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Original Research Article

MENSTRUAL HYGIENE MANAGEMENT PRACTICES AND ABSENTEEISM AMONG HIGH SCHOOL GIRLS: A CROSS-SECTIONAL STUDY FROM NORTHERN KERALA

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ABSTRACT

Background: Aim: Menstrual Hygiene Management (MHM) is a fundamental aspect of health and dignity for adolescent girls. Despite reproductive and public health initiatives, cultural taboos and inadequate infrastructure still pose challenges. **Materials and Methods:** A cross-sectional study was conducted among tenth standard students of a government school in Northern Kerala. **Results:** Mean age was 15.1±0.79 years, and mean age of menarche was 12.4+0.77 years for the study population of 212 girls. 75.7% had regular cycles. While sanitary pad usage was nearly universal (96.3% at school) and at home, menstrual cups and period underwear were not at all used. Only 59.9% changed pads at the recommended frequency (every 4–6 hours or less) and 88% disposed it in the designated waste bins. Based on our scoring,40% practised good MHM. Mothers were the primary source of information, not teachers or health workers and only 36% knew the front-to-back genital washing technique. School absenteeism was reported by 58.9% during last year. Physical morbidity was high with 75.5% reporting menstrual pain and 33.2% reporting pad-related allergies, yet only 5.1% sought medical consultation. School infrastructure was particularly lacking regarding soap availability (3.3%). Based on self- reporting 75.9 % had body weights below 40kg and 71.2 % had BMI less than 18.5. **Conclusion:** High literacy does not automatically translate to "perfect" menstrual hygiene practices. Gaps in practical knowledge, school facilities, and healthcare-seeking behaviour persist. Interventions should strengthen health education, nutritional education, maternal involvement, and school infrastructure.

INTRODUCTION

Menstruation is a natural biological process, yet in many parts of India, it remains as a critical public health issue among adolescent girls, with future implications on their health, education, employment, well-being and self- esteem.[1,2] Poor water, sanitation and Hygiene (WASH) facilities in schools ,inadequate puberty education and lack of hygienic Menstrual Hygiene Management (MHM) products make girls feel it shameful and uncomfortable. Proper (MHM) requires access to clean absorbents, facilities to change in privacy, and adequate knowledge to prevent reproductive tract infections (RTIs).[3] CDC defines good menstrual hygiene practices as use of absorbent menstrual product, frequent change, safe disposal and hand hygiene.[4] Governments have taken initiative to improve menstrual hygiene. One of the measures for assessing progress in menstrual health is to asses prior menstruation information and current MHM practices.[5] Poor menstrual health is associated with Reproductive Tract Infections(RTI), psychological distress, and significant school absenteeism.[2]

Kerala is often cited as a model for public health in India due to its high female literacy and low infant mortality and maternal mortality. Kerala has launched many initiatives like She pad scheme, M cup scheme, menstrual waste management infrastructure, menstrual education and behaviour change initiatives under the Kerala State Women's Development Corporation Ltd. The objective of this study was to assess the menstrual hygiene management practices and menstrual problems among adolescent girls attending a government school located in a municipality of Northern Kerala.

MATERIALS AND METHODS

This was a school based cross sectional survey among students of tenth standard. Data collection was done in August 2025.Printed semi structured questionnaire in local language were administered and investigators explained how to fill it and which was collected back after defined time. Due to time constraints, anthropometric measurements were not taken but recorded by students themselves. **Sample Size:** Using the formula $N=4pq/d^2$; minimum sample size obtained was 198 taking proportion of good menstrual hygiene of 66% based on findings from Bushal C K et al,[6] final 214 respondents. **Sampling.** The school was chosen randomly and participants were selected by consecutive sampling till sample size is met. **Data Collection Tool:** Pre-tested semi-structured questionnaire covering socio-demographics, menstrual history, menstrual hygiene management practices, menstrual problems and their management, restrictions, school facilities in regional language was used. Trained investigators visited each classroom and supported in data entry. We developed a scoring for good menstrual hygiene based on CDC criteria, which included the use of absorbent menstrual product, frequent change of the product, hand hygiene and correct disposal.[7,8] **Analysis:** was done using SPSS v16; continuous variables were represented as mean and standard Deviation (SD) and chi-square tests at significance level $p<0.05$ were used.**Ethics:** the study was conducted after institutional ethics committee approval. Permission from school authorities and parents and assent were taken before data collection.

RESULTS

Among the 214 students who returned the profroma,212 attained menarche.Mean age of the study population was 15.1 (± 0.79) yrs.

Parental education and occupation status

Mothers were mostly educated upto high school (43.9%, n=93) or higher secondary (30.1%, n=64). Though 46 (21.7%) of the mothers were having education of degree and above, majority (86.3%) were home makers. Only 9% were professionals and 1.9% were involved in manual labour.

Regarding father's occupation 40.1%(n=85) were skilled workers, 33%(n=72) were manual labourers,13.15(n=28) were working abroad and 12.8%(n=26) were professionals 3 (1.4%)were unemployed and 2 were dead. Most of the girls had not entered details of father's education.

Reported anthropometry

We analysed the self -reported anthropometric measurements entered by the participants which is shown in Table 1.

Majority (75.9%) of the reported weights were below 40kg and 71.2 % had BMI less than 18.5 as per adult standards.

Menstruation Profile

The mean age of the participants was 15.1±0.79 years, and the mean age of menarche was 12.4 +0.77 years. A majority (75.7%) reported regular menstrual cycles. The cycle duration ranged from 1day to 11 days with average of 6.57+0.54 days.52 had reported of irregular cycle, of which 26 had periods less than 23 day's intervals and 6 had more than 35day's interval.

Previous information regarding menstruation

147 (69.3%) students reported of having prior information on menstruation and the source of their information was mainly mothers 90 %. None of them reported of health worker or teacher as source of information.26 (12.3%) had doubts regarding menstruation which mainly was about reason for pain during menstruation, safety of menstrual cup, allergy to sanitary pad, and irregularity of periods.

MENSTRUAL HYGIENE MANAGEMENT

We prepared the scoring system considering the variables of the sanitary product used at school and home separately (pads/menstrual cup/tampon/period panty score= 2 cloth=1 ,frequency of changing the product, change <4 hrs=3 ,for 4-6hrs =2 and >6hrs =1, proper disposal of sanitary product at school (disposal in designated bin=3 , take home =2 others =1, Hand hygiene after changing the product (yes =1 No =0), direction of cleaning the genital area (front to back =3,unsure =2 back to front =1) and use of product for cleaning genital area (water only =1 others like soap,

Dettol =0). The maximum score in this is 15 and we considered score >13 as good menstrual hygiene management. Based on our scoring 85 had good MHM practises and 127 scored less than 13, with half (110) of the study population having scores 11-12. Responses for individual questions were shown in Table 2.

Since 15% girls still used cloths as the sanitary product, we gathered details regarding maintenance of cloth-majority used the same cloth for up to 3 months or less, half of them were drying it inside the house rather than sun drying or ironing.

We also asked about the pad requirement for first three days of menstruation. 45% required 3 pads per day for first 3 days,5% had to use more than 5 pads for first 3 days.84.4% practiced daily bathing during menstruation and 90.6% changed pads before bedtime.

Menstrual morbidity and school absenteeism

Regarding menstrual problems,133(62.7%) students reported some discomfort in association with menstruation, but only 5.2% had a medical consultation for that.160(75.5%) had abdominal pain associated with menstruation and 82(38.7%) used hot water bags for pain management, 28(13.2%) resorted to use of pain killers ,50 adopted other traditional measures like drinking fenugreek water. Some said they suffered silently. 125 (58.9%) students had to take leave from school either once or more during last year. 6 students cut class every moth during

menstruation. Students reported multiple reasons for school absenteeism as shown in Table 3.

We analysed the presence of menstrual pain, pad allergy, previous information and school absteeism across MHM scores but no significant finding was observed.

Restrictions during menstruation

70 (33%)reported that they faced restrictions during menstruation and all of them had religious restriction ,6 had diet restriction and 3 had physical activity restriction. One reported of having to stay in a separate room.

Students perception of WASH

Although schools are expected to have girl's friendly toilets, the same was perceived differently by students. Majority (54.2%) reported that girls friendly toilets were present, but it was not clean and designated bins were inadequate. Though everyone practiced hand hygiene after change of menstrual product, 96.2 reported lack of soap in schools and 19.3 reported of carrying soap for personal use.

Table 1: The Distribution of self -reported anthropometric measurements

	Variable (n= No of respondents)	Mean + SD,95%CI	Range
1.	Height (n=160)	152.9+9.5(151.62,154.17)	130,186
2.	Weight (n=198)	38.3+ 8.4 (37.16,39.43)	30,69
3.	BMI (n=156)	16.6+3.6(16.11,17.08)	11.07,26.6

Table 2: Menstrual Hygiene Management Practices

Item	Options	Frequency	%(n=212)
Sanitary product used at home	Sanitary napkin Cloth Others (Tampon, period panty)	177 33 2	83.5 15.6 0.9
Sanitary product used at school	Sanitary napkin Cloth Others	206 6	97.2 2.8
Duration before changing the product	<4hrs 4-6 hrs >6 hrs	33 94 85	15.6 44.3 40.1
Disposal of sanitary product at school	Designated bin Closet Don't change	187 12 13	88.2 5.7 6.1
Disposal of sanitary product at school	Burning Disposal in closet Disposal in compost pit	97 91 24	45.8 42 11.2
Hand wash after changing the product	Yes	212	100%
Direction of wash in genital area	Front to back Back to front Not sure	76 11 125	35.8 5.1 59
Cleaning the genital area	Using water Soap and water Others	97 99 16	45.8 46.7% 7.5

Table 3: Reasons for School absenteeism

	Reason for school absenteeism	N(%*)
1.	Abdominal pain	67 (31.6%)
2.	Low backache	40 (18.8)
3.	Vomiting	39 (18.3%)
4.	Heavy bleeding	40(18.8%)
5.	Irritability	36 (16.9%)
6.	Leaking	19(8.9%)
7.	Unavailability of sanitary pads	11(5.1%)
8.	Headache	14(6.6%)

DISCUSSION

The findings of this study highlight a significant disparity between menstrual product accessibility and the actual quality of Menstrual Hygiene Management (MHM) practices. While pad usage was substantially higher than the national pooled estimates of 45%–57.6%.[3,9,10] Most of the adolescents had prior information regarding menstruation and mothers remained the primary and often sole source of information (89.7%–95%).[11,12] Despite the mothers' high educational status, a significant knowledge deficit exists regarding medical hygiene. Only 36% of girls practiced the recommended "front-to-back" genital washing, and many used chemical agents like Dettol or soap. This suggests that maternal education lacking specific health literacy, could lead to the "intergenerational perpetuation" of myths, emphasising the need of active intervention by health workers.[13]

Even though menstrual product usage was adequate we observed a critical gap in the quality of management, namely a 43.9% of girls changed pads at the recommended 3–6 hour frequency, while national data shows a similar struggle with changing absorbents due to lack of privacy and facilities.[12,13] Disposal of sanitary product at home was another area of concern as many burned the product, a minority didn't change pad at school and resorted to disposal at closet even though majority reported presence of designated dustbin in school. A similar age of menarche (12-14 yrs), lesser proportion of regular periods (37.2%) and dysmenorrhea (61.9%) and use of absorbent menstrual product (70.7%) was observed in Karnataka based study in 2020. Though we had a less proportion using cloths at home they opted to dry it without sunlight as observed in Karnataka study. Practice of use of soap for cleaning genital area, school absenteeism, disposal of pads by burning, perception of WASH facilities, restrictions during menstruation were also comparable with our findings.[14] Similar to our study score , 61.45% of females were found to maintain poor menstruation hygiene among adolescent girls in slums of Sliguri.[15]

An urban based study in 2016, from Kerala had similar age of menarche, irregularity of cycles, dysmenorrhoea. The mean body weight of adolescents in their study was 40.7 kg.[16]

Our finding on health seeking behaviour (5.1%) for menstrual pain was matching with national trends where menstruation is often viewed as a "private burden".

School absenteeism was significantly higher in our study (58.9%) compared to the national pooled prevalence of 24% reported in large-scale reviews.[3] The primary driver for this absenteeism across all sources is a combination of pain and inadequate school infrastructure.

Multiple studies mentioned of school absenteeism, cultural restrictions and lack of infrastructure.[17,18] Menstrual morbidity as dysmenorrhoea which also contributed to 29.5% Gynec OPD consultations,[19] We noted a near-total absence of soap in school (3.3%), broader sources confirm that poor WASH facilities—including lack of private, gender-segregated toilets—are a major deterrent to school attendance.

Even though self -reported, the nutritional profile of our participants was concerning with 71.2% of participants being underweight (BMI < 18.5 of adult standards). This is notably higher than urban Thrissur (28.8%) but resonates with findings from Delhi (54.3%).[20] The physiological link between low BMI, micronutrient deficiency, and increased pain sensitivity likely explains the high prevalence of dysmenorrhea (61.9%) and subsequent absenteeism.[21,22] As in paediatrics, the undernutrition cycle perpetuates, as per the finding of 11% underweight and 78.3% dysmenorrhoea among first year MBBS, BDS, and nursing students.[23] Our findings suggest that menstrual pain in this population is a complex interplay of biological vulnerability (undernutrition) and environmental stress (poor WASH facilities).

Good menstrual hygiene management requires a multifaceted approach, addressing sociocultural and behavioural factors along with improvement in awareness, access to low-cost sanitary pads, and improved WASH (water, sanitation, and hygiene) facilities.[24,25] Though there were earlier mentions on how inequitable school environments negatively impacted girls ability to succeed academically and while acknowledging that poor MHM is a neglected social issue, there is limitation on research on its impact on girls lives.[26]

Limitations

Actual anthropometric measurements were not taken as part of this study, which demands further exploration of association of undernutrition with menstrual morbidity.

CONCLUSION

The observations over years revealed the transition toward use of modern products, yet a prevailing "hygiene paradox" where high product usage does not guarantee optimal practice of menstrual health management always, which demands further improvement in infrastructure, cultural attitude and more vision in provision of logistics. Physical health and nutritional status during adolescence should also be under surveillance and acted upon.

Recommendations

1. **Infrastructure:** Schools must ensure the availability of soap and clean water in toilets, not just disposal bins.
2. **Education:** Shifting the narrative from maternal guidance to school-based, Health education on correct washing techniques and the importance of frequent changes.
3. **Medical Support:** School health programs should screen for underlying nutritional deficiencies and normalize seeking medical help for menstrual pain and allergies to reduce absenteeism.
4. **Nutritional Support:** Integrating menstrual health with adolescent nutritional interventions to reduce menstrual morbidity.

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