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Impact of Educational Intervention on Knowledge, Attitude and Practice Level of Adolescent Girls Towards Menstrual Health and Hygien in Lucknow District

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Abstract
This study evaluates the impact of an educational intervention on the knowledge, attitude, and practices (KAP) related to menstrual health and hygiene among adolescent girls in Lucknow, India. A quasi-experimental design was employed with 300 participants divided into treatment and control groups. Pre- and post-intervention assessments were conducted. Statistical analyses, including t-tests and chi-square tests, demonstrated significant improvements in the knowledge, attitude, and some practices in the treatment group post-intervention. The study underscores the importance of structured, sustained educational efforts in improving menstrual hygiene management among adolescent girls.
Key words: *menstrual health, adolescents, educational intervention, menstrual practices.*

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I. Introduction

Menstrual health remains a critical yet under-addressed component of adolescent well-being, particularly in developing countries like India, where cultural taboos and limited access to hygiene products persist. Educational interventions aimed at dispelling myths, providing accurate information, and promoting hygienic practices are essential to empower adolescent girls and enhance their health outcomes. This study investigates the effectiveness of a structured educational program in improving menstrual health knowledge, attitudes, and practices among adolescent girls in government schools in Lucknow, Uttar Pradesh.

II. Methodology

This study was conducted among 300 adolescent girls aged 13-19 years from government schools in Lucknow. **The objective of the study was** to evaluate the effect of educational intervention on the knowledge, attitudes and practices of adolescent girls towards menstrual health and hygiene. Two schools were designated as treatment groups where educational interventions were provided, while two other schools served as control groups without intervention. The educational sessions spanned two months. Data were collected through a validated questionnaire covering knowledge, attitudes, and practices related to menstrual hygiene. Statistical analyses included t-tests, frequency distributions, standard division and mean.

III. Results and Discussion

Impact of Educational Intervention on Knowledge, Attitude and Practice Level of Adolescent Girls Towards Menstrual Health and Hygiene

Sensitizing and educating adolescent girls in India about menstrual health holds significant importance for various reasons. Firstly, due to the prevailing cultural stigma surrounding menstruation in India, there is often a lack of accurate information, feelings of shame, and limited access to proper menstrual hygiene management. Programs aimed at sensitization can play a vital role in dispelling taboos, addressing misconceptions, and helping girls understand and embrace their menstrual health confidently. Secondly, providing education about menstrual hygiene practices, including the appropriate usage and disposal of sanitary products, can prevent infections and promote overall well-being. Lastly, empowering girls with knowledge about menstrual health can result in improved school attendance and academic performance by reducing absenteeism and dropout rates (International Center for Research on Women ICRA ASIA 2020). In this research study two schools were selected as treatment schools (Sindhi Girls Inter College, Lucknow & Alambagh, Rajkiya Inter College, Lucknow) and educational

intervention was given there and two schools were selected as control groups (Govt girls inter college & Malihabad Govt. High school rasoolpur Sadaf BKT) where intervention was not given. Further post testing of their knowledge, attitude and practice towards menstrual health and hygiene was done for both groups. The effect of the intervention is discussed under following heads:

Effect of Education Intervention on Adolescent Girls Knowledge Towards Menstrual Health and Hygiene

Table 1. To Study the Effect of Education Intervention on Adolescent Girls Knowledge Towards Menstrual Health and Hygiene

DESCRIPTIVE STATISTICS			
TREATMENT GROUP		CONTROL GROUP	
Mean	2.14	Mean	1.58
Standard Error	0.20802	Standard Error	0.148709
Median	2	Median	1.5
Mode	2	Mode	2
Standard Deviation	1.47094	Standard Deviation	1.05152
Sample Variance	2.16367	Sample Variance	1.10571
Kurtosis	-0.65062	Kurtosis	1.66998
Skewness	0.26941	Skewness	0.93195
Range	5	Range	5
Minimum	0	Minimum	0
Maximum	5	Maximum	5
Sum	107	Sum	79
Count	50	Count	50
Confidence Level (95.0%)	0.4180	Confidence Level 95.0%	0.2988

t-Test: Two-Sample Assuming Equal Variances	***Treatment Group***	***Control Group***
Mean	2.14	1.58
Variance	2.163673	1.10571
Observations	50	50
Hypothesized Mean Difference	0	
df	89	
t Stat	2.189978	
P(T<=t) one-tail	0.01557	
t Critical one-tail	1.662155	
P(T<=t) two-tail	0.031141	
t Critical two-tail	1.986979	

Null Hypothesis: There is no significant difference in adolescent girls' knowledge towards menstrual health and hygiene between treatment group and control group.

Alternate Hypothesis: There is significant difference in adolescent girls' knowledge towards menstrual health and hygiene between treatment group and control group.

The knowledge level towards menstrual health and hygiene improvement in treatment group (M=2.4, SD=0.20, N=50) was hypothesized to be greater than the improvement level of knowledge in control group (M=1.58, SD=0.4, N=50). The difference was significant, t (89) p=0.031141 (1 tail). The mean score of treatment group is 2.4 whereas control group mean score is 1.58. This shows that the intervention given (treatment group) adolescent girls scores of knowledge level have improved significantly more than the control group adolescent girls where the intervention was not given. The null hypothesis (no significant difference in knowledge levels between groups) is rejected. The significant increase in mean knowledge scores indicates that the educational intervention was effective in enhancing the menstrual health knowledge among adolescent girls in the treatment group. The higher variance and flatter distribution (negative kurtosis) in the treatment group suggests that the educational sessions reached a broader spectrum of learning outcomes, with some participants achieving very high knowledge levels. The control group retained a more clustered, lower knowledge distribution, reflecting no significant change without intervention.

The findings are consistent with multiple prior studies that highlight the positive impact of menstrual health education on adolescent knowledge. Patel et al. (2016) emphasized that school-based menstrual hygiene education significantly increases knowledge and helps dispel menstrual myths. Johnson et al. (2022) reported similar improvements in menstrual health knowledge following targeted educational interventions, noting that adolescents showed better awareness of hygiene practices and biological understanding post-education. Dasgupta and Sarkar (2008) emphasized the role of inadequate knowledge in perpetuating poor menstrual practices and taboos, advocating for widespread education to address these gaps. Sommer et al. (2015) argued that while short-term educational interventions yield measurable knowledge gains, longer-term reinforcement is essential for sustained knowledge retention and deeper behavioral change. This study confirms that even within a two-month educational window, significant knowledge improvements can be achieved, but to consolidate and extend these gains into sustained practice changes, ongoing menstrual health education is necessary.

Effect of Education Intervention on Adolescent Girls Attitude and Practice Towards Menstrual Health and Hygiene

Research has shown that comprehensive menstrual health education programs can lead to positive changes in knowledge, attitudes, and practices among adolescent girls (Patel et al., 2016). These interventions emphasize the empowerment of girls, promoting self-confidence, and enabling them to make informed decisions about their health.

Table 2. Pre and Post Evaluation of adolescent girls for attitude towards menstrual health and hygiene

Q No.	Particular/ item		Treatment group				Control group			
			Pre-knowledge		Post-knowledge		Pre-knowledge		Post-knowledge	
			F	(%)	F	(%)	F	(%)	F	(%)
37.	Menstruation is a sign of	Bliss	20	40	37	74	14	20	14	28
		Curse	30	60	13	26	36	72	36	72
38.	Are there activities that should be avoided during monthly period?	Yes	18	36	39	78	45	90	44	88
		No	32	64	11	2	05	10	06	12
39.	What are the critical times to wash hands?	After defecation	8	16	13	26	11	22	11	22
		After changing sanitary pads	9	18	13	26	06	12	06	12
		Before preparing food	21	42	15	30	22	44	22	44
		Before eating using washroom	07	14	13	26	05	10	05	10
		All of these	05	10	06	12	06	12	06	12
40.	Whom can you talk to about or ask for advice on menstruation?	From Mother	15	30	16	32	06	12	07	35
		School Teachers	6	12	7	14	06	12	06	12
		Friends/Relatives/ Neighbour	6	12	7	14	07	14	06	12
		Gynaecologist	5	10	2	4	07	14	09	18
		Elder Sister	9	18	9	18	09	18	09	18
		Social media/Internet	9	18	9	18	09	18	09	18
41.	During menstruation, do you attend school as usual?	Yes	22	44	35	70	24	58	24	58
		No	28	56	15	30	26	52	26	52
42.	What are the problems you face in a school while managing your periods.	Inadequate water facility	10	20	10	20	11	22	11	22
		Inadequate toilet facility	10	20	11	22	11	22	11	22
		lack of access to soap	12	24	12	24	11	22	12	24
		Fear of infection	06	12	07	14	04	08	03	06
		Heavy flow	09	18	09	18	08	16	08	16
		No separate room/place for	03	6	01	2	05	10	05	10

		changing sanitary napkins								
43.	What absorbent would you prefer to use,	Menstrual cups	01	20	01	20	00	00	00	00
		Tampons	00	00	00	00	00	00	00	00
		Menstrual sponge	00	00	00	00	00	00	00	00
		Sanitary Napkins	15	30	17	34	19	38	20	40
		Reusable cotton pads	19	38	16	32	19	38	19	38
		Biodegradable sanitary pads	10	20	15	30	06	12	06	12
		Other Physical materials	05	10	01	20	05	10	04	08

In the present study, the educational intervention led to significant positive changes in the attitudes of adolescent girls towards menstruation. Prior to the intervention, 40% of participants in the treatment group perceived menstruation as a sign of bliss. This perception markedly improved to 74% post-intervention. In contrast, the control group exhibited minimal change, with 28% considering menstruation a sign of bliss in both pre- and post-assessments. Furthermore, the belief that menstruation is a curse decreased substantially in the treatment group, from 60% in the pre-test to 26% in the post-test. However, this belief persisted in the control group, where 72% consistently viewed menstruation as a curse in both assessments.

The study also explored attitudes regarding activity restrictions during menstruation. In the treatment group, 36% initially believed that certain activities should be avoided during menstruation. Surprisingly, this figure increased to 78% in the post-test, indicating that although knowledge regarding menstruation improved, misconceptions about physical restrictions during menstruation may have been unintentionally reinforced or inadequately addressed during the intervention. In the control group, 90% of participants in the pre-test and 88% in the post-test maintained the belief that activities should be restricted, showing no meaningful improvement without intervention.

Hand hygiene awareness was also assessed. In the treatment group, marginal improvements were observed regarding the recognition of critical times for handwashing, such as after defecation, after changing sanitary pads, before preparing food, and before eating or using the washroom. Despite the intervention, only 6% of the treatment group correctly identified 'all of the above' as critical times post-intervention, compared to 10% pre-intervention. The control group showed no significant changes in handwashing practices across assessments, suggesting that deeper behavioral reinforcement is necessary to establish proper hygiene routines.

In terms of sources for menstrual health advice, the proportion of girls in the treatment group who sought guidance from their mothers increased slightly from 30% pre-intervention to 32% post-intervention. Other notable sources included elder sisters (18%), social media (18%), school teachers (14%), friends or relatives (14%), and gynecologists (4%) in the post-test. In the control group, reliance on mothers for advice increased from 18% to 35%, potentially indicating incidental exposure to other informal education but lacking the structured impact observed in the treatment group.

One of the most notable improvements was observed in school attendance during menstruation. In the treatment group, attendance increased significantly from 44% in the pre-test to 70% in the post-test. In contrast, school attendance in the control group remained unchanged at 58% in both assessments, suggesting that educational intervention can play a pivotal role in reducing menstruation-related absenteeism.

Regarding the problems faced in school while managing menstruation, no significant improvements were observed in either group. In the treatment group, 24% continued to report lack of access to soap, and approximately 20% cited inadequate water and toilet facilities both before and after the intervention. Complaints of fear of infection and heavy menstrual flow also persisted across both groups, highlighting infrastructural and systemic issues beyond the reach of educational programs alone.

In terms of absorbent preferences, the use of sanitary napkins in the treatment group increased modestly from 30% to 34% post-intervention, while the preference for biodegradable sanitary pads rose from 20% to 30%. The use of reusable cotton pads decreased slightly from 38% to 32%, and the use of menstrual cups remained unchanged at 2%. In the control group, the use of sanitary napkins and reusable cotton pads remained mostly stable, with only minor shifts observed.

The observed improvements in the perception of menstruation in the treatment group affirm that targeted educational interventions can effectively challenge and reduce menstrual stigma, aligning with the findings of Patel et al. (2016) and Johnson et al. (2022), who reported similar attitude shifts following menstrual health education programs. Improved school attendance during menstruation in the treatment group also supports these

prior studies, which emphasize that reducing menstruation-related stigma can directly improve girls' educational participation.

However, the persistence and, in some cases, the increase in the belief that physical activities should be restricted during menstruation indicate that some cultural misconceptions may have been inadvertently reinforced or inadequately addressed by the intervention. This aligns with findings by Sommer et al. (2015), who emphasized that long-standing cultural myths are deeply entrenched and require prolonged, multi-level interventions to achieve meaningful change.

Table 3. Pre and Post Evaluation of adolescent girls for practice towards menstrual health and hygiene

Q No.	Particular/ item		Treatment group				Control group			
			Pre-knowledge		Post-knowledge		Pre-knowledge		Post-knowledge	
			F	(%)	F	(%)	F	(%)	F	(%)
1.	Do you use reusable absorbent material?	Always	17	34	10	10	09	18	09	18
		Often	07	14	07	14	08	16	08	16
		Sometimes	09	18	12	24	17	34	17	34
		Rarely	06	12	14	28	11	22	11	22
		Never	10	20	07	14	05	10	05	10
2.	What sanitary product do you usually use during menstruation?									
	Menstrual Cups	Always	02	4	03	6	08	16	08	16
		Often	02	4	04	8	17	34	17	34
		Sometimes	02	4	03	6	09	18	10	20
		Rarely	07	14	11	22	16	32	15	30
		Never	37	74	29	58	04	8	04	8
	Tampons	Always	5	10	4	8	2	4	2	4
		Often	11	22	5	10	7	14	7	14
		Sometimes	25	50	32	64	16	32	16	32
		Rarely	5	10	5	10	12	24	13	26
		Never	4	8	4	8	13	26	12	24
	Sanitary Napkins	Always	23	46	31	62	29	58	29	58
		Often	2	4	3	6	8	16	7	14
		Sometimes	7	14	3	6	8	16	6	12
		Rarely	7	14	7	14	3	6	5	10
		Never	11	22	6	12	2	4	2	4
	Bio-Degradable Sanitary Napkins	Always	2	4	6	12	8	16	8	16
		Often	23	46	7	14	8	16	8	16
		Sometimes	11	22	31	62	29	58	29	58
		Rarely	7	14	3	6	2	4	2	4
		Never	7	14	6	12	3	6	3	6
	Panty Liners	Always	5	10	5	10	13	26	13	26
		Often	11	22	4	8	7	14	7	14
		Sometimes	4	8	32	64	2	4	3	6
		Rarely	5	10	5	10	16	32	15	30
		Never	25	50	4	8	12	24	12	24
		Always	22	44	25	50	18	36	18	36

	Reusable Cotton Pads	Often	10	20	9	18	6	12	6	12
		Sometimes	8	16	7	14	10	20	9	18
		Rarely	6	12	7	14	7	14	8	16
		Never	4	8	6	12	7	14	7	14
3.	How often do you change the sanitary pad during a school day?	After every one hour	2	4	3	6	7	14	7	14
		During lunch time	22	44	18	36	9	18	9	18
		After school over	24	48	20	40	11	22	11	22
		On reaching the school	2	4	1	2	8	16	8	16
		After every one hour	-	-	-	-	-	-	-	-
4.	What do you do with the used sanitary material in school?	Wrapped in a newspaper and thrown in dustbin	11	22	19	38	7	14	8	16
		Wrapped in a newspaper and keep in bag	11	22	10	20	16	32	16	32
		Throw in dustbin without wrap	12	24	12	24	21	42	20	40
		Others	16	32	9	18	6	12	6	12
5.	How do you wash reusable cloth / pads?	Water and soap	15	30	21	42	19	38	19	38
		Only water	3	6	4	8	3	6	9	18
		Soak in water+ grease with detergent	32	64	25	50	28	56	22	44
		Washing machine								
		Others								
6.	How do you dry the washed reusable absorbent?	Sun dry	11	22	19	38	19	38	19	38
		Shade dry	39	78	31	62	31	62	31	62
7.	Where do you store the clean sanitary product between use (at home)?	Free from infectants	19	38	14	28	17	34	17	34
		Between the fresh clothes	1	2	3	6	3	6	3	6
		Dry and clean area	13	26	26	52	18	36	18	36
		Place considered as impure	17	34	7	14	12	24	12	24
8.	Where do you store the clean sanitary product between use (at school)?	In school bag where stationery is kept	26	52	29	58	23	46	23	46
		Carry separate bag	19	38	29	58	22	44	22	44
		In wallet	3	6	1	2	5	10	5	10

		Others	2	4	1	2	1	2	1	2
9.	What do you use to clean your private part?	Soap	27	54	28	56	29	58	29	58
		Ash/Sand	6	12	2	4	10	20	10	20
		Multani Mitti(fuller earth)	2	4	5	10	7	14	7	14
		Body wash	2	4	1	2	2	4	2	4
		Dettol/Savlon	11	22	13	26	2	4	2	4
		v-wash	2	4	1	2	2	4	2	4
10.	Burnt the used sanitary material to prevent them from being used by evil spirits	Yes	29	58	26	52	27	54	27	54
		No	21	42	24	48	23	46	23	46
11.	Throw them unwrapped into fields, rooftops, etc.	Yes	29	58	43	86	23	46	24	46
		No	21	42	7	14	27	54	26	54
12.	Wrap them in paper/ plastic bag and throwing them outside	Yes	23	46	39	78	19	38	19	38
		No	27	54	11	22	31	62	31	62
13.	Drying, wrap in paper/plastic bag and throw in dustbins (mostly non-rural)	Yes	21	42	33	66	21	42	21	42
		No	29	58	17	34	29	58	29	58
14.	Burry them for de-composting	Yes	27	54	31	62	32	64	32	64
		No	23	46	19	38	18	36	18	36
15.	Throw them in latrine / toilets	Yes	29	58	26	52	30	60	30	60
		No	21	42	24	48	20	40	20	40
16.	Using incinerators or special disposal dustbins (feminine hygiene bins)	Yes	26	52	32	64	25	50	25	50
		NO	24	48	18	36	25	50	25	50
17.	Municipal waste management / burning in health clinics	Yes	22	44	29	58	16	32	15	30
		No	28	56	21	42	34	68	35	70
18.	Flushing the soiled napkins	Yes	25	50	20	40	27	54	27	54
		No	25	50	30	60	23	46	23	46

Pre- and post-evaluation of adolescent girls for practices towards menstrual health and hygiene regarding the use of reusable absorbent material in the treatment group revealed that the majority (34%) always used reusable absorbents in the pre-test, which decreased to 10% in the post-test. Additionally, 20% reported never using them in the pre-test, which reduced to 14% in the post-test. About 18% sometimes used them in the pre-test, increasing to 24% in the post-test. The percentage of those who often used reusable absorbents remained at 14% in both pre- and post-tests, while those who rarely used them increased from 12% in the pre-test to 28% in the post-test.

In the control group, the majority of adolescent girls (34%) reported sometimes using reusable absorbent material in both the pre-test and post-test. About 22% rarely used them, 18% always used them, 16% often used them, and 10% never used them in both tests. Comparing the treatment and control groups shows that in the control group, there was minimal improvement in practice, while the treatment group showed some improvement, though not substantial. This indicates that changing human practice requires longer interventions.

Pre- and post-evaluation of adolescent girls for the use of menstrual cups in the treatment group revealed that 78% reported never using menstrual cups in the pre-test, which decreased to 64% in the post-test. About 14% rarely used them in the pre-test, increasing to 22% in the post-test. Only 4% sometimes used menstrual cups in the pre-test, rising to 6% in the post-test. Additionally, 4% reported often using menstrual cups in the pre-test, which decreased to 8% in the post-test. In the control group, 42% reported never using menstrual cups in the pre-test, increasing to 50% in the post-test, while 32% rarely used them in the pre-test, decreasing to 30% in the post-test. About 18% sometimes used menstrual cups in the pre-test, increasing to 20% in the post-test. Overall, there was limited improvement in menstrual cup usage in both groups, suggesting that changing menstrual practices requires longer interventions.

Pre- and post-test evaluation for tampon usage in the treatment group showed that 50% of girls reported sometimes using tampons in the pre-test, which increased to 64% in the post-test. About 22% reported often using them in the pre-test, which decreased to 10% in the post-test. Additionally, 10% reported always using tampons, and 10% reported rarely using them in the pre-test. The percentage of girls who never used tampons remained at 8% in both tests. In the control group, 32% sometimes used tampons in both the pre-test and post-test, while those who rarely used tampons increased from 24% to 26%. About 14% often used tampons in both tests, while 26% never used tampons in the pre-test, decreasing to 24% in the post-test. Only 4% in both tests reported always using tampons.

Pre- and post-evaluation of the washing method for reusable cloth/pads showed that in the treatment group, 64% in the pre-test reported soaking absorbents in water and greasing with detergent, decreasing to 50% in the post-test. Washing with water and soap increased from 30% to 42%, while washing with only water increased from 3% to 8%. In the control group, 56% in the pre-test reported soaking in water and greasing with detergent, decreasing to 44% in the post-test. Washing with water and soap remained at 38%, while washing with only water increased from 6% to 18%.

Pre- and post-evaluation of drying methods showed that in the treatment group, 78% shade dried and 22% sun dried reusable absorbents in the pre-test, which changed to 62% shade drying and 38% sun drying in the post-test. In the control group, drying practices remained the same in both tests, with 62% shade drying and 38% sun drying.

Storage practices at home showed that in the treatment group, 38% of girls in the pre-test stored sanitary products in areas free from infection, 34% in places considered impure, 26% in dry and clean areas, and only 2% among fresh clothes. In the post-test, 52% stored products in dry and clean areas, 28% in infection-free areas, 14% in places considered impure, and 6% among fresh clothes. In the control group, the majority in both tests stored products in dry and clean areas (36%), infection-free areas (34%), impure places (24%), and among fresh clothes (6%).

Storage practices at school showed that in the treatment group, 52% stored products in school bags with stationery, 38% carried separate bags, 6% used wallets, and 4% used other storage methods in the pre-test. In the post-test, 58% carried separate bags and school bags, 2% used wallets, and 2% used other storage methods. In the control group, 46% stored products in school bags, 44% carried separate bags, 10% used wallets, and 2% used other storage methods in both tests.

Pre- and post-evaluation for cleaning the genital area showed that in the treatment group, 54% used soap in the pre-test, increasing to 56% in the post-test. The use of Dettol/Savlon increased from 22% to 26%, while the use of ash/sand decreased from 12% to 4%. Usage of Multani Mitti, body wash, and V-Wash remained low in both tests. In the control group, the use of soap remained at 58%, ash/sand at 20%, Multani Mitti at 14%, and body wash, Dettol, and V-Wash each at 4% in both tests.

Regarding disposal practices, 58% of girls in the treatment group reported burning used sanitary material in the pre-test, decreasing to 52% in the post-test. In the control group, 54% reported burning in both tests. Disposal of sanitary napkins in toilets was reported by 58% in the pre-test and 52% in the post-test in the treatment group, while in the control group, 60% reported this practice in both tests.

Use of incinerators or special disposal bins in the treatment group increased from 52% in the pre-test to 64% in the post-test. In the control group, the usage remained constant at 50% in both tests. Municipal waste management or burning in health clinics was reported by 44% in the pre-test and 58% in the post-test in the treatment group. In the control group, only 32% reported this in the pre-test, decreasing to 30% in the post-test. Finally, the practice of flushing soiled napkins was reported by 50% in the pre-test and 40% in the post-test in the treatment group. In the control group, 54% reported this practice in both tests.

The findings of this study reveal that while educational interventions can spark meaningful improvements in menstrual hygiene practices, deeply rooted cultural habits and systemic barriers continue to shape the choices and behaviors of adolescent girls.

In the treatment group, the shift away from the frequent use of reusable absorbent materials suggests a growing awareness of the importance of menstrual hygiene and possibly a desire for safer, more convenient alternatives. However, the modest pace of change indicates that for many girls, practical limitations such as cost, availability, and family traditions may still dictate their menstrual product choices. In contrast, the control group

exhibited almost no change, reinforcing the crucial role that structured education plays in initiating behavioral shifts.

The limited uptake of menstrual cups and tampons across both groups highlights a deeper layer of cultural resistance and perhaps fear of new products. For many of these girls, menstrual cups and tampons are not just unfamiliar—they may be perceived as unsafe, uncomfortable, or socially unacceptable. The low adoption rate underscores the fact that exposure to new products through education is not always enough; it takes time, trust, and often community endorsement for such significant shifts in personal habits to take root.

Improved washing and drying practices among the treatment group show that when girls are empowered with the right knowledge, they can make safer and healthier choices within their means. However, the continued reliance on shade drying—especially in schools where privacy and space may be limited—reminds us that infrastructure often dictates the extent to which best practices can be followed. It is not just about knowing what to do; it is also about having the facilities to do it.

Where the girls store their sanitary products, both at home and in school, provides a window into how menstrual management is interwoven with feelings of shame and secrecy. Even though the treatment group showed improvements in choosing cleaner storage spaces post-intervention, the fact that some girls continued to store products in areas considered impure speaks to the powerful influence of cultural taboos and household norms that education alone cannot easily dismantle.

Cleaning practices also improved in the treatment group, with more girls choosing soap and fewer using ash or sand—a positive step towards healthier hygiene. Still, the persistence of ash usage in the control group reflects not only a lack of awareness but perhaps a continued struggle with access to proper cleaning supplies.

Disposal practices present some of the most striking insights. Although more girls in the treatment group began using incinerators or designated disposal bins, a considerable number continued to flush soiled napkins or burn them due to persistent beliefs in spiritual harm. These practices are not simply issues of waste management—they are expressions of fear, stigma, and misinformation that have been passed down for generations. Changing such practices requires not just education but community conversations, safe disposal infrastructure, and a supportive cultural shift.

The treatment group's growing awareness of municipal waste management options suggests that the intervention successfully introduced girls to safer, community-endorsed disposal methods. However, many girls still lack consistent access to these services, which limits the practical application of their improved knowledge.

IV. Conclusion:

Overall, this study paints a picture of adolescent girls navigating their menstrual health journey amidst a complex web of cultural expectations, infrastructural gaps, and evolving knowledge. While the educational intervention undoubtedly made a positive impact, especially in areas like cleaning methods, product storage, and safe disposal, it also illuminated the areas where knowledge alone is insufficient. Lasting change in menstrual health practices requires time, accessible resources, family involvement, and the gradual erosion of longstanding taboos. These findings emphasize the importance of combining school-based education with broader community engagement and policy-level improvements in sanitation infrastructure. Only by addressing both personal habits and systemic challenges can we create an environment where adolescent girls are fully empowered to manage their menstrual health safely, confidently, and without fear. The same was observed by Dongre et al. (2007), a community-based participatory intervention over three years in rural Maharashtra led to significant improvements in menstrual hygiene practices, with the use of sanitary pads increasing and the reliance on reusable cloth decreasing. Rajagopal et al. (2022) found that the adoption of menstrual cups was substantially higher among adolescent girls who received focused education from healthcare professionals, highlighting the importance of direct and context-specific product counseling. Garg et al. (2021) demonstrated that an integrated government-NGO model significantly improved the use of safe menstrual absorbents and better disposal and storage practices among adolescent girls in tribal regions of Gujarat.

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