



Knowledge of Menstrual Hygiene and its Management among Rural Adolescent Girls in Tamil Nadu - A Descriptive Cross-Sectional Study

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ABSTRACT:

Background: Millions of women across the globe encounter menstrual hygiene related infections and diseases owing to inadequate knowledge. These problems often result in complications in the reproductive tract system. The study was undertaken to assess the knowledge and practice of rural adolescent girls in Krishnagiri district about menstrual hygiene.

Methods: A cross-sectional study design was adopted and a multistage stage random sampling technique was used to recruit 204 adolescent girls for the study. A semi-structured interview schedule was used to obtain data from them. The Chi-square test was done to identify the association between their socio-economic status and their knowledge and practice of menstrual hygiene.

Results: 76.5% of subjects attained menarche at the age of 13-15 years. 84.3% had experienced restrictions in many forms during their menstruation. 67.2% gained knowledge through the media about the importance of menstrual hygiene, which is much less compared to the knowledge gained through mothers, relatives, and schools. 80.9% used sanitary napkins and 59.3% burned them after using them.

Conclusion: Inadequate knowledge among girls has resulted in poor menstrual hygiene management. Conducting proper behaviour change communication programs and research studies in these areas would mitigate menstrual hygiene related issues.

Introduction:

Adolescent girls constitute one-sixth of the global population in India.¹ Next to China, India is the second largest country that has one-fifth of the global adolescent population.² Menstruation is a phenomenon that nature has gifted women with, during which time certain changes happen in the reproductive system, from the onset of menstruation to menopause. People have numerous misconceptions towards it, due to various factors like religion, law, culture, politics, and economics of a country, which often result in undesirable health outcomes.³ Healthy and hygienic practices by girls during their menstruation period are of paramount importance, as they have health upshots in terms of heightened susceptibility to reproductive tract

infections. There are profound relationships between socio-economic status, hygienic practices, reproductive tract infections and abortions. Currently, millions of women across the globe encounter reproductive tract infections and their complications. Often the infections are transmitted to the progeny of pregnant mothers.⁴ The lack of water and sanitation facilities poses a great challenge to adolescent girls living in rustic settings, especially school girls, during menstruation, compromising their ability to maintain proper hygiene and privacy.⁵ Over half of the schools in developing countries, including India, do not have adequate latrine facilities for girls and teachers. Even if latrines do exist, cleanliness is a problem. Toilets without doors, harassment by boys, the distance between water



facilities and latrines, inadequate supply of water, and poor maintenance of toilets are the foremost obstacles that put them in a vulnerable state to getting reproductive tract infections. Many girls encounter problems owing to an inadequate supply of sanitary materials and are forced to use clothes for the absorption of menstrual blood⁶

Menstrual hygiene management is the crux of women's health and it is a vital segment of the health care system. Menstrual hygiene is defined as women and adolescent girls appropriately using materials that absorb and garner blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.⁷

Girls and women of productive age group with marginal income status typically possess very limited or few proper materials for menstrual hygiene management and have less awareness of hygienic practices. The practice of social restrictions that vary from one society to another is commonly seen among them.⁸ These restrictions are manifested in forms like restraining from performing religious poojas, attending family celebrations like weddings, etc., limited access to social interaction and mobility with the outside world, and being away from preparing foods and drinking milk.⁹

School impacts children positively on socialization, but the discussion pertaining to menstrual hygiene between teachers and girls is very restricted due to taboos attached to it. Still, it has yet to be included in the school curriculum.¹⁰ It is evident that there are about 113 million adolescent girls attending 1.4 million schools across the country with poor menstrual hygiene management.¹¹

In this context, the study was undertaken among adolescent girls in rural areas of Krishnagiri district, residing in rustic settings, with the aim of assessing their knowledge and perceived practices of menstrual hygiene and their source of information and management. The study would pave the way for filling up the gap in research in identifying the menstrual hygiene practices of adolescent girls in rural areas.

Methods:

A descriptive cross-sectional study design was employed to study the knowledge and management of menstrual problems of the girls enrolled in the ICDS centre in Kelamanagalam block in Krishnagiri district of Tamilnadu State. The study protocol was reviewed and approved by the Institutional Ethical Review Committee. Prior to data collection, the subjects provided a signed written informed consent form, ensuring that the information they shared for the study would remain confidential. In terms of review of empirical research studies conducted earlier, the

estimation of girls was fixed at 204¹². It was pretested with 10 girls, wherein omission, addition, and deletion were done so as to optimize its quality. The inclusion criteria employed to recruit the subjects were based on their willingness to engage in the study, one year of residence in a certain village, and their adolescent age group of 12-19 years.

At the outset, the Krishnagiri district was selected at random from the western districts of Tamil Nadu State. In the second step, the Kelamangalam block was chosen at random from among the 13 blocks in the district. In the third stage, six villages were selected randomly from a total of 28 Panchayat villages. Due to the variation in the size of adolescent girls between villages, the Population Proportionate to Size (PPS) technique was used to recruit 204 samples from all six villages at the final stage.

Prior to data collection, the subjects were obviously appraised of the objectives and purpose of the study and its implications. A semi-structured interview schedule was methodically administered to elicit information from them. The actual data collection was done for 3 months from September to November 2019. The interview schedule had three domains, such as socio-demographic characteristics, knowledge and practices of menstrual hygiene and problems, and sources of information about menstrual hygiene. Each domain comprised a set of questions relevant to the field of study.

After wrapping up the data collection work, the documented information in the schedules was rechecked, edited, and corrected where necessary, to optimize its quality. The information provided for each question in the schedule was codified with numbers and entered into Microsoft Excel-10 and later uploaded into the Statistical Package for Social Science (SPSS-21) for analysis. Descriptive statistical methods were used and results were presented in frequencies and percentages. A Pearson's chi-square test was performed to establish a statistical association between socio-economic status and the knowledge and management of menstrual hygiene. Adjusted odds ratio and co-relation tests were performed to ascertain association between socio-demographic variables and hygiene practices. The significance level set for the study was $P < 0.05$.

Results:

The study findings in the rustic setting of Krishnagiri district unravelled the inevitable facts of adolescent girls' menstrual hygiene management. 87.2% of subjects were in the age group of 15-19 years, with a mean age of 17.33 ± 1.864 . In terms of religion, Hinduism was practised by 75.5% of the subjects, followed by Islam (18.6%) and Christianity (5.9%). 55.9% fell under the category of Other Backward Class and 44.1% came under the group of Schedule Caste and



Schedule Tribe. 63.2% completed their primary education, in contrast, 20.6% reached higher secondary level education. Occupationally, 45.6% of the subjects were not engaged in any work, as they were continuing their education in mainstream schools, while 31.9% were house wives carrying out their household work. According to 88.2% of the subjects, menstruation was a natural process of womanhood. 76.5% of the subjects attained menarche at the age of 13-15 years, with a mean age of 13.42±1.32.

The menstruation cycle was regular in 88.2% of the subjects. 65.2% were able to perform their daily tasks during their menstrual periods, while 34.8% were not able to carry out such activities due to abdominal, leg, and back pains and tiredness. Concerning treatment for irregular periods, 27.5% administered home remedies to get regular periods, whereas 40.2% sought medical assistance from nearby hospitals. 60.8% claimed that they would freely discuss menstrual problems with doctors, but it was not so for 40.2%.

In respect of heavy bleeding during the menstrual cycle, 77.5% had not encountered any such problems, whereas, 22.5% admitted that they had come across such heavy bleeding problems. As for the practises of restriction during periods, 84.3% claimed that they had experienced restriction, of whom 76.5% said they had been forced to recite prayers and 31.4% said they had been made to sit in a separate hut-like structure built temporarily adjacent to their houses.

Concerning access to water for their personal use, 95.6% have had regular access to it during the cycle. 99% of the subjects claimed to have separate bathroom facilities in their houses. In contrast, a vast majority of them (73.5%) admitted that they had encountered subdued problems with open defecation due to the lack of toilet facilities in their houses.

Education on Menstrual Problems and Disorders at School: According to 85.3% of subjects, they were effectively and concomitantly trained on the importance of menstrual hygiene and the proper use, disposal, and frequency of changing of napkins at least once during their schooling. It was found that education on menstrual problems at schools had facilitated 76% of having a vivacious understanding of pain, 75% of abdominal discomfort-blotting, 54.4% of vomiting, 45.6% of Mood Swing and 42.2% of depression. Similarly, discussion on menstrual disorders at schools enabled 67.6% of subjects to get in-sight on prolonged bleeding, 64.2% on no periods, 78.4% on painful periods, 68.6% on frequent short periods and 66.7% on irregular periods. 68.9% of subjects found it useful to learn where and how to approach doctors or counselling services in the event of a menstrual emergency.

Mothers and Relatives as Sources of Information on Menstrual Hygiene Problems and Disorders: 78.9% of subjects have been trained on the importance of

menstrual hygiene, 71.6% on proper use of pads, and 77.9% on safe disposal of sanitary pads. 68.1% on the frequency of changing sanitary pads, 73.5% on pain, 56.9% on vomiting, 44.1% on mood swing, 43.1% on depression, 67.2% on abdominal discomfort, and 59.8% on fatigue respectively. Regarding their training on mental disorders, 58.8% have been trained by their mothers and relatives on menstrual disorders, 60.3% on no periods, 63.2% on painful periods, 63.7% on frequent or short periods, 62.7% on irregular periods and 65.2% by doctors or counselling services.

Influence of the media on gaining knowledge of menstrual hygiene: 67.2% of the subjects gained knowledge through the media about the importance of menstrual hygiene. 43.6% proper disposal of napkins, 28.9% safe disposal, 46.6% frequency of changing pads. 20.6% on pain, 10.3% on depression, 17.2% on abdominal discomfort. 23.5% on prolonged bleeding, 27% on no periods and painful periods, 27.5 on frequent or short periods, 26.5% on irregular periods, 25.5% on scanty bleeding and 31.4% on doctors and referral services.

66.7% purchased sanitary napkins from medical shops, while 48.5% purchased them from government vendors. As for awareness of the subjects over the supply of napkins through different channels, it was evident that 87.3%, 71.1%, 70.8%, and 74.5% were not aware of napkins being supplied through government centres, VHNS, PHCs, and NGOs respectively. However, 69.6% knew that napkins were being distributed at government schools, whereas 50.5% were aware of napkins being distributed by Integrated Child Development Scheme (ICDS) Centers.

It was found that 92.2%, 94.1%, 84.3%, 62.3%, 59.3% never used napkins supplied by village health nurses (VHNS), Primary Health Centres (PHCs), Integrated Child Development Scheme (ICDS) centres and schools respectively. 59.3% disposed of the sanitary napkins by burning them after having used them.

97.6% (41) subjects studied up to higher secondary level have learnt the importance of menstrual hygiene from their school, while 95.5% (21) subjects studied at college level have heard of such information from their colleges. There was a statistically significant association between education and the learning of the importance of menstrual hygiene at school ($P < 0.001^{**}$).

An outright majority of the subjects, 100% (4) who had no formal education, practised restrictions during their menstruation, whereas 92.2% (119) of those who studied up to primary school level did so. A significant statistical association was found between their education status and restriction practices during their menstruation ($P < 0.004^{**}$).

87.8% (108) of unmarried subjects had regular periods, while 75.3% (61) of married subjects had so. There was



a potential statistical association between the marital status of subjects and their regular periods ($P < 0.021^*$).

99.2% (128) of subjects studied up to high school had private bathrooms at their homes, whereas 97.6% (41) had such facilities. On the whole, 99% (202) had private bathroom facilities at their homes. There was no significant statistical association between education and the availability of bathroom facilities at their homes ($P = 0.610$).

It is evident that 94.6% (122) of subjects studied up to high school level had access to a water source for their personal use, but 90.9% (21) of those studying at college level had such a source in their houses. A significant statistical association was not found between education and access to water for personal use ($P = 0.419$).

Discussion:

The study findings illuminated the knowledge and practices of menstrual hygiene among girls living in rural areas. The mean age of menarche of adolescent girls in the present study was 13.42. However, a study conducted in New Delhi in 2017 indicated that the mean age of menarche was 11.4 years.¹¹ The mean age was 12.73 years in the study conducted in India.¹³⁻¹⁵ It is evident that the mean age of menarche slightly differs from one state to another within our country. It is because of many factors that decide menarche, which include food, culture, socialization, etc.

The majority of subjects (75.5%) participated in the current study professed Hinduism. Similarly, a study carried out in Assam indicated that 70.4% belonged to Hinduism.¹⁶ It is naturally a fact that the country that has the majority of people professing a particular religion would have more representation in any study. It was found from the present study that 63.2% subjects studied primary education level, whereas the study of Varanasi indicated that 57.5% had middle school level education.¹⁷

It was observed in the current study that the main source of information to learn about the importance of the menstrual cycle and hygiene was their mother and relatives. Similarly, schools also make considerable efforts to impart knowledge of the same. When the role of the media is compared with mothers, relatives, and schools, it has less influence on menstrual hygiene. Another study in Mumbai obviously pinpointed that schools and mothers were in a key position to develop their knowledge of menstrual hygiene.¹² In contrast to the present study, a study carried out in Bengaluru showed that their main source of information regarding menstruation was the internet.¹⁸ It is worth noting that the primary source of information regarding menstruation is mothers and relatives, yet it varies

according to the environment of the subjects where they live.

It was found in the current study that 84.3% of girls practiced restrictions over their menstruation periods. The practice varies from chanting prayers, less social interaction and isolation, to being away from performing poojas to watering plants. It is because people firmly believe that the menstruation period is dirty and unclean in Indian society. Staying away from exercising religious poojas and household work, school absenteeism and avoiding certain foods were some forms of restrictions practiced by girls and women, in a study conducted in New Delhi.^{19,20} A majority of subjects, regardless of their religion, were found to be practicing restrictions during menstruation, in a study undertaken in Valsad.²¹ It was observed that the practice of restriction during menstruation is rampant across India and various extraneous reasons were cited for these practices. Education is the only instrument that would facilitate people to come out of their darkness.

It was found in the current study that 64% of subjects changed sanitary napkins more than thrice a day during menstruation, which was paralleled in another study conducted in Jaipur city.²² A study among adolescent girls in Uttar Pradesh showed that 39% had normally changed their sanitary pads twice, according to their requirements.²³ It was another study that highlighted that adolescent girls changed their pads thrice and multiple times.²⁴ The practice of changing sanitary pads thrice and more a day by the subjects appears indicate that they are more cautious and sensitive towards menstrual health and hygiene.

It was highlighted in their study carried out in Hyderabad²⁵ that 60% of the subjects used clothes as an absorbent material during their menstruation. In contrast, the majority of subjects in the current study got used to sanitary napkins although they resided in rural areas.²⁶ 73.6% of subjects residing in rural areas of Goa had the habit of utilizing sanitary pads as adsorbent materials during menstruation. 97.5% used sanitary napkins as an absorbent material during their menstruation.^{27,28} The diverse studies obviously note that the use of sanitary pads and cloths depends upon the livelihood settings they live in.

Conclusion:

The study revealed that although many girls are aware of menstrual issues, the inadequate knowledge they possessed results in poor menstrual hygiene management. Poor management coupled with the practice of unnecessary restrictions have led them into a critical position in addressing their menstrual infections. The role of the media in building the capacity of young girls for menstrual hygiene is comparatively less as



compared to the role of mothers, relatives, and schools. These issues can be addressed by amending changes in the existing policies of our government and including sex and sexuality education in the schools' curriculum, and implementing community level intervention programs through the health care system and civil society organizations. Undertaking research in these areas would facilitate filling the gap existing in menstrual hygiene problems.

Appendix:

Declaration of Interest: None

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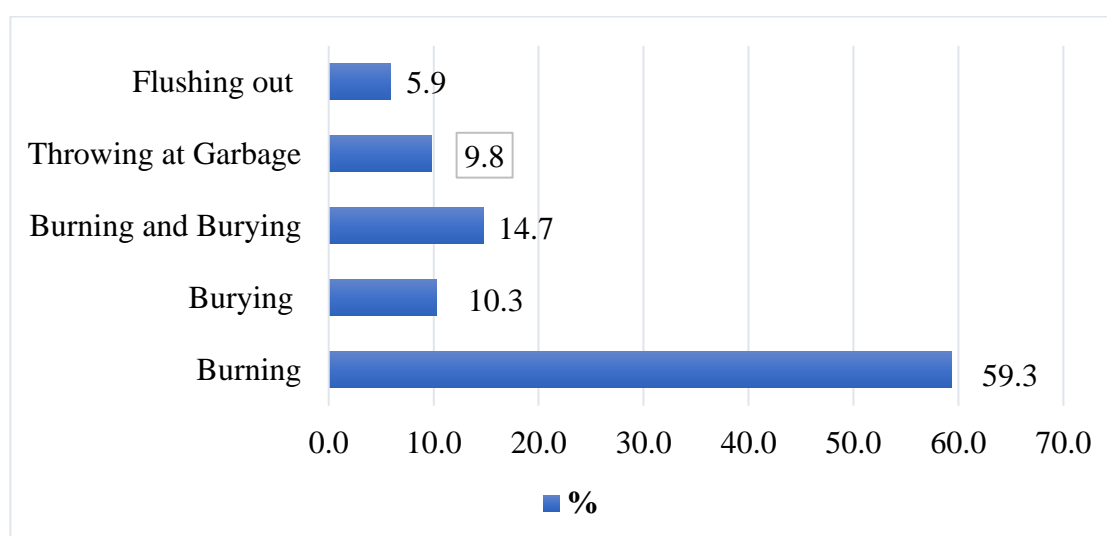


Figure-1: Disposal of Napkins by Subjects

Table 1: Association between Education and Menstrual Hygiene Practices

Hygiene Practices	Responses	Education		OR*	CI (95%)**	P Value***
		High School Level (%)	Above High School Level N (%)			
Bathing	No	3(100)	0	0.647	.584-.716	0.202
	Yes	130(64.7)	71(35.3)			
Use of Soap	No	103(63.2)	60(36.8)	0.629	.294-1.347	0.23
	Yes	30(73.2)	11(26.8)			
Drying of Cloths	No	103(62.4)	62(37.6)	0.498	.222-1.119	0.87
	Yes	30(76.9)	9(23.1)			
Use of Cloths	No	103(62)	63(38)	2.294	.990-5.316	0.049
	Yes	30(78.9)	8(21.1)			
Use of Pads	No	1(100)	0	1.538	1.390-1.701	0.464
	Yes	132(65)	71(35)			
Reuse of Cloths	No	115(63.5)	66(36.5)	0.484	.172-1.364	0.172
	Yes	18(78.3)	5(21.7)			
Washing of Hands after Using Pads	No	0	1	0.934	2.399-3.505	0.17
	Yes	133(65.5)	70(34.5)			
Washing of Hands with Soap	No	6(66.7)	3(33.3)	0.925	.226-3.851	0.934
	Yes	127(65.1)	68(34.9)			

*OR-Odds Ratio, **CI-Confidence Interval, ***P-Value-P<0.05

Table 2: Correlation Matrix-Relationship between Family Income and Hygiene Practices during Menstruation

Variables	Family Income	Bath during Menses	Use of Soap for Cleaning of Cloths	Washing Hands	Washing Hands with Soap	Use of Cloth	Use of Pads
Family Income	1.000	.050	.072	.006	.125	-.081	.056
Bathing	-	1.000	.142*	.009	.370**	-.151*	.009



Use of Soap for Cleaning Cloths	-	-	1.000	.035	.250**	-.954**	-.140*
Washing Hands	-	-	-	1.000	.015	-.034	-.005
Washing Hands with Soap	-	-	-	-	1.000	-.265**	.015
Use of Cloths as Pad	-	-	-	-	-	1.000	.147*

Table 3: Association between Education and utilization of different Toilet Facilities

Education	Toilet Facility		Total	x ² (P<0.05)
	Private N* (%)	Open Defecation N (%)		
No Formal Education	2(50)	2(50)	4(100)	0.873
Up to High School	35(27.1)	94(72.9)	129(100)	
Higher Secondary	8(19)	34(81)	42(100)	
Vocational Course	2(28.6)	5(71.4)	7(100)	
College	7(31.8)	15(68.2)	22(100)	
Total	54(26.5)	150(73.5)	204(100)	

*N-Number

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