health, as poor hygiene can lead to reproductive tract infections, urinary tract infections, and sexually transmitted diseases. Therefore, educating young girls about menstruation is crucial in promoting safe practices and reducing the health burdens on women Thakre et al. (2011).

Teachers play a pivotal role in shaping children's understanding, yet menstrual hygiene is rarely addressed in school curriculums, even though it is part of global development goals. To comprehend the impact of menstrual hygiene practices among adolescent girls, it is essential to study current practices and challenges. This understanding can guide effective future interventions Barua et al. (2020).

In light of these issues, a study was conducted among adolescent girls in an urban slum to assess their knowledge, beliefs, information sources, and practices related to menstrual hygiene. The study also aimed to identify menstrual patterns, challenges, and the hygiene practices and social restrictions faced by these girls during menstruation Mhaske (1984).

1.1 Objectives

1. To assess the level of knowledge regarding menstrual hygiene among the adolescent girls of secondary and higher secondary schools of Nadiad city.
2. To find out an association between demographic variables and the knowledge of menstrual hygiene among the adolescent girls of

secondary and higher secondary schools of Nadiad city.

2. METHODS

This descriptive study was conducted after institutional ethical committee approval. A pre-validated Knowledge questionnaire was circulated to 100 adolescent girls from selected secondary and higher secondary schools of Nadiad city by used non-probability Convenient Sampling technique from .25/06/2024 to 29/06/2024. For Knowledge questionnaire tool regarding knowledge of menstrual hygiene, the total score is 0 and total maximum score is 15. The cut off score and category were calculated as indicate good Knowledge, indicate average knowledge and below 15 indicate poor knowledge regarding knowledge of menstrual hygiene. The adolescent girls were included from selected secondary and higher secondary schools of Nadiad city. Data of components were distributed in percentage-based Age, Education, Age of menarche, Education of mother, Type of family, Family income, Toilet facility, Prior information, Source of information, Topic included in syllabus, Use of sanitary pads. The association between knowledge regarding menstrual hygiene with their selected demographic variables determined.

3. RESULTS

Demographic data of 100 students were normally distributed. The majority of participants aged, the participant's age is 14-15.1 years

(22%), 15.1-16 years (26%), 16.1-17 years (29%) and 17.1-18 years (13%).Regarding education, the participant's education is 9th (17%), 10th (21%), 11th (32%), and 12th (30%).Regarding age of menarche, the participant's age of menarche is 12-13 (45%), 13.1-14 (48%), and 14.1-15 (7%).Regarding education of family, the participant's family education is illiterate (11%), primary (40%), secondary (42%), and graduate (7%).Regarding type of family, the participant's family is nuclear (20%), joint (80%), and any other specified (0%).Regarding family income, the participant's family income is 5000-10,000 Rs (42%), 10,001-20,000 Rs (24%), 20,001-30,000 Rs (22%), and >30,000 Rs (12%).Regarding toilet facility, the participant's availability of toilet facility is yes (98%) and no (2%).Regarding prior information, the participants have prior information yes (99%) and no (1%)Regarding source of information, the participant's source of information are parents (74%), teachers (3%), friends (6%), and health workers (17%).Regarding topic included in the syllabus, the participant's topic included in syllabus is yes (37%) and no (63%). Regarding use of sanitary pads, the participants using sanitary pads yes (99%) and no (1%). (Table 1).

In the level of knowledge regarding menstrual hygiene among adolescent girls, there are 08 (08%) students having good knowledge, 73 (73%) having average knowledge and 19 (19%) having poor knowledge regarding menstrual hygiene. The mean score of knowledge is 10.1200 and standard deviation is 1.90311. (Table 2).

Table 1. Analysis of Socio Demographic variables of community people

SR NO	Demographic Data	Frequncy N = 100	Percentage
Age	14-15 years	22	22%
	15.1-16 years	26	26%
	16.1-17 years	39	39%
	17.1-18 years	13	13%
Education	9 th std	17	17%
	10 th std	21	21%
	11 th std	32	32%
	12 th std	30	30%
Age of Menarche	12-13 years	45	45%
	13.1-14 years	48	48%
	14.1-15years	07	07%
Education of family	Illiterate	11	11%
	Primary	40	40%
	Secondary	42	42%
	Graduate	07	07%
Type of family	Nuclear	20	20%
	Joint	80	80%

SR NO	Demographic Data	Frequency N = 100	Percentage
Family income	Any other specified	00	00%
	5000-10,000 Rs	42	42%
	10,001-20,000 Rs	24	24%
	20,001-30,000 Rs	22	22%
	>30,000 Rs	12	12%
Toilet Facility	Yes	98	98%
	No	02	02%
Prior information	Yes	99	99%
	No	01	01%
Source of information	Parents	74	74%
	Teachers	03	03%
	Friends	06	06%
	Health workers	17	17%
Topic included in study	Yes	37	37%
	No	63	63%
Use of sanitary Pad	Yes	99	99%
	No	01	01%

Table 2. The level of knowledge regarding menstrual hygiene among adolescent girls in terms of Frequency and Percentage

Sr. No.	Level of Knowledge	Frequency	Percentage	Mean	Standard deviation
1.	Good	08	08%	10.1200	1.90311
2.	Average	73	73%		
3.	Poor	19	19%		
Total		100	100%		

Table 3. Association between the knowledge regarding menstrual hygiene among adolescent girls with their selected demographic variables. n=100

Demographic Data	Frequency (F)	Percentage (%)	Level of Knowledge			Chi Square Value (x ²)	Tabulated value p-value P<0.05
			Good	Average	Poor		
Age							
14-15 years	22	22%	16	0	6	3.805	0.703
15.1-16 years	26	26%	19	3	4	Df=6	
16.1-17 years	39	39%	29	4	6		
17.1-18 years	13	13%	9	1	3		
Education							
9 th std	17	17%	10	0	7	10.275	0.114
10 th std	21	21%	15	1	5	Df=6	
11 th std	32	32%	26	3	3		
12 th std	30	30%	22	4	4		
Age of Menarche							
12-13 years	45	45%	34	1	10	5.818	0.213
13.1-14 years	48	48%	33	7	8	Df=4	
14.1-15 years	07	07%	36	0	1		
Education of mother							
Illiterate	11	11%	6	0	5	7.047	0.317
Primary	40	40%	30	4	6	Df=6	
Secondary	42	42%	31	4	7		
Graduate	07	07%	6	0	1		

Demographic	Frequency	Percentage	Level of Knowledge			Chi	Tabulate
Type of Family							
Nuclear	20	20%	12	1	7	4.228	
Joint	80	80%	61	7	12	Df=2	0.121
Any other specified	00	00%	0	0	0		
Family Income							
5,000-10,000/-	42	42%	28	2	12	10.217	
10,001-20,000/-	24	24%	20	2	2	Df=6	
20,001-30,000/-	22	22%	18	1	3		
>30,000/-	12	12%	7	3	2		0.116
Toilet Facility							
Yes	98	98%	71	8	19	0.755	0.686
No	02	02%	2	0	0	Df=2	
Prior Information							
Yes	99	99%	73	8	18	4.306	0.116
No	01	01%	0	0	1	Df=2	
Source of Information							
Parents	74	74%	50	8	16	9.328	
Teachers	03	03%	2	0	1	Df=6	0.156
Friends	06	06%	4	0	2		
Health workers	17	17%	17	0	0		
Topic included in Syllabus							
Yes	37	37%	24	1	12	8.170	
No	63	63%	49	7	7	Df=2	0.017
Use of Sanitary Pads							
Yes	99	99%	72	8	19	0.374	0.830
No	01	01%	1	0	0	Df=2	

There is association between level of knowledge regarding menstrual hygiene with their selected demographic variables. Fisher Chi square test has been applied as some cells have p value more than 0.05, it is seen that attending the class is not significantly associated with the scores while association between knowledge regarding menstrual hygiene with their selected demographic variables. Fisher Chi square test has been applied as some cells have p value less than 0.05, it is seen that attending the class is significantly associated with the score.

The knowledge mean is 10.1200 with SD 1.90311 and obtained "r" value is 0.85 which was calculated by Karl Pearson correlation coefficient method.

4. DISCUSSION

This study was done to assess the level of knowledge regarding menstrual hygiene among adolescent girls. It showed an overall average

knowledge and significant association between level of knowledge and demographic variables regarding menstrual hygiene.

A study done by Prakash Mathiyalagen. Birundhanjali Peramasamy (2017) who found fair level of knowledge regarding menstrual hygiene towards adolescent girls, in this study 51.7% of respondents were not aware of menstruation before attaining menarche; 71.5% and 61.2% were not known about the cause and source of the menstrual bleeding, respectively; 78.1% used only sanitary pads whereas 21.9% used both old clothes and sanitary pads as the absorbents.

Another study was done by Anchanaganga Hassan Kailasraj, Vidya Basavaraju (2020) who found level of knowledge in urban and rural areas. Among 380 study subjects 43.4% were aware about menstruation before attaining menarche, 62.4% were aware that menstruation is a natural process. Majority of study subjects (58.9%) were using sanitary pads during

menstruation and 46.8% of study subject's changes absorbents twice a day.

According to Savita Kumari et.al. The authors found that out of 150 adolescent girl's majority of the girls (67.3%) had below average knowledge about menstrual hygiene whereas 16.7% girls had average knowledge. Only 16% girls had good knowledge about menstrual hygiene.

As per findings of study of Tarhane S. et.al found that 89% girls thought menstruation to be a normal process, 79% girls used sanitary napkins while 21% girls used clothes as absorbent during menses. The authors found that mothers were the primary source of information in 88% girls.

A community-based cross-sectional study involving 200 adolescent girls done by Kalita D et. al. found that 92% of the respondents knew about menstruation before menarche. As high as 92% of the respondents believed that menstruation occurs due to natural or hormonal cause, whereas 1.5% considered it as a disease process. 81.5% girls used commercially available sanitary pads and 78.5% girls cleaned external genitalia with soap and water. All the participants avoid attending religious occasion, followed by kitchen work (57.5%), marriage party (31.5%), and 30.5% of them were sleeping separately. 46% of the respondent avoid sour food during menstruation the study concluded that false perceptions, ignorance, and unsafe practices are still prevailing in the community.

Our study states that adolescent girls have an average knowledge regarding menstrual hygiene suggesting that girls are aware about menstrual hygiene but there is lack of knowledge regarding menstrual hygiene.

5. CONCLUSION

According to findings of this study, the adolescent girls have average knowledge regarding menstrual hygiene. There is significant association between level of knowledge regarding menstrual hygiene with selected demographic variables. There is positive correlation between level of knowledge and significant association between level of knowledge with their demographic variables regarding menstrual hygiene among adolescent girls. Age, education, age of menarche, education of mother, type of family, family income, toilet facility, prior information, source of information, topic included in syllabus, and use of sanitary pads of study has a considerable impact on one's level of knowledge regarding

menstrual hygiene. Although the majority lack adequate level of knowledge. This emphasizes the need for targeted educational interventions to improve understanding and promotion of knowledge regarding menstrual hygiene.

6. LIMITATION

Since the study focuses only on 100 adolescent girls from the selected secondary and higher secondary schools of Nadiad city, the findings may not be applicable to other school going girls in other regions or to the general population. The study might have been conducted within a limited timeframe, which could have impacted the depth of data collection and analysis. A longer duration might have allowed for a more comprehensive study. As a descriptive study, this research might only provide a snapshot of the knowledge of adolescent girls at a particular point in time. It cannot capture changes or trends in these factors over time.

ETHICAL APPROVAL AND CONSENT

Ethical approval for the present study was obtained from Institutional Ethics Committee for Human Research of Maganbhai Adenwala Mahagujarat University, Nadiad.

(Approval No: MAM Uni/IECHR/2024/62) (Ref. No: IEC-MAM Uni/2023-24/62)

Written informed consent was obtained from all participants under and who belong under 18 years of age, with parental consent provided through an assent form.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

I, hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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