

Original Research Article

Menstrual hygiene practices and awareness among hosteller and non-hosteller college students: a comparative analysis

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Received: 17 May 2026

Revised: 11 September 2026

Accepted: 18 September 2026

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ABSTRACT

Background: Menstrual hygiene management is an important component of reproductive health among adolescent and women. The present study aimed to assess and compare menstrual hygiene practices, awareness, disposal methods and challenges faced by hosteller and non-hosteller female students.

Methods: A comparative cross-sectional descriptive study design was adopted for the study, which was conducted among female students of Women's College, Jharsuguda. A total of 100 respondents, comprising 50 hostellers and 50 non-hostellers aged between 17 to 20 years, were selected using a simple random sampling technique. Data were collected through a structured questionnaire covering socio-demographic details, menstrual practices, hygiene behaviours, disposal methods and awareness levels. The data were analyzed using descriptive and inferential statistical methods, including the Chi-square test to determine associations between variables.

Results: The results revealed that most respondents used sanitary pads and maintained basic hygiene practices. However, hosteller students experienced greater difficulties in accessing menstrual hygiene products and disposal facilities compared to non-hostellers. Awareness regarding menstrual hygiene was moderate in both groups. The Chi-square analysis showed a statistically significant association between residence (hosteller and non-hosteller) and access to disposal facilities as well as frequency of changing sanitary products $p < 0.05$, while other variables were found to be non-significant.

Conclusions: It is concluded that there is a need to improve knowledge regarding menstrual hygiene, strengthen infrastructural facilities, enhance awareness programs and develop better institutional support systems for adolescent girls.

Keywords: Awareness, Disposal methods, Hygiene practices, Hosteller students, Menstrual hygiene, Non-hosteller students

INTRODUCTION

Menstrual hygiene is an essential component of women's health and well-being, particularly among adolescent and women. Appropriate menstrual hygiene practices are important for preventing infections, maintaining personal cleanliness and ensuring dignity during menstruation. However, in many developing countries, including India,

menstrual hygiene management is still affected by limited awareness, inadequate access to sanitary products, poor sanitation facilities and persistent socio-cultural stigma. According to the National Family Health Survey NFHS-5, 2019–21.¹⁰ around 64% of adolescent girls and women age between 15–24 in India use hygienic menstrual products such as sanitary pads, tampons or menstrual cups, while a considerable proportion still depend on cloth and other unhygienic materials. Studies have shown

that the use of unhygienic absorbents is associated with a higher risk of reproductive health problems, including urinary tract infections UTIs and reproductive tract infections RTIs. Research in India has also reported that inadequate menstrual hygiene practices are significantly linked with poor access to water, sanitation and hygiene WASH facilities, especially in rural and low-income populations.

Menstruation is a normal physiological process, yet it is often surrounded by myths and taboos that hinder proper hygiene practices and open discussion. In educational settings, institutional support, availability of sanitary facilities and awareness programs play an important role in influencing menstrual hygiene behaviour among students. Differences in living arrangements, such as residing in hostels or at home, may further affect menstrual hygiene management. Hosteller students may face additional challenges due to limited access to sanitation facilities and menstrual products compared to non-hosteller students. Therefore, it is important to compare menstrual hygiene practices between these two groups to identify gaps and improve health outcomes among young women.

Objectives

To assess the socio-demographic characteristics of the respondents. To compare menstrual hygiene practices between hosteller and non-hosteller students. To evaluate awareness regarding menstrual hygiene management, disposal practices and challenges faced during menstruation.

METHODS

Study design

A comparative cross-sectional descriptive study design was adopted for the present study. This design was considered appropriate as it allows comparison between two groups' hosteller and non-hosteller female students regarding their menstrual hygiene practices, awareness and related issues at a single point in time.

Study place

The study was conducted among female undergraduate students of Women's College, Jharsuguda, Odisha. The study included students residing in college hostels as well as those residing at home but attending the same institution.

Study duration

The study was conducted from August 2025 to January 2026 among female undergraduate students of Women's College, Jharsuguda, Odisha.

Study population

The target population consisted of female students aged between 17 to 20 years studying in Women's College, Jharsuguda. A total of 100 participants were included in the study, comprising 50 hosteller students and 50 non-hosteller students. This equal distribution was maintained to ensure fair comparison between the two groups.

Sampling technique

Simple random sampling technique was used for selection of respondents. Students who fulfilled the inclusion criteria were listed and participants were randomly selected to avoid bias and ensure representativeness of the sample.

Data collection tool

Data were collected using a structured questionnaire developed for the purpose of the study. The questionnaire was designed after reviewing relevant literature and included both closed-ended and multiple-choice questions. The questionnaire was prepared in simple language to ensure clarity and easy understanding by all respondents. It was divided into the following sections:- Socio-demographic characteristics such as age, residence and educational background, Menstrual history including age at menarche, cycle regularity and duration of menstruation, Menstrual hygiene practices such as type of absorbent used, frequency of changing sanitary products and bathing habits, Personal hygiene practices during menstruation, Methods of menstrual waste disposal, Awareness regarding menstrual hygiene management and related practices.

Data collection procedure

Prior permission was obtained from the principal and concerned authorities of Women's College, Jharsuguda before the commencement of the study. The purpose of the study was clearly explained to the participants. Written or verbal informed consent was obtained from each respondent prior to data collection.

The participants were assured that their responses would be kept strictly confidential and used only for research purposes. Privacy and anonymity were maintained throughout the study. The questionnaire was administered in a suitable environment to ensure that the participants could respond freely without any disturbance or influence.

Statistical analysis

After data collection, the responses were systematically organized and tabulated for analysis. Descriptive statistics such as frequency and percentage were used to summarize the data and present the findings in a clear and meaningful manner.

Inferential statistics, particularly the Chi-square test, were applied to assess the association between hosteller and non-hosteller students with respect to menstrual hygiene practices and related variables. The Chi-square test helped to determine whether significant differences existed between the two groups regarding awareness, hygiene practices and menstrual health-related problems. A suitable level of significance was considered for interpreting the statistical results. The analyzed data were further presented in the form of tables and figures for better understanding and interpretation of the findings.

RESULTS

The Table 1 presents the socio-demographic characteristics of the respondents among hosteller students, the majority 42% were 18 years old, followed by 20 years 26%, 17 years 20% and 19 years 12%. Similarly, among non-hosteller students, most respondents 30% belonged to the age group of 18 years,

followed by 17 years 26%, 19 years 24% and 20 years 20%. Regarding residence, all hosteller respondents 100% lived in hostels, while all non-hosteller respondents 100% resided at home. The findings indicate that most respondents in both groups were within the age range of 17 to 20 years.

The table presents the menstrual history of hosteller and non-hosteller students. It was observed that most hosteller students attained menarche at 13 years of age 36%, whereas a higher proportion of non-hosteller students attained menarche at 12 years 36%. A regular menstrual cycle pattern was reported by the majority of hostellers 86% and non-hostellers 76%. Regarding the duration of menstruation, most respondents experienced menstruation for 1–3 days, particularly among non-hosteller students 72%. Moderate menstrual flow was the most common pattern reported among both hostellers 62% and non-hostellers 70%.

Table 1: Socio- demographic characteristics of the respondents.

Variables	Categories	Hosteller (%)	Non- hosteller (%)
Age (in years)	17	20	26
	18	42	30
	19	12	24
	20	26	20
Type of residence	Hosteller	100	-----
	Non-hosteller	-----	100

Table 2: Menstrual history of hosteller and non- hosteller students.

Variables	Categories	Hosteller (%)	Non- Hosteller (%)	x ² value	df	P value	Significance
Age at menarche (in years)	11	32	30	3.42	3	>0.05	Not significant
	12	24	36				
	13	36	22				
	14	8	12				
Menstrual cycle pattern	Regular	86	76	1.47	1	>0.05	Not significant
	Irregular	14	24				
Duration of menstruation	1-3 days	48	72	9.86	2	<0.05	Significant
	4-5 days	38	24				
	More than 5 days	14	4				
Amount of menstrual flow	Light	14	8	1.21	2	>0.05	Not significant
	Moderate	62	70				
	Heavy	24	22				

Table 3: Menstrual hygiene practices among the respondents.

Variables	Categories	Hosteller (%)	Non- Hosteller (%)	x ² value	df	P value	Significance
Materials used during menstruation	Sanitary pads (disposable)	94	96	1.021	3	>0.05	Not significant
	Cloth (reusable)	2	0				
	Tampons	2	2				

Continued.

Variables	Categories	Hosteller (%)	Non- Hosteller (%)	x2 value	df	P value	Significance
Frequency of changing sanitary pad/cloth	Menstrual cup	2	2	15.284	2	<0.05	Significant
	1-2 times/day	14	48				
	3-4 times/day	60	22				
	More than 4 times /day	26	30				
Difficulty in accessing menstrual products	Yes	26	16	1.47	1	>0.05	Not significant
	No	74	84				

Table 4: Personal hygiene practices during menstruation among the respondents.

Variables	Categories	Hosteller (%)	Non-hosteller (%)	x ² value	df	P value	Significance
Frequency of washing genital area	Once in a day	0	0	0.160	2	>0.05	Not significant
	2-3 times / day	46	52				
	More than 3 times / day	54	48				
Materials used for washing	Water only	62	52	1.556	2	>0.05	Not significant
	Soap and water	32	36				
	Antiseptic solution	6	12				
Daily bath during menstruation	Yes	48	34	1.48	1	>0.05	Not significant
	No	52	66				

Table 5: Disposal practices of menstrual products among the respondents.

Variables	Categories	Hosteller (%)	Non-Hosteller (%)	x ² value	df	P value	Significance
Disposal method	Wrapped and thrown in dustbin	60	36	7.214	2	>0.05	Not significant
	Flushed in toilet	38	64				
	Washed and reused cloth	2	0				
Availability of proper disposal facilities	Yes	52	84	10.340	1	<0.05	Significant
	No	48	16				

These findings are consistent with the study conducted by Dasgupta et al and Sarkar et al which reported regular menstrual cycles and moderate menstrual flow among adolescent girls.¹

Similarly, Thakre et al in 2011 found that the average age at menarche generally ranges between 12–13 years among adolescent populations in India.² The Chi-square analysis revealed no statistically significant association between residence status and age at menarche, menstrual cycle pattern or amount of menstrual flow. However, a statistically significant association was observed between residence status and duration of menstruation $p < 0.05$,

indicating a difference between hosteller and non-hosteller students in this aspect.

The Table 4 presents menstrual hygiene practices among hosteller and non-hosteller students. It was observed that the majority of respondents used disposable sanitary pads during menstruation, with 94% of hostellers and 96% of non-hostellers reporting their use. Regarding the frequency of changing sanitary products, most hosteller students 60% changed sanitary pads 3–4 times per day, whereas a higher proportion of non-hosteller students 48% changed them 1–2 times per day.

Difficulty in accessing menstrual hygiene products was reported by 26% of hostellers and 16% of non-hostellers. These findings are consistent with the studies conducted by Thakre et al, 2011 and Kumar et al and Srivastava et al.^{2,11} which also reported widespread use of sanitary pads and variations in hygiene practices among adolescent girls. The Chi-square analysis revealed a statistically significant difference in the frequency of changing sanitary pads/cloth $\chi^2=15.284$, $p<0.05$, while other variables were found to be not statistically significant.

The table presents personal hygiene practices during menstruation among hosteller and non-hosteller students. It was observed that a majority of hosteller students 54% washed the genital area more than three times per day, whereas 52% of non-hosteller students reported washing the genital area 2–3 times per day.

The majority of respondents used only water for cleaning the genital area, including 62% of hosteller students and 52% of non-hosteller students. The limited use of antiseptic or hygienic cleansing products may increase the risk of urinary tract infections UTIs and other reproductive health problems.

Regarding bathing practices, 48% of hosteller students and 34% of non-hosteller students reported taking a daily

bath during menstruation. These findings are consistent with the study conducted by Dasgupta and Sarkar 2, which reported similar menstrual hygiene practices among adolescent girls.

The Chi-square analysis revealed no statistically significant difference between hosteller and non-hosteller students in the frequency of washing the genital area $\chi^2=0.160$, $p>0.05$, materials used for washing $\chi^2=1.556$, $p>0.05$ and daily bathing during menstruation $\chi^2=1.488$, $p>0.05$. This indicates that personal hygiene practices during menstruation were comparable among both groups of students and its statistically not significant.

The table presents the disposal practices of menstrual products among hosteller and non-hosteller students. It was observed that most hosteller students 60% disposed of menstrual products by wrapping and throwing them in dustbins, whereas a higher proportion of non-hosteller students 64% reported flushing them in toilets. A very small percentage of hosteller students 2% reported washing and reusing cloth. Regarding the availability of proper disposal facilities, 52% of hosteller students and 84% of non-hosteller students reported having access, indicating better availability among non-hostellers.

Table 6: Information received and sources of information on menstrual hygiene management among hosteller and non-hosteller students.

Variables	Categories	Hosteller (%)	Non-Hosteller (%)	χ^2 value	df	P value	Significance
Received information on menstrual hygiene management	Yes	62	78	3.158	1	>0.05	Not significant
	No	38	22				
Familiarity with proper menstrual hygiene practices	Yes	63.9	68.5	0.236	1	>0.05	Not significant
	No	36.1	31.5				
Source of information	Mother/family members	16	10	3.742	4	>0.05	Not significant
	Friends/peers	36	30				
	Teachers	4	6				
	Internet/ media	42	52				
	Health workers	2	2				

These findings are consistent with the study conducted by Sommer and Sahin which highlighted inadequate menstrual waste management facilities in many educational settings.³ The Chi-square analysis revealed a statistically significant difference in the availability of proper disposal facilities $\chi^2=10.340$, $p<0.05$, whereas no statistically significant difference was observed in disposal methods between the two groups $\chi^2=7.214$, $p>0.05$.

The Table 6 presents information received and sources of awareness regarding menstrual hygiene management among hosteller and non-hosteller students. It was observed that a higher proportion of non-hosteller students 78% had received information on menstrual hygiene management compared to hosteller students 62%. Familiarity with proper menstrual hygiene practices was reported by 63.9% of hosteller students and 68.5% of non-hosteller students. Internet and media were identified as the major sources of information among both groups.

These findings are consistent with the studies conducted by Thakre et al, Kumar et al and Srivastava et al which also reported that media and interpersonal communication play a significant role in creating awareness about menstrual hygiene.^{4,5} The Chi-square analysis revealed no statistically significant difference between hosteller and non-hosteller students in receiving information on menstrual hygiene management $\chi^2=3.158$, $p>0.05$, familiarity with proper practices $\chi^2=0.236$, $p>0.05$ and source of information $\chi^2=3.742$, $p>0.05$, indicating similar awareness levels in both groups.

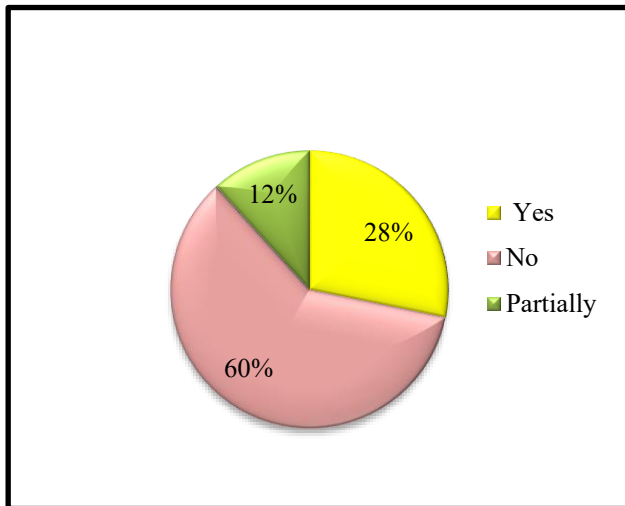


Figure 1: Sufficiency of hostel/college facilities for menstrual hygiene management (clean toilets, water facilities and dustbin etc).

The Figure 1 illustrates the sufficiency of hostel/college facilities for menstrual hygiene management among hosteller students. The majority of respondents 60% reported that the available facilities were not sufficient, while 28% stated that the facilities were sufficient. About 12% of respondents reported partial satisfaction with the facilities provided. The findings indicate inadequate menstrual hygiene infrastructure in hostels and colleges, particularly regarding clean toilets, water supply and disposal facilities. Similar observations were reported by UNICEF 2019, which emphasized that insufficient sanitation facilities negatively affect menstrual hygiene management and the wellbeing of adolescent girls.⁴

The Figure 2 presents the problems faced during menstruation among hosteller and non-hosteller students. Abdominal pain and cramps were the most common problems reported by both hostellers 72% and non-hostellers 78%. Fatigue was experienced by 12% of hostellers and 4% of non-hostellers. Headache was equally reported by both groups 6%. Lack of privacy or discomfort was reported by 4% of respondents in both groups, while vomiting was experienced by 6% of hostellers and 8% of non-hostellers. The findings indicate that physical discomfort during menstruation is common among college students. Similar findings were reported

by Thakre et al where abdominal pain and fatigue were common menstrual complaints among adolescent girls.²

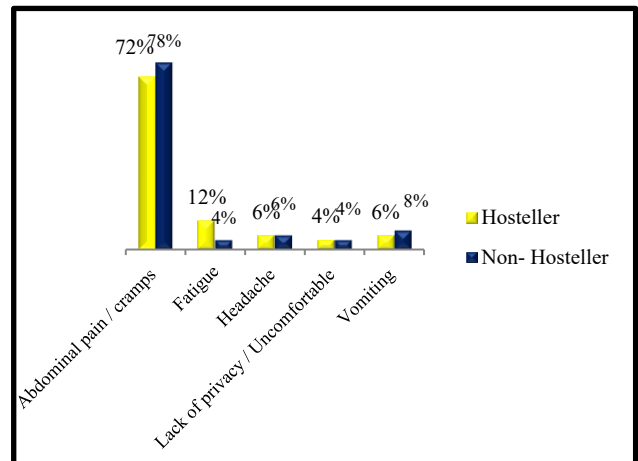


Figure 2: Problems faced during menstrual period among hosteller and non- hosteller students.

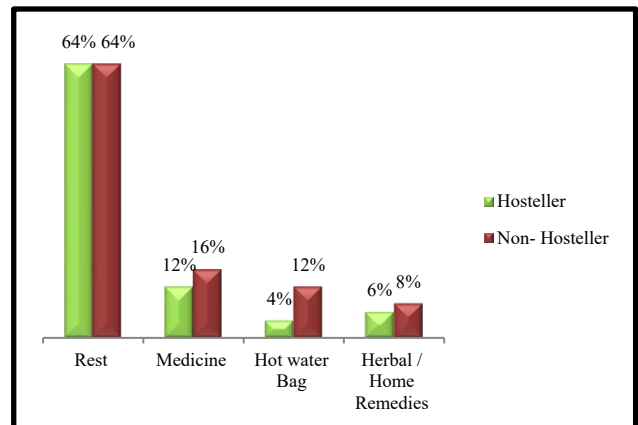


Figure 3: Management of menstrual discomfort.

The Figure 3 illustrates the methods used by hosteller and non-hosteller students for managing menstrual discomfort. Rest was the most commonly adopted method among both hostellers and non-hostellers 64%. Use of medicine was reported by 12% of hostellers and 16% of non-hostellers. Hot water bags were used by 4% of hostellers and 12% of non-hostellers, while herbal or home remedies were practiced by 6% of hostellers and 8% of non-hostellers. The findings indicate that most students preferred simple self-care measures such as rest for managing menstrual discomfort. Similar findings were reported by Kumar et al and Srivastava et al where rest and medication were commonly used methods for relieving menstrual pain among adolescent girls.¹¹

DISCUSSION

The present study compared menstrual hygiene practices, awareness and challenges among hosteller and non-hosteller college students. The findings revealed that the majority of respondents in both groups used disposable

sanitary pads, indicating improved awareness and adoption of hygienic menstrual practices among adolescent girls. Similar findings were reported by Dasgupta et al and Sarkar et al who observed increased use of sanitary pads among adolescent girls in India.¹ The study also showed that hosteller students changed sanitary products more frequently than non-hostellers and this difference was statistically significant. This may be due to better awareness among hostel residents or differences in daily routine and accessibility to facilities.

However, hosteller students reported comparatively greater difficulty in accessing menstrual hygiene products and proper disposal facilities. Inadequate disposal infrastructure in hostels and educational institutions similar findings were reported by Sommer and Sahin 2013, who emphasized the importance of sanitation facilities for effective menstrual hygiene management.³

Regarding personal hygiene practices, most respondents washed the genital area regularly and maintained basic cleanliness during menstruation. However, many students relied only on water for cleaning, while the use of antiseptic or hygienic cleansing products remained limited. Poor menstrual hygiene practices may increase the risk of urinary tract and reproductive tract infections. These findings are supported by studies conducted by Dasgupta and Sarkar 2008.¹ Awareness regarding menstrual hygiene management was moderate among both groups and the access use of internet and media is a major source of information. Similar observations were reported by Kumar and Srivastava 2011.¹¹ Abdominal pain and cramps were the most common menstrual problems faced by students, while rest was the most commonly adopted method for managing discomfort. Overall, the study highlights the need for improved menstrual hygiene infrastructure, awareness programs and institutional support systems, especially for hosteller students.

Limitations

The present study has certain limitations. It was conducted among female students of a single college in Jharsuguda, Odisha, with a relatively small sample size of 100 respondents which may limit the generalizability of the findings. The data were collected using a self-administered questionnaire and were based on self-reported responses, which may be subject to recall bias and social desirability bias. In addition, the cross-sectional study design does not permit the establishment of causal relationships. Therefore, future studies involving larger sample sizes, multiple institutions and diverse geographical settings are recommended.

CONCLUSION

The present study concluded that both hosteller and non-hosteller students possessed adequate awareness regarding menstrual hygiene practices, with the majority

reporting the use of disposable sanitary pads during menstruation. Most respondents followed appropriate personal hygiene practices, including regular washing and bathing during menstrual periods. However, hosteller students experienced comparatively greater difficulties in accessing menstrual hygiene products and proper disposal facilities. Abdominal pain and menstrual cramps were identified as the most common problems faced during menstruation, while rest was the most frequently adopted method for managing discomfort.

The chi-square analysis revealed a statistically significant difference only in the availability of disposal facilities and the frequency of changing sanitary products between hosteller and non-hosteller students. Overall, the findings highlight the need for strengthened menstrual hygiene infrastructure and the implementation of awareness and support programs within educational institutions.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Bi F, Samantaray P. Menstrual hygiene practices and awareness among hosteller and non-hosteller college students: a comparative analysis. *Int J Community Med Public Health* 2026;13:5734-41.