

Menstrual Hygiene Practices among Adolescent Girls of Garhwal Region of Uttarakhand: An Intervention Study

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ABSTRACT

Background-Inadequate knowledge, inaccessibility to WASH facilities, poor menstrual practices, and social stigmas surrounding menstruation can negatively impact a young girl's self-esteem and hinder her development. To address this issue, this study was conducted to assess the current practices related to menstruation and provide education on healthy menstrual practices to adolescent girls. The objective was to observe the difference in these practices after the intervention. **Objective-** The study aimed to assess the impact of health education on menstrual practices and hygiene among adolescent girls in hilly region. **Methodology-** This intervention study is conducted among 400 adolescent girls studying in 9th to 12th standard (11 to 17 years of age) at twelve schools (government and non-government) selected from four blocks of the Pauri district of Uttarakhand. Respondents followed a structured and pre-designed questionnaire in pre and post-stages. Data was analyzed through Microsoft Excel and SPSS (version- 23), and t-test was used to see the impact evaluation. **Result-**After receiving education on menstrual hygiene, there was a significant improvement in menstrual hygiene practices. This difference in the use of menstrual hygiene materials, reusing methods of menstrual hygiene materials, and purchasing practices of menstrual absorbents were found to be significant at .05 level of significance. **Conclusion-** The present study emphasizes the importance of health education in enhancing menstrual awareness and promoting good MHM practices among school-going girls.

Key Words : Adolescent Girls, Menstruation, Intervention, Practice, Hygiene and MHM

INTRODUCTION

The onset of menstruation, which marks the start of the menstrual cycle, typically occurs between the ages of 11 and 17 in females, which is a natural process. It is closely linked to maintaining reproductive health. Proper menstrual hygiene is crucial for preventing reproductive tract infections. During menstruation, practicing good hygiene is crucial to avoid negative health effects from unhygienic practices. Mothers often avoid discussing menstruation with their daughters, leading to limited their knowledge (Arora *et al.*, 2013). On the other hand, adolescent girls in Indian society are often subjected to

restrictive practices toward menstruation that perpetuate harmful social norms. Girls often whisper about menstruation due to societal taboos. The topic of menstruation is often considered taboo and not openly discussed in public. Hence, girls face numerous misconceptions and challenges that make their lives difficult. This normal physiological change is often misinterpreted as sickness, resulting in inadequate information and poor menstrual management among adolescent girls (Neelkhanth *et al.*, 2017). Dasra, 'Spot On' reported in 2014, that 71% of girls have no menstrual knowledge before reaching menarche in India. Improper menstrual hygiene knowledge and poor practices lead to

physical health disorders in 75% of Indian girls, including HBM, UTI, RTI, PMS, and cervical cancer. Moreover, the lack of WASH facilities and inadequate disposable sanitary absorbents, socio-cultural myths, and taboos have adverse effects on adolescent girls. Poor menstrual health and hygiene management (MHHM) were found to be most prevalent in Tamil Nadu (79%), Uttar Pradesh (66%), Rajasthan (56%), and West Bengal (51%) states of India (Dasra, report). A majority of girls (70.7% and 65.33%) were unaware for their first menstruation, and experienced problems by Nagaraj *et al.* (2016) and Mandal *et al.* (2014). In addition, school girls had unsatisfactory menstrual practices. They threw their used menstrual absorbents in open places, and flushed them in toilets. Adolescent girls have less access to affordable, durable, skin-friendly, and environment-friendly blood absorbents. Thus, it is crucial to provide educational support to adolescent girls to help them overcome various menstrual problems and negative practices. Schools are the ideal setting to offer menstrual education to adolescent girls where they can successfully improve their menstrual practices. The present study was conducted on school-going adolescent girls, with the objective of education about menstrual hygiene management. Educational interventions were used to ensure the success of this study.

Objectives:

1. To study the existing status of menstrual hygiene practices (MHM) among school adolescent girls.
2. To assess the improvement in their menstrual hygiene practices after intervention education.

METHODOLOGY

This intervention study was carried out on 400 adolescent girls who were studying in grades 9 to 12 and were between the ages of 11 and 17. The study was conducted in twelve schools, both government and non-government, selected from four blocks of the Pauri district of Uttarakhand (Table 1). In this study, a purposive and multistage sampling method was utilized. A structured and pre-designed questionnaire was given to the respondents in the pre and post-stages, and data collection was completed in 2019. The collected data was analyzed using Microsoft Excel and SPSS (version- 23), and the educational impact was evaluated through the t-test. This study was completed in three following phases:

I Phase:

Data collection was done through self-structured questionnaire related to menstrual hygiene practices to know the current situation of menstrual practices of adolescent girls.

II Phase:

Educational intervention was given to respondents through lecture, comic videos, demonstration and distribution of sanitary pads. This included MHM practices such as using sanitary napkins, washing external genitalia, washing cloth with soap and water, drying it under direct sunlight, and disposing off used menstrual absorbents, etc.

III Phase:

After a gap of three to four months, the same

Sr. No.	Block	GGIC/GIC (Schools)	No. of Schools	N=400
1.	PAURI	GGIC, Pauri MIC, Pauri* GIC, Ojali	2+1*	100
2.	KOT	GIC, Kot GIC, Jamlakhal GIC, Kholachauri	3	100
3.	KHIRSU	GGIC, Srinagar GIC, Khandah	2	70
4.	PABO	GGIC, Pabo GIC, Cholosand GIC, Jagateshwar GIC, Bidoli	4	130
		(Total)	12	400

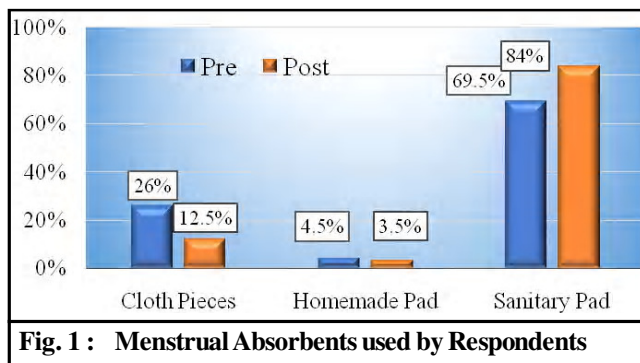
Sources: Primary Data (* Non-government)

questionnaire-based assessment was conducted again on the same respondents to evaluate the impact of the intervention.

RESULTS AND DISCUSSION

Table 2 and Fig. 1 indicate that most (336, 84%) respondents were using sanitary pads in the post-test, before intervention, it was 278 (69.5%). In the pre-intervention, 104 (26%) respondents were using cloth pieces, and 18 (4.5%) using homemade pads during their menstruation, which were decreased by 50 (12.5%) and 14 (3.5%), respectively. Thus, homemade pad users are decreased to only 20%, whereas cloth users are decreased by around 50%, shifted to sanitary pads. No respondents found who used menstrual cup/tampon/ menstrual panties in the pre and post-test. Similarly, Neelkanth *et al.* (2016) observed that usage of sanitary pads increased to 69.5% from 58.3% and usage of cloth decreased to 26.39% from 14.72% in the post-test.

Further, Table 2 shows the percentage distribution of cloth users who wash and reuse their menstrual absorbents. Most, 360 (90%) respondents in the post-

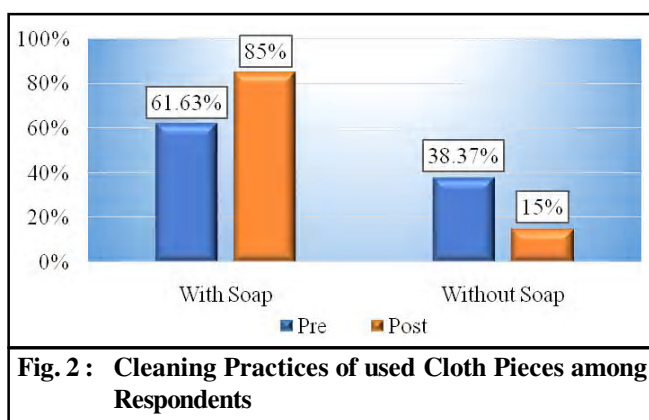


test compared to 314 (78.5%) respondents in the pre-test found not applicable due to the use of sanitary pads, homemade pads during their periods. And, only 40 (10%) respondents in the post-test, compared to 86 (21.5%) of the pre-test reused cloth pieces (absorbent) during their periods. In this regard, in pre-test, 53 (61.63%) out of 86 respondents washed their used cloth (menstrual absorbent) hygienically with soap, and 33 (38.37%) washed it with plain water or without any soap/detergent. Washing patterns of used cloth were found to be hygienic among 34 (85%) out of 40 respondents in the post-test,

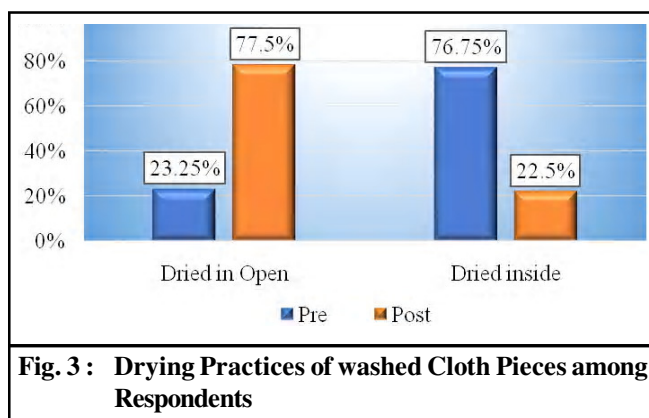
Table 2 : Practices about Menstrual Hygiene Management (MHM) among Adolescent Girls

Practices Regarding Menstruation	Pre-Test (%)	Post-Test (%)
Use of Menstrual Hygiene Materials/Absorbents		
Cloth Pieces (Yes)	104 (26%)	50 (12.5%)
Homemade Pads (Yes)	18 (4.5%)	14 (3.5%)
Sanitary Pads (Yes)	278 (69.5%)	336 (84%)
Menstrual Cup/Tampons/Menstrual Panties (Yes)	-	-
Reusing Methods of Menstrual Hygiene Material		
Not Applicable	314 (78.5%)	360 (90%)
Wash & Reused (Yes)	86 (21.5%)	40 (10%)
Wash with Soap and Water (Yes)	53 (61.63%)	34 (85%)
Wash, Only with Water (Yes)	33 (38.37%)	6 (15%)
Dry in Open/Sundry (Yes)	20 (23.25%)	31 (77.5%)
Dry in Hide (Yes)	66 (76.75%)	9 (22.5%)
Purchasing and Sourcing of Sanitary Pads		
Not Applicable	122 (30.5%)	64 (16%)
By Selves (Yes)	106 (26.5%)	190 (47.5%)
Only from Female Shopkeepers (Yes)	71 (66.98%)	87 (45.79%)
From Both (Male & Female) Shopkeepers (Yes)	35 (33.2%)	103 (54.21%)
Disposal Methods of Used Menstrual Absorbent Materials		
Flush out into the toilet (Yes)	80 (20%)	34 (8.5%)
Burned it off (Yes)	23 (5.75%)	26 (6.5%)
Into the Dustbin (Yes)	206 (51.5%)	294 (73.5%)
Bury into the Soil (Yes)	18 (4.5%)	18 (4.5%)
Throw in the forest (Yes)	73 (18.25%)	28 (7%)

and 6 (15%) were still engaged in unhygienic practices; they were washing their used menstrual absorbent or cloth pieces without soap (Fig. 2).

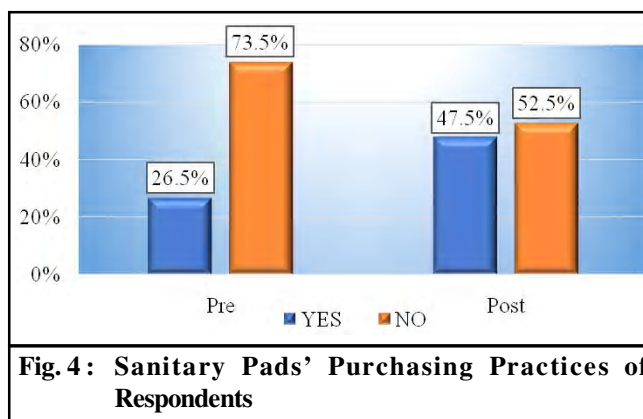


Additionally, in the pre-test, only 20 (23.25%) out of 86 respondents use to dry their menstrual absorbents in sunlight, and most of them (66, 76.75%) dried the cloth piece inside of the home covered by everyday dresses, in the dark, or in hidden areas (Fig. 3). While in the post-test, most, 31 (77.5%) out of 40 respondents dried it in open sunlight, and only 9 (22.5%) used hidden places to dry washed cloth, which they used during their menstrual periods as an absorbent.



Generally, girls feel hesitation in purchasing their menstrual products and under garments. According this study, before intervention, only 106 (26.5%) respondents purchased sanitary pads by themselves, while after the intervention, 190 (47.5%) respondents purchased it by themselves (Table 2). Other respondents reported that they did not buy pads by themselves; their mother or elder sister had to purchase pads for them. It can be seen in the Fig. 4 that most, 71 (66.98%) out of 106

respondents purchased sanitary pads only from female shopkeepers in the pre-test, which decreased to 87 (45.79%) in the post-test. Along with this, 35 (33.2%) in the pre-test and 103 (54.21%) in the post-test did not mind the shopkeepers' gender in purchasing pads.



While disposing the used menstrual absorbents, so many problems are faced by adolescent girls due to lack of adequate knowledge and facilities. Present results illustrate respondents' disposal methods of used menstrual absorbents based on pre-and post-test findings. It was found in the pre-test that 80 (20%) of respondents used to flush out their used absorbents into the toilets to dispose off, and 73 (18.25%) disposed off in open land; they were thrown into the forest or behind the bushes. These practices decreased to 34 (8.5%) and 28 (7%) in the post-test, respectively. The disposal method of used pads/cloths into dustbins increased to 294 (73.5%) in the post-test from 206 (51.5%) in the pre-test of respondents. However, disposing by burning it off and burying into soil was almost similar in the pre-and post-test that is 23 (5.75%) to 26 (6.5%) and 18 (4.5%) (Table 1).

Table 3 shows that before the intervention, 98 (24.5%) respondents admitted that they were changed their absorbents regularly within two to three hours, and 109 (27.25%) changed pads every four to five hours, while 193 (48.25%) respondents changed their absorbents in twice a day or after the wet feeling during menstruation. After intervention, respondents' practices were improved regarding absorbents' changing, where 112 (28%) changed their absorbents after every two to three hours, and 170 (42.5%) after four to five hours. Whereas 118 (29.5%) used to change twice a day or after the wet feeling during periods found in the post-test. Thus, In the post-intervention phase, the girls became more aware of

Table 3 : Personal Hygiene Management Practices during Menstruation among Adolescent Girls

Personal Hygiene Practices	Pre-Test (%)	Post-Test (%)
Absorbent Change		
In 2-3 hours (Yes)	98 (24.5%)	112 (28%)
In 4-5 hours (Yes)	109 (27.25%)	170 (42.5%)
Twice a day (Yes)	193 (48.25%)	118 (29.5%)
Hygiene Management		
Hair Wash (Yes)	70 (17.5%)	86 (21.5%)
Bath (Yes)	226 (56.5%)	306 (76.5%)
Hand Wash with Soap and Water (Yes)	329 (82.25%)	383 (95.75%)
Hand Wash, Only with Water (Yes)	71 (17.75%)	17 (4.25%)
Clean Genitalia with Plain Water (Yes)	228 (57%)	315 (78.75%)
Clean Genitalia with Lukewarm Water (Yes)	104 (26%)	63 (15.75%)
Clean Genitalia with Soap/ Cleanser (Yes)	68 (17%)	22 (5.5%)
Bath Routine		
Not Applicable	174 (43.5%)	94 (23.5%)
Daily (Yes)	77 (19.25%)	228 (57%)
After 2-3 days (Yes)	149 (37.25%)	78 (19.5%)

how to safely change and dispose off their pads, Abd Elwahed *et al.* (2018) observed the same.

Regarding the personal hygiene management, it was found before intervention that only 70 (17.5%) respondents washed their hair, and 226 (56.5%) took a bath during menses, while after educational intervention, their hair wash and bath practices increased to 86 (21.5%) and 306 (76.5%), respectively (Table 3). About hand wash practices, most (329, 82.25%) respondents used to wash their hands with soap according to the pre-test, which increased to 383 (95.75%) in the post-test. On the other hand, 71 (17.75%) in pre-test and 17 (4.25%) respondents in post-test were not found to be the same; they used to wash their hands without soap or used plain water/sand, etc., during the period.

Further, Table 3 indicates that in the pre-test, 228 (57%) of respondents cleaned their genitalia with plain water, 104 (26%) with lukewarm water, and 68 (17%) used soap or cleanser to wash their genital area during menstruation. While in the post-test, it was found that most, 315 (78.75%) respondents were using plain water, 63 (15.75%) were using lukewarm water, and 22 (5.5%) were using soap or cleanser to clean their genitalia. It can be said that health education led to improved menstrual hygiene practices, including washing external genitalia with soap and water and drying cloth in direct sunlight. The findings are supported by Arora (2013), Nemade (2009) and Nagaraj (2016).

Regarding the bath routine of respondents during

their menstruation, it was found in the pre-test that around only 77 (19.25%) respondents took bath daily, which increased to 228 (57%) in the post-test. Whereas 149 (37.25%) did not take bath daily, found in the pre-test, they took bath after two to three days of menstrual bleeding. They were found to decrease to 78 (19.5%) in the post-test (Table 3). However, Neelkanth *et al.* (2016) found that proper disposal of used absorbents increased from 61.42% to 100%, and daily bathing during menstruation increased from 41.11% to 100% for girls.

Impact of Intervention Knowledge towards Menstrual Hygiene Practices of Adolescent Girls:

The researcher tested the impact of the intervention teaching on menstrual hygiene management practices among adolescent girls. Paired sample t-tests were performed by using two data sets – pre-intervention practices of menstrual hygiene and post-intervention practices of menstrual hygiene.

It is evident from Table 4 that the average difference (pre-post) in the various factors of menstrual hygiene practices was positive. However, the intervention teaching resulted in an increase in all five factors of menstrual practices. The findings revealed that the broad categories of practicing menstrual hygiene, such as the use of menstrual hygiene materials, reusing methods of menstrual hygiene materials, and purchasing and sourcing of menstrual products, were statistically more significant. The calculated t values for these factors were 8.226,

Table 4 : Paired Sample t Test of Menstrual Hygiene Practices for Pre- & Post-Intervention

Overall Practice about Menstrual Hygiene Management		Paired Differences		t	Df
		Mean	SD		
Pair 1	Use of menstrual hygiene materials	.290	.705	8.226*	399
Pair 2	Reusing methods of menstrual hygiene materials	.655	2.400	2.007*	399
Pair 3	Purchasing and sourcing of Sanitary Pads	1.315	2.114	2.444*	399

* Significant at .05 level of significance.

2.007, and 2.444, respectively, which are significant at .05 level of significance. However, the overall pattern of menstrual hygiene showed a mean difference, which indicates that the prevalent practice of menstrual hygiene among adolescent girls improved due to the intervention. The findings are supported by Neelkanth *et al.* (2016), about bathing practices and proper disposal practices of used menstrual absorbents, which was found significant at $p < 0.05$. Similar studies conducted by Bhudhagaonkar *et al.* (2014), Rathinasabapathy *et al.* (2015), Dorle *et al.* (2019).

Conclusion:

This study assesses menstrual practices and the problems faced by adolescent girls and addresses MHM needs of adolescent girls. The study revealed that menstruating girls face challenges due to a lack of adequate facilities at home and school. It is alarming that most teenage girls practice unhygienic menstrual habits. Before the intervention, they followed poor personal hygiene management, which significantly improved in the post-test. Similarly, more than thirty percent of girls were aware of sanitary napkins but have never actually used them. But, in the post-test, various girls (84%) started using sanitary pads after the intervention during their menstruation. Some respondents do not consider disposable sanitary pads as a viable option due to their high cost and lack of availability. Despite the government's efforts to make sanitary napkins more affordable and accessible, around half of the respondents reported that they were not locally available. Respondents were also advised to use cotton cloth for period management, given the availability of absorbent materials. The results also show a satisfactory effect on cloth users who reused their menstrual absorbents after one use. They showed a lack of knowledge regarding the safe maintenance of reusable clothes in the pre-test. Most girls who reported using cloth (26%) were unaware that washing and drying with soap and sun kills germs. Before the intervention, 38.37% reported that they washed menstrual clothes

without any soap and reused them multiple times between menstruation. The number decreased to 15% after the intervention. Many studies observed hiding absorbent materials from male and community members due to taboos, impeding the treatment of MHM. The study also revealed feelings of embarrassment and intimidation when purchasing sanitary napkins from male shopkeepers among respondents. In the post-test, an increase in the tendency of girls to purchase sanitary pads by themselves can be seen.

Recommendation:

It is important to address and eliminate poor menstrual practices in order to create a more inclusive and empowering society. Schools are the most important place where adolescents can learn about good and hygienic menstrual practices through intervention education and health education programs. So, there is a need to do more researches on ground-level among adolescents and provide menstrual education to them.

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