

Menstrual and Hygienic Awareness Among Adolescent Tribal Girls in Mardarajpur Village, Nuapadhi, Balasore

Jyotirmayee Dash¹; Ashis Dash²; Smaranika Mohanty³; Dr. Ranjan Kumar Rout⁴

¹Assistant Professor of Liberal Discipline and Pedagogy (Zoology), ITEP, P.G. Department of Education, Fakir Mohan University, Balasore

²Ph.D. Scholar, P.G. Department of Education, Fakir Mohan University, Balasore

³Lecturer in Education, Dhamnagar College, Dhamnagar, Bhadrak

⁴Assistant Professor of Education, P.G. Department of Education, Fakir Mohan University, Balasore

²ORCID ID: 0009-0003-8443-389X

⁴ORCID ID: 0000-0002-2552-9977

Publication Date: 2026/10/13

Abstract: Menstrual hygiene is a critical aspect of adolescent health, yet it is often affected by stigma, inadequate awareness, and limited access to resources, particularly in tribal and rural communities. This study examined menstrual hygiene practices, knowledge, access to government facilities, and socio-cultural influences among adolescent tribal girls in Mardarajpur village, Nuapadhi, Balasore, Odisha. A cross-sectional descriptive survey design was adopted. Thirty menstruating girls aged 14–19 years were selected through purposive sampling. Data were collected through face-to-face interviews in Odia using a self-developed semi-structured interview schedule containing 15 items. Data were analyzed using frequency and percentage. The findings revealed that 83.33% of respondents used sanitary napkins, while 13.33% used cloth and 3.33% used both. Although 60% changed their absorbent twice daily, 26.66% changed it only after leakage. Disposal practices were unsafe, with 43% disposing of used absorbents in the open and 33.33% burying them. About 70% knew about menstruation before menarche, while 63.33% understood its cause. Mothers (36.66%) and sisters (30%) were the major sources of information. Although 73.33% received free sanitary pads from government centres, only 33.33% considered the supply sufficient. Strong socio-cultural restrictions were observed, including avoiding food or water handling (100%), school attendance (90%), and kitchen entry (83.33%). Despite these challenges, 83.33% supported school-based menstrual hygiene education.

Keywords: Menstrual Hygiene, Tribal Adolescent Girls, Socio-Cultural Taboos, Sanitary Napkins.

How to Cite: Jyotirmayee Dash; Ashis Dash; Smaranika Mohanty; Dr. Ranjan Kumar Rout (2026) Menstrual and Hygienic Awareness Among Adolescent Tribal Girls in Mardarajpur Village, Nuapadhi, Balasore. *International Journal of Innovative Science and Research Technology*, 11(10), 335-340. <https://doi.org/10.38124/ijisrt/26oct280>

I. INTRODUCTION

Menstruation is a natural physiological process marking a critical transition in every adolescent girl's life, yet it remains shrouded in myths, stigma, and silence in many parts of the world (Dasgupta & Sarkar, 2008). In tribal and rural communities, where socio-cultural beliefs are deeply entrenched and access to resources is limited, menstrual hygiene awareness tends to be particularly poor (Kamath et al., 2019). Adolescent girls in these settings often struggle to understand and manage menstruation, a gap that affects not only their physical health but also their educational continuity and social participation (Mahajan et al., 2018).

The lack of proper menstrual hygiene education, combined with limited availability of hygienic absorbents, pushes many tribal adolescent girls toward unhygienic alternatives such as cloth, ashes, or leaves, raising their risk of reproductive tract infections and related health complications (Sarkar et al., 2016). In several tribal communities, the onset of menstruation also triggers social restrictions, physical isolation, and emotional distress, compounding the difficulties these girls already face (Kamath et al., 2019). Research from across India has repeatedly shown that tribal adolescent girls possess poor menstrual knowledge and follow inadequate hygienic practices during their cycles (Kumari, 2022; Mishra, 2020; Patel et al., 2021).

Evidence from states such as Odisha, Gujarat, Andhra Pradesh, and Maharashtra suggests that although menstruation is broadly understood as a biological event, converting this awareness into consistent hygienic behavior remains difficult (Patle & Kubde, 2014; Murthy et al., 2022). Economic constraints, inadequate disposal facilities, and poor school infrastructure discourage girls from maintaining menstrual hygiene and frequently lead to absenteeism during their periods (Mishra, 2020; Davis et al., 2018). This pattern is not unique to India: studies from Ghana, Nepal, Nigeria, Indonesia, and Ethiopia similarly point to poor menstrual hygiene management shaped by cultural taboos, limited education, and restricted access to sanitary products (Mohammed et al., 2020; Yadav et al., 2017; Omolola et al., 2016).

Education plays a well-documented role in breaking the cycle of misinformation and shame surrounding menstruation (Mahajan et al., 2010). Intervention studies have shown that targeted health education programs can meaningfully improve menstrual knowledge and practices among tribal adolescent girls (Lonimath et al., 2017; Patel et al., 2021). Other influential factors include a mother's educational background, access to health workers, and the availability of government-sponsored sanitary products, all of which shape menstrual hygiene outcomes (Gultile et al., 2014; Murthy et al., 2022).

It is against this backdrop that the present study is situated in Mardarajpur village, Balasore district, Odisha a predominantly tribal settlement where menstrual hygiene awareness among adolescent girls remains largely unexamined. Existing literature confirms that tribal populations across states such as Odisha, Jharkhand, Andhra Pradesh, and Gujarat continue to follow distinct cultural practices around menstruation, many of which restrict the movement, diet, and social interaction of menstruating girls (Kumari et al., 2017). Geographic isolation, combined with limited educational and healthcare access, has historically kept awareness levels low in these communities (Patle & Kubde, 2014). A study in tribal Odisha, for instance, found that roughly 64 percent of adolescent girls had inadequate knowledge of menstruation and its hygienic management (Mishra, 2020), a finding echoed by similar studies in tribal districts of Andhra Pradesh and Gujarat documenting continued reliance on unhygienic absorbents despite the presence of government schemes (Murthy et al., 2022; Patel et al., 2021).

Global frameworks such as the United Nations Sustainable Development Goals particularly those concerning health, education, and sanitation have renewed international attention to menstrual hygiene as a matter of rights and dignity, especially for marginalized populations like tribal adolescent girls (Davis et al., 2018). Within this wider context, the present study seeks to examine the existing knowledge, practices, and socio-cultural influences related to menstrual hygiene among adolescent girls in Mardarajpur village. By identifying prevailing gaps in awareness and hygienic practice, the study aims to contribute evidence that can inform culturally appropriate and community-relevant

interventions to improve menstrual health outcomes among tribal adolescent girls in this underserved region.

II. RATIONALE OF THE STUDY

Despite the growing body of research on menstrual hygiene among adolescent girls in India, significant gaps remain, particularly regarding the specific practices, awareness levels, and socio-cultural influences among tribal adolescent girls in Mardarajpur village of Balasore district, Odisha. The present study is therefore significant in that it seeks to fill this gap by providing locally relevant, evidence-based insights into the menstrual hygiene situation of this underserved community (Mishra, 2020; Kumari, 2022), and its findings are expected to inform targeted educational interventions, policy recommendations, and community awareness programs aimed at improving menstrual hygiene practices and overall health outcomes in the region (Patel et al., 2021). A review of the existing literature reveals several specific research gaps that this study addresses. First, although many studies emphasize the importance of menstrual hygiene education, consistent and culturally sensitive educational programs are lacking, particularly in rural and tribal areas, and awareness, though prevalent, is not easily translated into effective hygiene practices (Mishra, 2020; Patel et al., 2021). Second, interventions such as health education sessions and menstrual hygiene corners in schools have shown positive short-term outcomes, but little research examines their long-term impact on health and educational outcomes (Lonimath et al., 2017; Patel et al., 2021). Third, barriers to accessing menstrual hygiene products, especially economic constraints and the absence of proper disposal facilities in rural settings, continue to hinder hygienic practices (Kumari, 2022; Yadav et al., 2017). Fourth, the influence of cultural beliefs and stigma remains insufficiently explored, even though it is a major barrier in communities with strong menstrual taboos (Omolola et al., 2016; Mohammed et al., 2020). Finally, although comparative studies have examined menstrual hygiene among tribal and non-tribal girls (Patle & Kubde, 2014), further research is needed to understand how socio-economic, geographic, and cultural factors shape practices across different populations. Addressing these gaps will support the design of more targeted and effective interventions and policies to improve menstrual hygiene management among adolescent girls.

➤ Objectives of the Study

- To study menstrual hygienic practices adopted by adolescent tribal girls in Mardarajpur village.
- To study the perception of adolescent girls about menstrual hygienic with reference to their knowledge about menstruation, accessing government facilities, socio-cultural norms.
- To suggest measures to improve menstrual hygienic practices among adolescent tribal girls.

➤ Research Questions of the Study

- What menstrual hygiene materials and practices are being used by adolescent tribal girls?

- What is the level of knowledge and awareness among these girls about menstruation?
- Are government facilities such as free sanitary pad distribution being accessed effectively?
- How do social and cultural beliefs influence menstrual hygiene behavior?
- What interventions could improve menstrual hygiene management in this population?

III. METHODOLOGY OF THE STUDY

This study adopted a cross-sectional descriptive survey design, which allows data to be collected from a group of respondents at a single point in time to describe existing practices and levels of awareness. The population comprised all adolescent tribal girls aged 14-19 in Mardarajpur village, Balasore district, from which a sample of 30 girls who had experienced menstruation and were willing to participate was selected through purposive sampling, with the sample size based on feasibility and data saturation. The purposive approach allowed the researcher to deliberately select girls who could provide relevant information. Data were collected using face-to-face Interview in Odia Language using a self-made semi-structured Interview Scheduled containing of 15 simple, culturally appropriate questions in closed-ended and checklist formats. The self-made semi-structured Interview Scheduled covered five dimensions: personal information (3 items), menstrual hygiene awareness (3 items), menstrual hygiene practices (4 items), access to governmental facilities (2 items), and cultural and societal taboos (3 items). Together,

these captured the demographic profile (age, class, caste), knowledge about menstruation (biological understanding, information sources), hygiene practices (products used, changing frequency, washing and disposal methods), awareness of health risks and government schemes (such as sanitary pad availability through schools and Anganwadi centers), and cultural taboos and restrictions. The tool was designed for face-to-face administration, and literate participants could self-administer it. Before data collection, permission was obtained from school authorities and the local administration, along with informed consent from participants and, for minors, from their parents or guardians. Participation was voluntary, and the purpose of the study was explained to all respondents beforehand. Interviews were conducted face-to-face in Odia, the local language, to ensure clarity and comfort. The data were analyzed using percentage analysis, which is simple and suits descriptive survey data, in several phases: compiling and verifying the data; coding, categorizing, and tabulating responses into frequency tables; applying frequency and percentage analysis to identify patterns across all five dimensions; interpreting the results against the research objectives and existing literature; and finally drawing conclusions and formulating recommendations based on the evidence, so that the findings remain grounded in the responses collected.

IV. RESULT AND DISCUSSION

Analysis of menstrual hygienic practices adopted by adolescent tribal girls in Mardarajpur village.

Table 1 Types of Absorbent Use During Menstruation

Types of absorbent	No of person use	Percentage
Sanitary napkin	25	83.33 %
Cloth	4	13.33 %
Both	1	3.33 %

The data shows that sanitary napkins are the dominant menstrual absorbent, used by 83.33% (25 out of 30 people). This indicates a high level of awareness, acceptance, and availability of hygienic menstrual products among the majority. A smaller group, 13.33% (4 people), still relies on cloth, which may suggest factors such as limited access to sanitary products, economic constraints, or

continuation of traditional practices. Only 3.33% (1 person) reported using both cloth and sanitary napkins, indicating that mixed usage is very rare in this group. No respondents reported using other alternatives, such as tampons or menstrual cups, showing a lack of adoption or awareness of these options.

Table 2 Frequency of Changing Pad in a Day

Frequency of changing	No of person do	Percentage
Twice	18	60 %
3 or more times	4	13.33 %
Only when it leak	8	26.66 %

The data indicates that most individuals, 60% (18 people), change their menstrual absorbent twice a day, showing a fair level of hygiene awareness. A smaller proportion, 13.33% (4 people), change their absorbent three

or more times a day, which reflects good hygienic practice. However, a significant group, 26.66% (8 people), change their absorbent only when it leaks, indicating poor menstrual hygiene practices and lack of awareness.

Table 3 Disposal of Sanitary Pad

Way of Disposal	No. of People	Percentage
Bury in ground	10	33.33%
Throw in open	13	43.33%

Others (Drain, Bushes/isolated places, Plastic bag, Waste collectors and Household waste)	7	23.33%
Total	30	100%

The table presents the ways of disposal of used sanitary pads among 30 adolescent tribal girls. The findings indicate that the most common method of disposal was throwing the used sanitary pads in the open, reported by 13 respondents (43.33%). This was followed by burying the used sanitary pads in the ground, reported by 10 respondents (33.33%). The remaining 7 respondents (23.33%) used other methods, including disposal in drains, bushes or isolated places, plastic bags, through waste collectors, and along with household waste.

Overall, the findings show that 76.66% of the respondents disposed of used sanitary pads either by throwing

them in the open or burying them in the ground, indicating that safe and hygienic menstrual waste-management practices were not widely followed. Open disposal, in particular, may create environmental pollution and expose the community to unhygienic waste. The absence of respondents reporting disposal through a dustbin or burning further indicates limited use of some commonly recognized disposal methods. Therefore, the findings highlight the need for awareness regarding safe menstrual waste disposal, access to appropriate waste-management facilities, and community-level interventions among adolescent tribal girls.

Table 4 Washing of Genital Area

Type	No of people	Percentage
Yes , with water only	14	46.66%
Yes, with soap and water	16	53.33%

The data reflects good menstrual hygiene practices among the respondents in terms of cleaning. A slight majority, 53.33% (16 people), clean using soap and water, which is considered the most hygienic and recommended method. Nearly half, 46.66% (14 people), clean using water only. While this shows awareness of the need for cleaning, it is less effective compared to using soap and water. Importantly, 0% of respondents reported not cleaning at all, which is a positive finding.

To study the perception of adolescent girls about menstrual hygienic with reference to their knowledge about menstruation, accessing government facilities, socio-cultural norms.

Analysis of Perception of adolescent girls about menstrual hygiene with reference to their knowledge about menstruation.

Table 5 Analysis of Adolescent Girls' Knowledge about Menstruation

Sl. No.	Aspect of Menstrual Knowledge	Response/Source	No. of Respondents	Percentage (%)
1	Awareness before first period	Yes	21	70.00
		No	9	30.00
2	Source of knowledge	Mother	11	36.66
		Sister	9	30.00
		Friend	7	23.33
		Teacher	3	10.00
3	Knowledge about why menstruation occurs	Yes	19	63.33
		No	11	36.66

The table shows that 70.00% (21) of the adolescent girls were aware of menstruation before their first period, while 30.00% (9) were not aware. Regarding the source of knowledge, the mother was the major source (36.66%, 11), followed by sisters (30.00%, 9), friends (23.33%, 7), and teachers (10.00%, 3). Further, 63.33% (19) of the girls knew why menstruation occurs, whereas 36.66% (11) did not have this knowledge. Overall, the findings indicate that although a majority of adolescent girls possess basic awareness about menstruation, a considerable proportion still lack adequate

knowledge. The dependence mainly on family members and peers, along with the limited role of teachers and health workers, suggests the need for systematic and scientifically accurate menstrual-health education through schools, parents, and healthcare professionals.

Analysis of Perception of adolescent girls about menstrual hygiene with reference to accessing government facilities and Socio-Cultural Restrictions.

Table 5 Analysis of Adolescent Girls' Perceptions Regarding Accessing Government Facilities and Socio-Cultural Restrictions

Sl. No.	Aspect	Response/Category	No. of Respondents	Percentage (%)
1	Receiving free sanitary pads from government centre	Yes	22	73.33
		No	8	26.66
2	Sufficiency of sanitary pads for monthly needs	Yes	10	33.33

		No	12	40.00
3	Restriction during menstruation	Entering kitchen	25	83.33
		Attending school	27	90.00
		Touching food or water	30	100.00
4	Feelings during menstruation in school/community	Embarrassed	11	36.66
		Ashamed	5	16.66
		Fearful	7	23.33
		Normal	7	23.33
5	Need for menstrual-hygiene education in school	Yes	25	83.33
		No	5	16.66

The table reveals that 73.33% (22) of the adolescent girls reported receiving free sanitary pads from government centres, while 26.66% (8) did not. However, only 33.33% (10) considered the supplied pads sufficient for their monthly needs, whereas 40.00% (12) reported that the pads were insufficient, indicating a possible gap between the availability and adequacy of menstrual-hygiene resources. With regard to socio-cultural restrictions, 100% (30) of the respondents reported restrictions on touching food or water, 90.00% (27) reported restrictions related to attending school, and 83.33% (25) reported restrictions on entering the kitchen. The emotional responses further indicate the influence of menstrual stigma, as 36.66% (11) felt embarrassed, 23.33% (7) felt fearful, and 16.66% (5) felt ashamed, while only 23.33% (7) felt normal. Despite these restrictions and negative emotional experiences, 83.33% (25) of the respondents believed that girls should receive menstrual-hygiene education in school, while only 16.66% (5) disagreed. Overall, the findings indicate that although government support through sanitary-pad distribution reaches a majority of girls and there is strong support for school-based menstrual education, inadequate supply, restrictive socio-cultural practices, school absenteeism, and menstrual stigma remain significant concerns. These findings emphasize the need for comprehensive menstrual-hygiene education, adequate sanitary-pad provision, and awareness programmes involving schools, families, and communities.

➤ *To Suggest Measures to Improve Menstrual Hygienic Practices Among Adolescent Tribal Girls*

The findings obtained from the study indicate the need for strengthening menstrual hygiene awareness, access to sanitary materials, personal hygiene practices, and safe disposal of menstrual waste. The data on disposal practices show that 13 respondents (43.33%) threw used sanitary pads in the open, 10 (33.33%) buried them in the ground, and 7 (23.33%) used other methods such as drains, bushes or isolated places, plastic bags, waste collectors, and household waste. These findings indicate inadequate awareness and limited availability of appropriate menstrual waste-disposal facilities. Therefore, regular menstrual hygiene education should be provided through schools, Anganwadi centres, health workers, and community programmes, with emphasis on proper use and timely changing of sanitary pads, hand hygiene, personal cleanliness, and safe disposal practices. Easy availability of affordable or free sanitary pads through government schemes should also be ensured. Parents, teachers, ASHA workers, Anganwadi workers, and community leaders should be involved in creating a

supportive environment and reducing menstrual-related myths, stigma, and embarrassment. Adequate water, sanitation, privacy, and appropriate disposal facilities should be provided at the community and school levels. Overall, the findings suggest that a comprehensive, culturally appropriate, and community-based menstrual hygiene intervention is required to improve the menstrual health and hygienic practices of adolescent tribal girls.

V. CONCLUSION

The present study concludes that menstrual hygiene awareness and practices among adolescent tribal girls in Mardarajpur village present a mixed picture. Although 83.33% of the respondents use sanitary napkins, some girls continue to use cloth, and 26.66% change their absorbent only when leakage occurs, indicating gaps in appropriate menstrual hygiene practices. Disposal practices are a major concern, as 43% throw used absorbents in the open and 33.33% bury them in the ground, while none use dustbins or other clearly hygienic disposal methods. On the positive side, all respondents reported cleaning their genital area during menstruation, with 53.33% using soap and water and 46.66% using water only. The study also reveals that menstrual knowledge is largely obtained from family members, particularly mothers and sisters, while the contribution of teachers and health workers is limited. Although 70% of girls were aware of menstruation before their first period and 63.33% knew why menstruation occurs, a considerable proportion still lacked adequate knowledge. Government support is reaching many respondents, with 73.33% receiving free sanitary pads; however, the available supply is not sufficient for all girls.

Most importantly, strong socio-cultural restrictions continue to affect the girls' lives. Restrictions on touching food or water, entering the kitchen, and attending school were reported by a substantial proportion of respondents, while embarrassment, shame, and fear were common emotional experiences. Therefore, the study concludes that improving menstrual hygiene among tribal adolescent girls requires more than providing sanitary products. Regular school-based menstrual health education, safe disposal facilities, adequate sanitary materials, parental and teacher involvement, and culturally sensitive community awareness programmes are essential for promoting healthy practices, reducing stigma and restrictions, and ensuring girls' dignity, health, and educational participation.

REFERENCES

- [1]. Aggarwal, S., Ambalkar, D., Madhumathi, J., Badge, V., & Humne, A. (2021). Menstrual hygiene practices of adolescent girls in rural Maharashtra. *Indian Journal of Gender Studies*, 28(1), 90–104. <https://doi.org/10.1177/0971521520974879>
- [2]. Chinta, K., P., S., V., C., C., J., & A., G. (2018). Menstrual hygiene patterns and practices among rural adolescent school girls. *International Journal of Community Medicine and Public Health*, 5(12), 5190–5194. <https://doi.org/10.18203/2394-6040.ijcmph20184788>
- [3]. Dasgupta, A., & Sarkar, M. (2008). Menstrual hygiene: How hygienic is the adolescent girl? *Indian Journal of Community Medicine*, 33(2), 77–80. <https://doi.org/10.4103/0970-0218.40872>
- [4]. Davis, J., Macintyre, A., Odagiri, M., Suriastini, W., Cordova, A., Huggett, C., Agius, P. A., Faiqoh, F., Gibson, L., Luchters, S., & Kennedy, E. (2018). Menstrual hygiene management and school absenteeism among adolescent students in Indonesia: Evidence from a cross-sectional school-based survey. *Tropical Medicine & International Health*, 23(12), 1350–1363. <https://doi.org/10.1111/tmi.13159>
- [5]. Fehintola, F. O., Fehintola, A. O., Aremu, A. O., Idowu, A., Ogunlaja, O. A., & Ogunlaja, I. P. (2017). Assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo state, Nigeria. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. <https://doi.org/10.18203/2320-1770.ijrcog20171932>
- [6]. Kumari, S., Sood, S., Davis, S., & Chaudhury, S. (2021). Knowledge and practices related to menstruation among tribal adolescent girls. *Industrial Psychiatry Journal*, 30(Suppl. 1), S160–S165. <https://doi.org/10.4103/0972-6748.328808>
- [7]. Langer, B., Mahajan, R., Gupta, R. K., Kumari, R., Jan, R., & Mahajan, R. (2015). Impact of menstrual awareness and knowledge among adolescents in a rural area. *Indian Journal of Community Health*.
- [8]. Lonimath, A., Ravish, K. S., Ranganath, S., & Vishwanatha, V. (2017). Effect of health education on knowledge and beliefs about menstruation among adolescent girls studying in a tribal school of Mysore—A quasi-experimental study. *RGUHS National Journal of Public Health*, 2(4). https://doi.org/10.26463/rnjph.2_4_2
- [9]. Mahajan, A., & Kaushal, K. (2017). A descriptive study to assess the knowledge and practice regarding menstrual hygiene among adolescent girls of Government School of Shimla, Himachal Pradesh. *CHRISMED Journal of Health and Research*, 4(2), 99–103.
- [10]. Mishra, P. (2020). Periods, perceptions and practice: A study of menstrual awareness among adolescent girls in a tribal district of Odisha, India. *Indian Journal of Public Health Research & Development*, 11(6). <https://doi.org/10.37506/ijphrd.v11i6.9844>
- [11]. Mishra, P. (2020). *Periods, perceptions and practice: A study of menstrual awareness among adolescent girls in a tribal district of Odisha, India*. *Indian Journal of Public Health Research & Development*, 11(6). <https://doi.org/10.37506/ijphrd.v11i6.9844>
- [12]. Mohammed, S., & Larsen-Reindorf, R. E. (2020). Menstrual knowledge, sociocultural restrictions, and barriers to menstrual hygiene management in Ghana: Evidence from a multi-method survey among adolescent schoolgirls and schoolboys. *PLOS ONE*, 15(10), e0241106. <https://doi.org/10.1371/journal.pone.0241106>
- [13]. Mohammed, S., Larsen-Reindorf, R. E., & Awal, I. (2020). Menstrual hygiene management and school absenteeism among adolescents in Ghana: Results from a school-based cross-sectional study in a rural community. *International Journal of Reproductive Medicine*, 2020, Article 6872491. <https://doi.org/10.1155/2020/6872491>
- [14]. Mudi, P. K., Pradhan, M. R., & Meher, T. (2023). Menstrual health and hygiene among Juang women: A particularly vulnerable tribal group in Odisha, India. *Reproductive Health*, 20, Article 55. <https://doi.org/10.1186/s12978-023-01603-1>
- [15]. Mudi, P. K., Pradhan, M. R., & Meher, T. (2023). Menstrual health and hygiene among Juang women: A particularly vulnerable tribal group in Odisha, India. *Reproductive Health*, 20, Article 55. <https://doi.org/10.1186/s12978-023-01603-1>
- [16]. Murthy, K. S. K., Mounika, S., Hanumanth, N., & Kolli, B. (2022). Knowledge and practice of menstrual hygiene among tribal adolescent girls in Visakhapatnam district, Andhra Pradesh. *International Journal of Community Medicine and Public Health*, 9(8), 3269–3274. <https://doi.org/10.18203/2394-6040.ijcmph20222035>
- [17]. Patle, R., & Kubde, S. (2014). Comparative study on menstrual hygiene in rural and urban adolescent girls. *International Journal of Medical Science and Public Health*, 3(2), 129–132. <https://doi.org/10.5455/ijmsph.2013.161020133>
- [18]. Sarkar, I., Dobe, M., Dasgupta, A., Basu, R., & Shahbabu, B. (2017). Determinants of menstrual hygiene among school going adolescent girls in a rural area of West Bengal. *Journal of Family Medicine and Primary Care*, 6(3), 583–588. <https://doi.org/10.4103/2249-4863.222054>
- [19]. Yadav, R. N., Joshi, S., Poudel, R., & Pandeya, P. (2017). Knowledge, attitude, and practice on menstrual hygiene management among school adolescents. *Journal of Nepal Health Research Council*, 15(3), 212–216. <https://doi.org/10.33314/jnhrc.v15i3.1164>