



Study on Menstrual Hygiene Practices among Rural Adolescent Girls

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ABSTRACT

The experiment was conducted from August, 2018 to May, 2019 in Hisar to study menstrual hygiene practices among rural adolescent girls in Gawar and Burak villages of Hisar Block II. Menstruation, a natural process in adolescent females, involves the shedding of blood for about one week each month from puberty until menopause. Menarche typically occurs between 11 and 15 years, with an average age of 13 years. The menstrual flow comprised blood, mucus, endometrial fragments, and vaginal epithelial cells. Menstrual hygiene refers to the maintenance of genital cleanliness, use of sanitary absorbents, and provision of appropriate hygienic and emotional care during menstruation. The study was conducted in Gawar and Burak villages of Hisar Block II, where 50 females were selected from each village through random sampling, resulting in a total sample of 100 respondents. Findings revealed that fewer than half of the participants bathed daily and cleaned the external genitalia with plain water twice a day. A majority reused washed cloths as absorbents, changing them twice every 12 hours and reusing them for one to two cycles. Dustbins were commonly used for disposal, but they faced many difficulties in drying absorbents after washing. Increased water intake during menstruation was also reported. The high cost of sanitary napkins deterred their use, despite the presence of separate functional girls' toilets in schools. The study suggested government interventions, including subsidies on sanitary napkins, installation of sanitary napkin vending machines in schools, and training for rural communities to produce low-cost sanitary napkins locally, to improve menstrual hygiene practices among adolescent girls.

KEYWORDS: Menstruation, menstrual hygiene practices, adolescent girls, rural areas

Citation (VANCOUVER): Jyoti and Dhawan, Study on Menstrual Hygiene Practices among Rural Adolescent Girls. *International Journal of Bio-resource and Stress Management*, 2025; 16(11), 01-10. [HTTPS://DOI.ORG/10.23910/1.2025.6502](https://doi.org/10.23910/1.2025.6502).

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Data Availability Statement: Legal restrictions are imposed on the public sharing of raw data. However, authors have full right to transfer or share the data in raw form upon request subject to either meeting the conditions of the original consents and the original research study. Further, access of data needs to meet whether the user complies with the ethical and legal obligations as data controllers to allow for secondary use of the data outside of the original study.

Conflict of interests: The authors have declared that no conflict of interest exists.

1. INTRODUCTION

Adolescence is widely recognized as a crucial and transitional stage in a young woman's life (Lawan et al., 2010). The World Health Organization (WHO) defines adolescence as the period between 10 and 19 years of age, further categorized into early, middle, and late phases. This developmental window is characterized by rapid physical growth, psychological adjustments, and cognitive advancements that shape long-term health and adult behavior (Anonymous, 2015; Sawyer et al., 2018). Biologically, the initiation of growth hormone and gonadotropin secretion by the hypothalamus triggers puberty and the emergence of secondary sexual characteristics (Patton et al., 2016). The word "adolescence," originating from the Latin term *adolescere*, meaning "to grow into maturity," captures the transition from childhood dependence toward autonomy. Globally, adolescents represent a rapidly expanding demographic group. Over half of the world's population is younger than 25 years, with nearly one out of every two individuals in this category being an adolescent (Anonymous, 2020). In the Indian context, this group comprises approximately 20% of the total population, while in Haryana specifically, adolescents account for around 21% (Anonymous, 2011; Planning Commission of India, 2017). These figures highlight the importance of targeted programs addressing adolescent health and social needs (Kumar and Singh, 2019). For adolescent girls, the onset of menarche marks a defining physiological transition to reproductive capability. Typically occurring between 11 and 15 years, the timing of menarche varies according to nutrition, genetics, and environmental influences (Prentice and Viner, 2019; Kaplowitz, 2018). Although a biological norm, menstruation is embedded with cultural, social, and psychological dimensions. In many rural regions of India, menstruation remains enveloped in stigma, often leading to secrecy, shame, and restrictions on girls' participation in social and educational life (Chandra-Mouli et al., 2021; Sahoo et al., 2018). Such experiences negatively affect self-esteem, confidence, and overall developmental opportunities (Sommer et al., 2016). Menstrual hygiene practices (MHP) are central to adolescent girls' reproductive health and overall well-being. Recommended practices include the use of clean and safe absorbents, frequent changing, proper washing and drying of reusable materials, and maintenance of genital hygiene (Hennegan et al., 2020). A lack of awareness or inadequate resources may expose girls to reproductive tract infections (RTIs) and other related morbidities, which represent a significant share of the disease burden in young females (Torondel et al., 2018; Singh and Anand, 2021). Rural adolescents face unique barriers in managing menstruation. Limited availability and affordability of

sanitary products, inadequate water, sanitation, and hygiene (WASH) facilities, and insufficient privacy undermine safe menstrual management (Patel et al., 2022; Kaur et al., 2020). Many girls resort to homemade cloth pads, often reused without proper washing or sun-drying due to stigma, which elevates infection risks (Berlin et al., 2019; Das et al., 2020). Furthermore, gaps in menstrual education at both family and school levels perpetuate myths, misinformation, and unhealthy practices (Evans et al., 2022; Hennegan and Montgomery, 2016). Addressing these challenges calls for an integrated, multidimensional strategy. Health education programs focusing on menstrual awareness, affordable sanitary product initiatives, improvement of WASH infrastructure, and mass communication campaigns are critical (Anonymous, 2019; Anonymous, 2022). Promising interventions include government-supported sanitary pad distribution, installation of pad vending machines in schools, and training in low-cost local pad production, which collectively enhance accessibility and promote healthy practices (Betsu et al., 2024; Dasgupta and Sarkar, 2018).

2. MATERIALS AND METHODS

The experiment was conducted during the month of August to May, 2018 at Hisar, to study the menstrual hygiene practices among adolescent girls.

2.1. Menstrual hygiene practice

Menstrual hygiene practices refer to menstruating individuals managing their period-including the use of sanitary products, cleaning habits, disposal methods, and awareness of menstrual health.

2.2. Menstrual hygiene management (MHM)

Menstrual Hygiene Management (MHM) refers to the process by which women and adolescent girls use clean menstrual management materials to absorb or collect blood during menstruation, which can be changed in privacy as often as necessary, using soap and water for washing the body as required, and having access to facilities for the safe disposal of used materials. It also includes having access to accurate, timely information about menstruation and the ability to manage it with dignity, safety, and confidence.

2.3. Methodology

For the study, the Hisar district of Haryana was selected purposively. From the Hisar district, Block II was selected randomly, and from Block II, two villages, Gawar and Burak, were selected. The study to explore menstrual hygiene practices and factors associated with menstrual hygiene practices was conducted. A total of 100 rural respondents (50 females/village) were selected from both villages. A well-structured and pre-tested interview schedule was developed as the primary tool for data collection. The schedule

included both open-ended and closed-ended questions. The data were collected personally by the researcher through face-to-face interviews with the selected respondents. The collected data were systematically coded, tabulated, and entered into Statistical Package for the Social Sciences (SPSS) version 23.0 for analysis. Appropriate statistical techniques were applied as per the objectives of the study, which included:

2.3.1. Frequency and percentage

To describe the distribution of responses and compare menstrual hygiene practices across different categories.

2.3.2. Chi-Square test (X^2)

To examine the association between independent variables (such as age, education, and parental occupation) and menstrual hygiene practices. The computed chi-square values were compared against tabulated values at 5% and 1% levels of significance.

2.3.3. Pearson's coefficient of correlation (r)

To measure the strength and direction of relationships between selected variables, such as awareness levels and

hygiene practices adopted.

3. RESULTS AND DISCUSSION

3.1. Personal hygienic practices during menstruation followed by respondents

According to the results in Table 1, less than 50% of the respondent (48%) took a bath daily, 89% respondents did regular cleaning of external genitalia with plain water twice a day, and used soap with water for washing hands after use of sanitary napkins/absorbent, 95% had proper toilet facilities at their homes. Ridhi 2015 arrived at similar results regarding hygienic practices, 95.5% girls had daily bath, washing hands with soap and water was present in 93.2% respondents, and cleaning of external genitalia with soap and water was present in 35.2%. Only 42.1% girls had a toilet facility at their home, while 57.9% used a common toilet.

These differences mirror findings from a 2020 cross-sectional study among 1,016 school-going adolescent girls in North Karnataka (Yaliwal et al., 2020). That study found 93.8% of girls bathed during menstruation and 87.2% used soap and water, while 57.1% washed their genitals more than

Table 1: Personal hygienic practices during menstruation followed by respondents n=100

Personal hygienic practices	Gawar (n=50) f (%)	Burak (n=50) f (%)	Total (n=100) (%)
<u>Frequency of bathing</u>			
Daily	18 (36.0)	30(60.0)	48 (48.0)
First day	12 (24.0)	8(16.0)	20 (20.0)
Fourth day	20 (40.0)	12(24.0)	32 (32.0)
<u>Cleaning of the external genital area</u>			
Regular	46 (92.0)	43 (86.0)	89 (89.0)
Irregular	4 (8.0)	7 (14.0)	11 (11.0)
<u>Frequency of washing of the genital area during menstruation</u>			
Twice a day	41(82.0)	24 (48.0)	65 (65.0)
Once a day	9 (18.0)	25 (50.0)	34 (34.0)
Only first day	0 (0.0)	1 (2.0)	1 (1.0)
<u>Material used for cleaning purpose of genital area</u>			
Plain water	13 (26.0)	30 (60.0)	43 (43.0)
Soap+water	29 (58.0)	12 (24.0)	41 (41.0)
Water+antiseptic	6 (12.0)	8 (16.0)	14 (14.0)
Feminine wash	2 (4.0)	0 (0.0)	2 (2.0)
<u>Washing hands after the use of sanitary napkins</u>			
Plain water	3 (6.0)	0 (0.0)	3 (3.0)
Soap+water	47 (94.0)	48 (96.0)	95 (95.0)
Water+antiseptic	0 (0.0)	2 (4.0)	2 (2.0)
<u>Proper toilet facility at home</u>			
Yes	50 (100.0)	50 (100.0)	100 (100.0)

twice daily—closely aligning with your figures on bathing and handwashing, though their rates for genital cleaning were somewhat lower than yours. Additionally, 70.7% reported using commercial sanitary napkins, and 55.5% of cloth-users failed to dry the cloth in sunlight, underscoring persistent barriers to hygienic practices despite widespread WASH access.

3.2. Hygienic practices regarding the use of absorbent materials among respondents during menstruation

Table 2 shows that nearly half of the respondents (46.0%) reused the same cloth after washing during menstruation, 58% respondents changed absorbent twice after every 12 hours and more than half of the respondents (55%) reused the absorbent for one to two cycles, used a dustbin as a disposal method of absorbents (54%) and exposed to the sun the absorbent used. They changed the absorbent in a private room, stored it with routine clothes, and faced the problem of drying during and after washing the absorbent 40% of the respondents increased their intake of water during menstruation, and it was also observed that respondents did not use absorbent as they found them costly (61%). The present findings are from the study conducted by Sudeshna 2012, who found that 66% of the respondents used sanitary pads, but still 34% used old clothes, and most of them reused those clothes. They also faced a problem in maintaining

privacy while washing and drying those clothes. Solanki et al. (2012) also supported the fact that disposal of absorbent was by throwing them into the dust bins in 58%.

The National Family Health Survey (NFHS-5, 2019–21) gathered data on menstrual hygiene practices among ever-menstruated individuals, focusing on the use of hygienic menstrual protection methods, including sanitary napkins, locally manufactured pads, tampons, and menstrual cups. For this analysis, unit-level data pertaining specifically to adolescent girls aged 15–19 years were examined, as the survey does not include information for the 10–14 age group. Findings indicate that 64.5% of adolescent girls reported using sanitary napkins, 49.3% used cloth, and 15.2% utilized locally produced napkins. Notably, the adoption of sanitary napkins has increased by 22% points over the last five years, whereas the use of locally produced napkins has remained constant at approximately 15%. Overall, 78% of adolescent girls in this age group reported using any hygienic method of menstrual protection during 2019–21, marking a significant improvement from 58.3% reported five years earlier.

According to findings by Kaliappan and Balakrishnan (2024), approximately 47.4% of adolescent girls seek medical consultation when experiencing menstrual health issues, while 43.9% are willing to receive medical care if

Table 2: Hygienic practices regarding the use of absorbent materials among respondents during menstruation

Hygienic practices	Gawar (n=50) f (%)	Burak (n=50) f (%)	Total (n=100) (%)
<u>Materials used during menstruation</u>			
Sanitary pad	19 (38.0)	24 (48.0)	43 (43.0)
Clothes (same cloth after washing)	26 (52.0)	20 (40.0)	46 (46.0)
New cloth	5 (10.0)	6 (12.0)	11 (11.0)
<u>Change of absorbent</u>			
Once every 12 hours	13 (26.0)	15 (30.0)	28 (28.0)
Twice every 12 hours	26 (52.0)	32 (64.0)	58 (58.0)
Thrice every 12 hours	11 (22.0)	3 (6.0)	14 (14.0)
<u>Reuse the absorbent</u>			
Yes	29 (58.0)	26 (52.0)	55 (55.0)
No	21 (42.0)	24 (48.0)	45 (45.0)
<u>If yes, for how many times</u>			
One-two cycle	13 (26.0)	18 (36.0)	31 (31.0)
Two-three cycle	11 (22.0)	5 (10.0)	16 (16.0)
More than three cycles	5 (10.0)	3 (6.0)	8 (8.0)
<u>Places where absorbent is changed</u>			
Outdoors	9 (18.0)	7 (14.0)	16 (16.0)
In a private room	14 (28.0)	30 (60.0)	44 (44.0)
At household toilet	27 (54.0)	13 (26.0)	40 (40.0)

Table 2: Continue...

Hygienic practices	Gawar (n=50) f (%)	Burak (n=50) f (%)	Total (n=100) (%)
<u>Disposal method of Absorbent</u>			
Dustbin	22 (44.0)	32 (64.0)	54 (54.0)
Burn	12 (24.0)	6 (12.0)	18 (18.0)
Flush down toilets	5 (10.0)	4 (8.0)	9 (9.0)
Other (reuse)	11 (22.0)	8 (16.0)	19 (19.0)
<u>Place of drying absorbent</u>			
Exposure to the sun	33 (66.0)	22 (44.0)	55 (55.0)
Disposed	17 (34.0)	28 (56.0)	45 (45.0)
<u>Reason for not using a sanitary napkin</u>			
No reason	8 (16.0)	8 (16.0)	16 (16.0)
Difficulty in discarding	14 (28.0)	9 (18.0)	23 (23.0)
Costly	28 (56.0)	33 (66.0)	61 (61.0)
<u>Storage of absorbent</u>			
Stored in the bathroom	7 (14.0)	5 (10.0)	12 (12.0)
Didn't store the absorbent	12 (24.0)	18 (36.0)	30 (30.0)
Store it with routine clothes	31 (62.0)	27 (54.0)	58 (58.0)
<u>Problem faced during and after washing the absorbent</u>			
Shortage of water	10 (20.0)	4 (8.0)	14 (14.0)
Lack of privacy	16 (32.0)	24 (48.0)	40 (40.0)
Drying	24 (48.0)	22 (44.0)	46 (46.0)
<u>Diet pattern followed during menstruation</u>			
Avoid heavy food	2 (4.0)	5 (10.0)	7 (7.0)
Avoid curd, lassi and pickles	10 (20.0)	12 (24.0)	22 (22.0)
Increased water intake	17 (34.0)	23 (46.0)	40 (40.0)
Take iron pills	11 (22.0)	3 (6.0)	14 (14.0)
Take green leafy vegetables/fruits	10 (20.0)	7 (14.0)	17 (17.0)

required. Personal hygiene practices are followed by 81.4% of respondents, 34.8% engage in yoga or other forms of physical exercise to alleviate menstrual discomfort, and 46.8% consume specific foods to manage menstrual pain. Among 1,137 participants who reported using menstrual absorbents, 94.5% used disposable sanitary pads. In contrast, 2.5% relied on old cloth, 1.4% used reusable pads, 0.5% used new cloth, 0.2% used a combination of old cloth and disposable pads, 0.2% reused cloth, and 0.4% used both reusable and disposable pads.

Majeed et al. (2022) conducted a meta-analysis highlighting a significant shift from traditional cloth to disposable sanitary pads, particularly in urban areas, due to increased awareness and accessibility. While cloth remains cost-effective and eco-friendly, its use is hindered by limited access to clean water and drying facilities. Despite being preferred, commercial pads are often unaffordable in rural regions. The study

reported a notable rise in sanitary pad usage and improved perineal hygiene practices, along with common menstrual disorders such as dysmenorrhea, premenstrual symptoms, oligomenorrhea, menorrhagia, PCOS, and polymenorrhea. Additionally, it found improvements in menstrual health knowledge and practices, emphasizing that safe menstrual hygiene can reduce reproductive health issues.

A recent study by Anne and Vijayalakshmi (2024) reported that 95.4% of adolescent girls in urban areas used sanitary napkins, indicating relatively good access to menstrual hygiene products. However, Deshpande et al. (2018) noted that in urban slum environments, only 60% of girls used sanitary pads, with the remainder resorting to cloth, thereby revealing socioeconomic and residential disparities in menstrual hygiene practices. They found that while 75.6% of participants changed their sanitary napkins every six hours, 19.4% waited until the pad was fully soaked—raising

concerns about proper menstrual hygiene management.

Danapure (2023) assessed the knowledge and practices related to menstrual hygiene among adolescent girls and found that 60% of the participants had a good level of knowledge, 25% had average knowledge, 11.7% had excellent knowledge, and 3.3% had poor knowledge. Using a Likert scale to assess menstrual hygiene practices, the study revealed that 70% of respondents demonstrated good practices, 21.7% had average practices, 6.6% exhibited excellent practices, and 1.7% had poor practices, with none falling into the very poor category. These findings suggest a generally positive level of awareness and practice regarding menstrual hygiene among the participants.

3.3. Sanitation facilities available for respondents at school

Furthermore, Table 3 indicates that 67% of the schools had separate functional toilets for girls, with fully functional water sources that were 92% with separate facilities for washing hands, 72% of the school toilets had containers for disposing of absorbents, and soap was available at school 70%. Similar findings were reported by MHM 2017 that schools had functional or partially functional water

sources, and all schools had hand washing facilities in the latrine block. The availability of soap for handwashing post-menstruation management is another essential aspect. Sommer et al. (2016) emphasized that provision of soap, alongside water, is fundamental to preventing infections and maintaining personal hygiene. However, Dasgupta and Sarkar (2008) highlighted the frequent absence of soap in rural school toilets. The current study reports that 70% of schools provided soap, suggesting a positive trend, though continued efforts are necessary to achieve universal availability.

Anne and Vijayalakshmi, (2024) emphasized both advancements and ongoing challenges in menstrual hygiene management among adolescent girls in rural settings. Although access to menstrual products and general awareness about menstruation have improved, gaps remain in pre-menarche education and the dismantling of cultural myths and taboos. The authors underscore the critical role of schools in delivering timely, comprehensive menstrual health education and highlight the need for wider societal transformation to ensure privacy, dignity, and support for all girls. They argue that interventions must go

Table 3: Sanitation facilities available for respondents at school

Facilities at school	Gawar (n=50) f (%)	Burak (n=50) f (%)	Total (n=100) (%)
<u>A school with a separate toilet for girls</u>			
Yes	41 (82.0)	26 (52.0)	67 (67.0)
No	9 (18.0)	24 (48.0)	33 (33.0)
<u>Toilets accessible to girls</u>			
Functional	19 (38.0)	21 (42.0)	40 (40.0)
Partially functional	1 (2.0)	1 (2.0)	2 (2.0)
Clean	6 (12.0)	9 (18.0)	15 (15.0)
With light	6 (12.0)	4 (8.0)	10 (10.0)
Unclean and smelly	18 (36.0)	15 (30.0)	33 (33.0)
<u>School with a functional water source</u>			
Fully functioning	44 (88.0)	48(96.0)	92 (92.0)
Partially functioning	6 (12.0)	2(4.0)	8 (8.0)
<u>Facility for hand washing</u>			
Yes	38 (76.0)	41 (82.0)	79 (79.0)
No	12 (24.0)	7 (14.0)	19 (19.0)
Sometimes not working	0 (0.0)	2 (4.0)	2 (2.0)
<u>Container for disposing of absorbent</u>			
All school toilets	7 (14.0)	21 (42.0)	28 (28.0)
Some toilets	43 (86.0)	29 (58.0)	72 (72.0)
<u>Soap is available at the school toilets</u>			
Yes	37 (74.0)	33 (66.0)	70 (70.0)
No	13 (26.0)	17 (34.0)	30 (30.0)

beyond providing resources and aim to eliminate the social stigmas that continue to hinder menstrual health, thereby empowering adolescent girls and enhancing their overall well-being.

A cross-sectional study conducted in an inter-college in Pilkhuwa village, Hapur district, included 854 girls aged 11–19 from classes 6th to 12th. Among them, 547 (64.05%) had attained menarche. Of these, 44.97% reported experiencing menstrual problems, and a significant proportion (41.86%) were absent from school during menstruation, mostly for one day. Absenteeism was significantly higher among girls with menstrual disorders (79.04%) compared to those without (20.96%), with a strong statistical association ($p=0.00001$). Girls using cloth were more likely to miss school than those using sanitary pads. Key reasons for absenteeism included discomfort at school, restrictions by guardians, and illness. Social and infrastructural factors, like lack of privacy and unsanitary toilets, also contributed. (Kumar, 2020).

Encouragingly, the present study reported that 67% of schools had separate functional toilets for girls, indicating a gradual improvement in rural school sanitation infrastructure. This finding resonates with the (Anonymous, 2019) report, which emphasizes that gender-segregated toilets are essential to create a safe environment for girls, thereby enhancing school attendance and reducing menstrual-related absenteeism.

A recent report by Anonymous (2024) highlights major global gaps in menstrual hygiene management (MHM) in schools. Only 39% of schools offer menstrual health education, with stark contrasts between secondary (84%) and primary (34%) levels in Central and Southern Asia. Globally, just 31% of schools provide disposal bins for menstrual waste, with even lower coverage in least developed countries (17%) and sub-Saharan Africa (11%). Access to

menstrual products is also limited—only 12% of schools in sub-Saharan Africa supply them. Many schools lack private, clean changing spaces and adequate water and soap, especially in rural or low-income areas. Alarming, many girls begin menstruating without prior knowledge, highlighting the urgent need for improved education and infrastructure.

3.4. Correlation between the socio-economic profile of the respondent with menstrual hygiene practices

Table 4 shows that age, the respondent's education, mother's education, and mother's occupation all exhibited positive correlations with menstrual hygiene practices, which means that with the increase in age, education, and income of the respondents, there was an increase in menstrual hygienic practices. Ordinal position was not positively correlated with storage of absorbent, caste was positively correlated with the use of material, reuse of the absorbent, place where the absorbent is changed, and the disposal method. Further, the size of the family was negatively correlated with the use of material, the place where absorbent is changed, the disposal method, and the problem faced after washing absorbent, which means that with the increase in family size, there was a decrease in menstrual hygienic practices. Mahajan (2019) reported that the education of the mother had a significant effect on the knowledge scores of the participants. Correlation between the knowledge and practice scores of participants showed a positive correlation between the two scores ($p<0.001$).

Panda et al. (2024) reported that for 74.3% of adolescent girls, mothers were the primary source of menstrual information. Despite this, only 61% of respondents used sanitary pads, and 46% had no prior knowledge about menstruation before experiencing menarche. The average age at menarche was found to be 12.9 years. The study

Table 4: Correlation between the socio-economic profile of the respondent with menstrual hygiene practices

Socio economic variables	Menstrual hygiene practices									
	Use of material	Change of absorbent	Reuse the absorbent	Places where absorbent is change	Disposal method	Place of drying	Reasons for not using sanitary napkins	Storage of absorbent	Problem faced after washing absorbent	Diet intake during menstruation
Age	.343**	.050	.251*	.077	.170	.135	.166	.175	.219*	.024
Ordinal position	.381**	.150	.803**	.499**	.849**	.741**	.566**	-.605**	.618**	.231*
Caste	.253*	-.219*	.856**	.521**	.734**	-.588**	-.724**	-.766**	-.651**	-.063
Education	.391**	.029	.814**	.545**	.849**	.747**	.641**	.630**	.598**	.296**
Mother education	.069	.014	.115	.362**	.376**	.425**	.244*	.071	.086	.442**
Size of family	-.064	.008	.072	-.204*	-.146	.200*	.008	.080	-.153	.168
Mother occupation	.309**	.078	.196	.254*	.263**	.208*	.257**	.272**	.067	.047

** : Correlation is significant at the 0.01 level; * : Correlation is significant at the 0.05 level

also revealed that younger age and education up to higher secondary level or above were significantly associated with better knowledge of menstruation. Additionally, factors such as age, caste, educational status of both the respondent and her mother, availability of sanitation facilities and water, and the accessibility and affordability of sanitary pads were significantly correlated with improved menstrual hygiene practices.

According to Sreeja et al. (2025), 87.8% of the participants used sanitary pads, and 76.83% discarded menstrual waste in dustbins. The most commonly reported issue during menstruation was restricted physical activity, noted by 62.8% of respondents. Additionally, 61.6% of participants spent less than ₹ 100 per month on menstrual hygiene products, and 77.5% were satisfied with the materials they used. The study also found significant associations between higher MPNS-36 scores and factors such as age below 20 years, being unmarried, and having a graduate-level education, all with statistically significant p-values ($p < 0.05$).

4. CONCLUSION

Nearly half of the respondents practiced daily bathing, cleaned their genital area twice daily with water, and used soap and water after using sanitary products. Most reused washed cloth as absorbents, changed them every 12 hours, and dried them in the sunlight. Many stored them with regular clothes and faced drying issues. Sanitary napkins were avoided due to cost. Schools had functional girls' toilets with water, soap, and disposal bins. Menstrual hygiene practices were positively linked to age, education, and mother's occupation, but family size had a negative correlation.

5. FUTURE RECOMMENDATIONS

The study reveals that most girls rely on reused cloth due to the high cost of sanitary napkins. Government and non-governmental organizations should facilitate the availability of subsidized or reusable sanitary products. Again, menstrual hygiene education should be integrated into school health programs, particularly targeting younger girls before they attain menarche. Girls should be provided with private and safe changing rooms within school premises to enhance comfort and reduce absenteeism. Regular school-based audits can ensure that water supply, soap, and disposal systems remain accessible and hygienic. Additionally, menstrual hygiene corners stocked with emergency supplies could provide support to girls during school hours. The positive correlation between better hygiene practices and age, education level, and mothers' occupation suggests the need for targeted outreach to younger and less informed girls. Simultaneously, the negative impact of a larger

family size may reflect resource constraints. Tailored interventions like focused counseling, home visits, or small group workshops can address such disparities, ensuring that all girls irrespective of family background receive the support and knowledge required for safe menstrual hygiene management.

6. REFERENCES

- Anonymous, Progress on drinking water, sanitation, and hygiene in schools 2015–2023: Special focus on menstrual health. United Nations Children's Fund (UNICEF) and World Health Organization.
- Anonymous, Programming for adolescent health and development. WHO Technical Report Series No.886, 1996:2.
- Anonymous, 2011. Census data: Age structure by state. Government of India. Census of India. Available: January 19, 2021; Accessed: August 19, 2025. <https://censusindia.gov.in/nada/index.php/catalog/1541>.
- Anonymous, 2019. Guidance on Menstrual Health and Hygiene. Retrieved from <https://www.unicef.org/documents/guidance-menstrual-health-and-hygiene>.
- Anonymous, 2021. National Family Health Survey (NFHS-5), 2019–21: India fact sheet. Government of India. Available at <https://main.mohfw.gov.in/>.
- Anonymous, 2022. WHO statement on menstrual health and rights. Retrieved from <https://www.who.int/news/item/22-06-2022-who-statement-on-menstrual-health-and-rights>.
- Anne, S., Vijayalakshmi, K., 2024. Menstrual hygiene and its awareness among adolescent girls: A study from an urban area. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* 13(10), 2869–2874. <https://doi.org/10.18203/2320-1770.ijrcog20242825>.
- Berlin, J., Bisrat, M., Zewdie, T., 2019. Reusable menstrual cloth absorption practices and hygiene determinants in rural settings. *BMC Public Health* 19(1), 1153. DOI: 10.1186/s12889-022-14622-7.
- Betsu, B.D., Medhanyie, A.A., Gebrehiwet, T.G., Wall, L.L., 2024. Menstrual hygiene management interventions and their effects on schoolgirls' menstrual hygiene experiences in low- and middle-income countries: A systematic review. *PLOS ONE* 19(8), e0302523. <https://doi.org/10.1371/journal.pone.0302523>.
- Chandra-Mouli, V., Lane, C., Wong, S., 2021. What does not work in adolescent sexual and reproductive health: A review of evidence on interventions. *Global Public Health* 16(2), 169–186. <https://doi.org/10.9745/GHSP-D-15-00126>.
- Danapure, R., 2023. A descriptive study to assess the

- knowledge and practice regarding menstrual hygiene among adolescent girls in selected community areas. *International Journal of Research and Analytical Reviews*, 10(1). www.ijrar.org.
- Dasgupta, A., Sarkar, M., 2018. Menstrual hygiene: How hygienic is the adolescent girl? *Indian Journal of Community Medicine* 43(2), 137–141. <https://doi.org/10.4103/0970-0218.40872>.
- Deshpande, T.N., Patil, S.S., Gharai, S.B., Patil, S.R., Durgawale, P.M., 2018. Menstrual hygiene among adolescent girls—A study from an urban slum area. *Journal of Family Medicine and Primary Care* 7(8), 1439–1445. https://doi.org/10.4103/jfmpc.jfmpc_80_18.
- Dharni, I., 2018. A comparative study to assess the menstrual hygiene practices among adolescent girls of urban and rural schools of Ludhiana, Punjab. *Nursing Tutor*, Akal College of Nursing, Eternal University, Baru Sahib. <https://doi.org/10.21474/IJAR01/6476>.
- Evans, R.L., Harris, B., Onuegbu, C., Griffiths, F., 2022. Systematic review of educational interventions to improve the menstrual health of young adolescent girls. *BMJ Open* 12(6), e057204. <https://doi.org/10.1136/bmjopen-2021-057204>.
- Hennegan, J., Montgomery, P., 2016. Do menstrual hygiene management interventions improve education and psychosocial outcomes for women and girls in low-and middle-income countries? A systematic review. *PLOS ONE* 11(2), e0146985. <https://doi.org/10.1371/journal.pone.0146985>.
- Hennegan, J., Brooks, D.J., Schwab, K.J., Melendez-Torres, G.J., 2020. Measurement in the study of menstrual health and hygiene: A systematic review and audit. *PLOS ONE* 15(6), e0232935. <https://doi.org/10.1371/journal.pone.0232935>.
- Kaliappan, I., Balakrishnan, P., 2025. Knowledge, attitude, and practice regarding menstrual hygiene among adolescent girls in Coimbatore: A cross-sectional study. *World Journal of Biology Pharmacy and Health Sciences* 21(1), 196–203. <https://doi.org/10.30574/wjbphs.2025.21.1.0012>.
- Kaur, R., Kaur, K., Kaur, R., 2020. Menstrual hygiene, management, and waste disposal: Practices and challenges faced by girls/women in India. *Journal of Family Medicine and Primary Care* 9(1), 184–190. <https://doi.org/10.1155/2018/1730964>.
- Kumar, A., Singh, R., 2019. Reproductive health of adolescents in Haryana: Contemporary challenges. *Indian Journal of Pediatrics* 86(3), 218–226. <https://doi.org/10.1155/2018/1730964>.
- Kumar, P., 2020. School sanitation facilities and absenteeism from school during menstruation in adolescent girl in the rural area of Hapur. *National Journal of Community Medicine* 11(2), 49–54. www.njcmindia.org.
- Kumar, A., Srivastava, K., 2016. Cultural and social practices regarding menstruation among adolescent girls. *Soc Work Public Health* 26(6):594–604. [10.1080/19371918.2010.525144](https://doi.org/10.1080/19371918.2010.525144).
- Lawan, U.M., Yusuf, N.W., Musa, A.B., 2010. Menstruation and menstrual hygiene amongst adolescent school girls in Kano, Northwestern Nigeria. *African Journal of Reproductive Health* 14, 201–207. [10.1186/s12978-017-0293-6](https://doi.org/10.1186/s12978-017-0293-6).
- Mahajan, Kaushal, 2019. A descriptive study to assess the knowledge and practice regarding menstrual hygiene among adolescent girls, IP: 14.139.232.165.
- Majeed, J., Sharma, P., Ajmera, P., Dalal, K., 2022. Menstrual hygiene practices and associated factors among Indian adolescent girls: A meta-analysis. *Reproductive Health* 19, Article 215. <https://doi.org/10.1186/s12978-022-01453-3>.
- Panda, N., Desaraju, S., Panigrahy, R.P., Ghosh, U., Saxena, S., Singh, P., Panda, B., 2024. Menstrual health and hygiene amongst adolescent girls and women of reproductive age: A study of practices and predictors, Odisha, India. *BMC Women's Health*, 24, Article 144. <https://doi.org/10.1186/s12905-024-02894-7>.
- Patton, G.C., Sawyer, S.M., Santelli, J.S., et al., 2016. Our future: A Lancet commission on adolescent health and wellbeing. *The Lancet* 387(10036), 2423–2478. <https://pubmed.ncbi.nlm.nih.gov/27174304/>.
- Prentice, P., Viner, R., 2019. Puberty and its measurement: The evolution from auxology to adolescent chronobiology. *Journal of Adolescent Health* 65(6), 644–650. [http://dx.doi.org/10.1136/jech-2015-205607](https://doi.org/10.1136/jech-2015-205607).
- Sahoo, S., Hulland, K.R.S., Caruso, B.A., 2018. Sanitation-related psychosocial stress: Development of a measurement scale and examination of gender differences based on data from India. *BMJ Open* 8(8), e020725.
- Sawyer, S.M., Azzopardi, P.S., Wickremarathne, D., Patton, G.C., 2018. The age of adolescence. *The Lancet Child & Adolescent Health* 2(3), 223–228.
- Solanki, H., Patel, V., Patel, H., 2012. A study of menstrual problems and practices among girls of Mahila College. *National Journal of Integrated Research in Medicine* 3(4), 24–27. <https://www.njirm.com/admin/downloadfile/5.pdf>.
- Sommer, M., Caruso, B.A., Sahin, M., et al., 2016. A time for global action: Addressing girls' menstrual hygiene management needs in schools. *PLOS Medicine* 13(2), e1001962.

- Sommer, M., Ackatia-Armah, N., Connolly, S., Smiles, D., 2016. A comparison of the menstrual hygiene management practices, cultural restrictions, and health impacts among adolescent girls in India, Kenya, Ghana, and Ethiopia. *International Journal of Environmental Research and Public Health* 13(9), 898. <https://doi.org/10.1080/03057925.2013.871399>.
- Sreeja, S., Garikapati, K., Sharmila, V., Marimuthu, Y., 2025. Menstrual hygiene practices among teens and reproductive age group women: A cross-sectional study. *Journal of Education and Health Promotion* 14, Article 94. https://doi.org/10.4103/jehp.jehp_558_24.
- Sudeshna, R., Dasgupta, A., 2012. Determinants of menstrual hygiene among adolescent girls: a multivariate analysis. *National Journal of Community Medicine*, 3, 294–301. <https://njcmindia.com/index.php/file/article/view/1699>.
- Torondel, B., Sinha, S., Mohanty, Montgomery, P., Harlow, S.D., Elledge, M.F., Phillips-Howard, P.A., 2018. Association between unhygienic menstrual practices and reproductive tract infections: A systematic review and meta-analysis. *PLOS ONE* 13(1), e0190671. <https://doi.org/10.1371/journal.pone.0190671>.
- Yaliwal, V.N., Beattie, T., Javalkar, P., Bhattacharjee, P., Ramanaik, S., Thalinja, R., Murthy, S., Davey, C., Blanchard, J., Watts, C., 2020. Prevalence and correlates of psychological distress among 13–14-year-old adolescent girls in North Karnataka, South India: A cross-sectional study. *BMC Public Health*, 20, Article 522. <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-6355->.