

Exploring Menstrual Hygiene Practices and Associated Genital Infection Patterns among Students in a Medical College in South Kerala: A Cross-Sectional Study

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Abstract:

Introduction: Menstrual hygiene is a critical aspect of women's health that encompasses practices and facilities necessary for women and girls to manage menstruation safely and hygienically. Despite significant advancements in healthcare, menstrual hygiene practices remain a matter of concern, especially in regions with limited resources and cultural barriers. South Kerala, known for its diverse cultural landscape and socio-economic disparities, presents a unique context for exploring the relationship between menstrual hygiene methods and genital infection rates, particularly among students in medical colleges. This paper aims to delve into this crucial intersection by investigating the usage of different menstrual hygiene methods and the pattern of genital infections among female students. This study aimed to assess the various menstrual hygiene methods used by students in a medical college in South Kerala and the genital infections associated with it.

Methods: This cross-sectional study was conducted among 360 female medical students of Dr. SMCSI Medical College, Karakonam, Kerala. Data was collected via Google forms using a pretested, semi-structured questionnaire.

Results: 333 (92.5%) of the students are using disposable pads as their primary methods of menstrual hygiene followed by 23 (6.3%) using menstrual cups. Among the study participants 33 (9.2%) of them had or currently having reported of genital infections. It was found that those with less frequent pad changes had a higher risk of infections, though no direct association was found between infection rates and menstrual hygiene methods

Conclusions: This study sheds light on the menstrual hygiene practices and health outcomes among female medical students in South India. The study underscores the need for targeted public health interventions to improve menstrual hygiene practices and reduce infection rates among college students.

Keywords: Menstrual Hygiene, Genital Infection Patterns.

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Introduction

Menstrual hygiene is a critical aspect of women's health, yet it remains a subject often shrouded in silence and stigma, particularly in resource-constrained settings. In India, where cultural norms and socioeconomic factors intersect with healthcare access, understanding menstrual hygiene practices and their impact on genital health is of paramount importance. This paper aims to investigate the menstrual hygiene methods employed by students in a medical college in South Kerala and explore their association with genital infection rates.

South Kerala, characterized by its unique cultural milieu and diverse socioeconomic landscape, presents an intriguing context for studying menstrual hygiene practices among college

students. Medical colleges, serving as hubs of knowledge and healthcare provision, offer a fertile ground for understanding these practices among a cohort deeply immersed in healthcare education and practice.

Studies have proven that, Learning about menstrual hygiene and health is essential for adolescent girls' health education to continue working and maintaining hygienic habits. Infections of the reproductive system and their repercussions can be avoided with better awareness and safe menstruation practices [1]. Various studies in the past have revealed the importance of improving knowledge of menstrual hygiene even among medical students. The influence of sociocultural

factors and access to resources on menstrual hygiene practices, emphasizing the need for targeted interventions within college settings were also discussed in these studies [2,3]. There are also studies which have looked for the association of genital infections with menstrual hygiene practices among female students and the authors have underscored the importance of promoting proper menstrual hygiene practices to prevent genital infections among this population [4].

The findings of this study hold significant implications for public health interventions and healthcare policies aimed at improving menstrual hygiene and genital health outcomes among college-going women. By shedding light on the current practices and challenges faced by students in a medical college in South Kerala, this research endeavours to inform targeted interventions that are culturally sensitive, contextually relevant, and effective in promoting women's health and well-being.

Despite growing awareness campaigns and initiatives aimed at promoting menstrual hygiene, challenges persist, particularly among young adults navigating the transition to adulthood. This study seeks to contribute to the existing literature by providing empirical insights into the prevalence of various menstrual hygiene methods among female students in a medical college setting. Additionally, it aims to assess the pattern of genital infections and explore potential associations with menstrual hygiene practices.

Materials and Methods:

The study employed a cross-sectional design to examine menstrual hygiene practices and genital infection rates among female medical students at Dr. Somervell Memorial CSI Medical College Hospital, Karakonam, Trivandrum. Study was conducted during August to October 2023. Data collection commenced after Institutional Ethics Committee approval. Participants, comprising female medical students aged 18 years and above

who provided informed consent, were included, while house surgeons and non-consenting individuals were excluded. Sample size was calculated as 132 with prevalence of menstrual cup use among young adults (least prevalence) as 9% from referral study and error of 5% with expected response rate of 80%, 159 sample size was decided. Data collection was conducted via Google Forms, with a pre-designed semi-structured questionnaire distributed through the College female students WhatsApp group. Reminder was given for 3 consecutive days to encourage participation. Participant information sheet followed by consent form was attached at the 1st page of the link and questionnaire was provided as forms for those who consented for the study. The questionnaire included questions on Socio-demographic variables of the study participant, Questions on menstrual hygiene practices and genital infection history.

Checks and validation of the forms were done to ensure completion of questionnaire and to prevent missing data. A Participant health education page on the good menstrual hygiene practices was displayed at the end of the questionnaire. Among the students participated, a total of 360 female students had complete data available and was taken for analysis. Data analysis was performed using trial version of SPSS, with findings presented descriptively.

Sociodemographic variables, menstrual hygiene methods, and genital infection variables were assessed. Operational definitions for genital tract infections were established based on clinical criteria. Chi square test was used to look for any association between the menstrual hygiene methods and genital infections.

Results:

The data of 360 female students participated in the study was available for data analysis. The socio demographic profile of the study participants is summarized in the table no 1.

Table 1: Sociodemographic profile of the participants

		Frequency	Percentage
Age Group	Up to 19	57	15.8
	20	76	21.1
	21	85	23.6
	22	86	23.9
	23	43	11.9
	24 and above	13	3.6
Area	Rural	159	44.2
	Urban	201	55.8
Religion	Christian	218	60.6
	Hindu	110	30.6
	Muslim	31	8.6
	Others	1	0.3
Marital Status	Married	3	0.8

Type of family	Single	357	99.2
	Joint	12	3.3
	Three generation	36	10
	Nuclear	312	86.7
Education of the head of the family	Diploma	48	13.3
	Graduate	129	35.8
	High School	30	8.3
	Illiterate	2	0.6
	Professional degree	151	41.9
Stay	Day Scholar	31	8.6
	Hosteller	329	91.4
Bathroom type	Attached	117	35.6
	Common	212	64.4

The mean age of the study participants was 21years (SD 1.51). 50% of the students were residing in urban area. Which when comparing with India’s population distribution 72.2% are living in rural area while 27.8% are of urban population.

Through the study we came to know that 60.6 % of study participants belongs to Christian community. Among 360 study participants, 3 of them were married. 86.7 % of the study participants belong to the nuclear type family. About 42% of participants have their head of family with educational qualification of a Professional Degree. Majority, I.e. 54.8% of the families of the study participants where having a family size of 4 (Mean- 4.45). Majority (91.4%) of the participants are hosteller with only 8.6% is day scholars.

Among the 31 day-scholars 64.52% of them are using well water, 29.03% of them are using municipal water source and 6.45% of them are

using bore well water as the source of water for domestic use. 64.44% of them are using common bathrooms and 35.56% of them are using attached bathroom.

Majority (80%) are having a cycle length between 21-35 days which lies in the normal range. 10.6% of people having a cycle length more than 35 days and 9.4% of them are having cycle length of less than 21 days We found that 65% are not having any clot but the rest of them are having either clot during periods or due to excess flow (Figure 1). Among the 360 participants 13.1% of them had history of PCOD

Majority of participants were using disposable pad as the primary absorbent and rest of 7.5% of participants are using other methods among them. 2 students of them are still using cloth as absorbent (Figure 1).

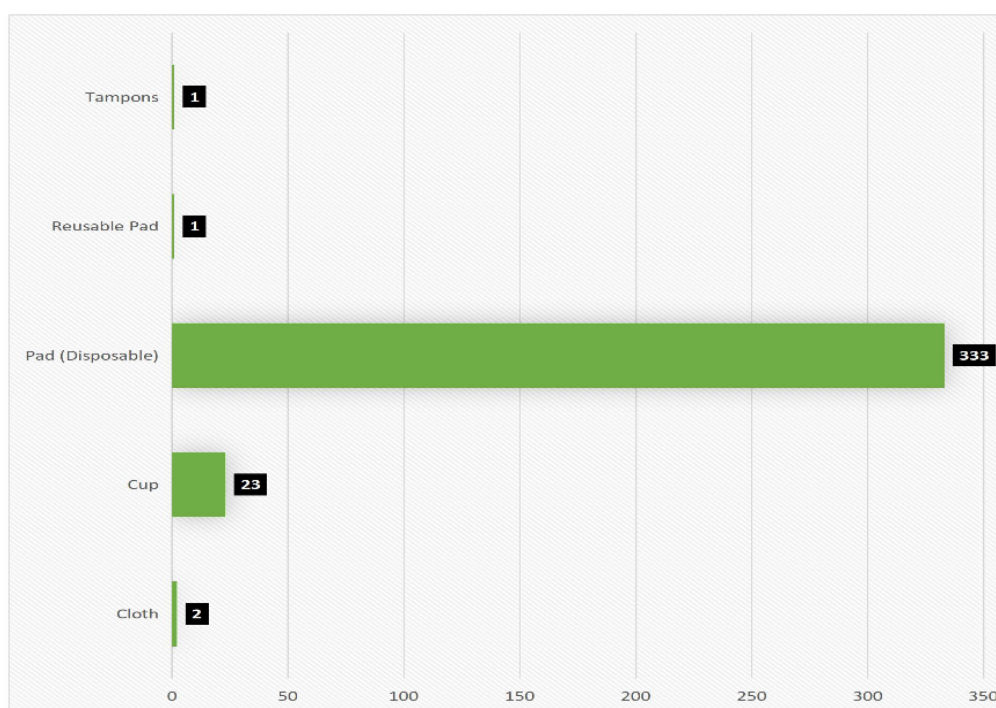


Figure 1: Preference of Absorbent Used By the Participants

From the study we found that 98.1% of them said disposable pad is the most available method in their locality. Majority (63.6%) of the study participants spend about Rs.. 100 to Rs.. 500 on the absorbent followed by 31% spend less than 100 and 5.4% of the participants spending more than 500Rs per month on an average. .

Among 360 Participants 32.3 % of have reported to have facing issues with the absorbent they use specially leakage. These issues of leakage can be predisposing towards genital infections. Although Most of the participants said they got introduced to their absorbent method through their own family,

only about 5 % of the participants had said that the family influence was there for choosing the current choice of absorbent method. During the analysis we noticed that social media has only little influence (3.3%) among participants in choosing the method for absorbent.

Among those using menstrual cups, it was either introduced by Friends or social media only. Majority of the participants had medium amount of flow as they change the absorbent thrice a day. Most (39.72%) of the participants changed pads only 3 times a day followed by twice daily (26.67%) and four times daily (21.39%) (Figure 2).

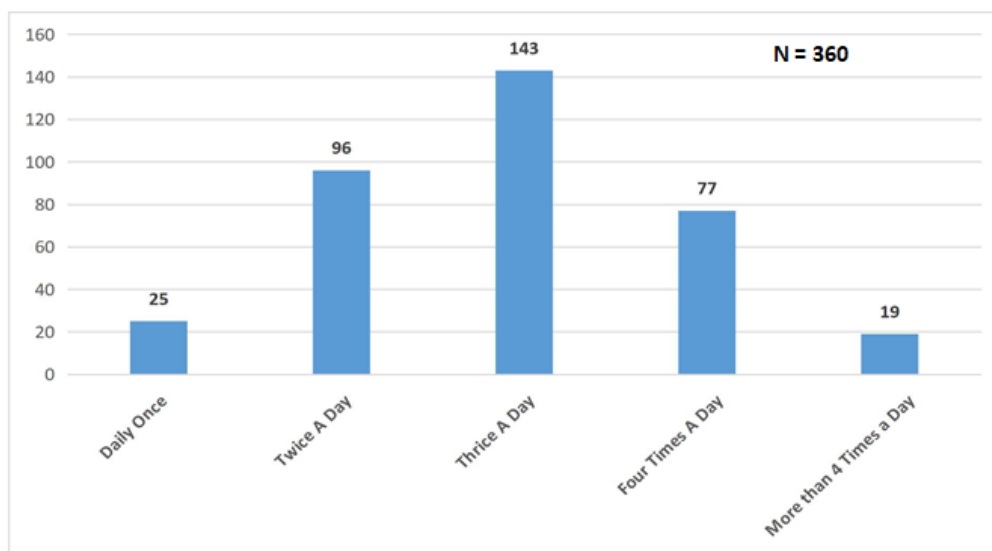


Figure 2: Frequency of absorbent change in a day

Almost 80.6% of participants doesn't have any second choice for the absorbent and are satisfied with the current method of absorbent they use. Among 60 students who use cups, 42% doesn't use hot water to clean the cup. This can be predisposing to genital infections. Lack of proper hygiene of external genitalia is one of the causes for having genital infections. 14% of those using

cup and 10% of those using Disposable pads had history of genital infections. Majority of the individuals use water and soap for cleaning the external genitalia followed by water only (Figure 3). It is necessary to clean genitalia with any type of soap or vaginal wash using water only will not do effective cleaning of the area which can predispose to any infections.

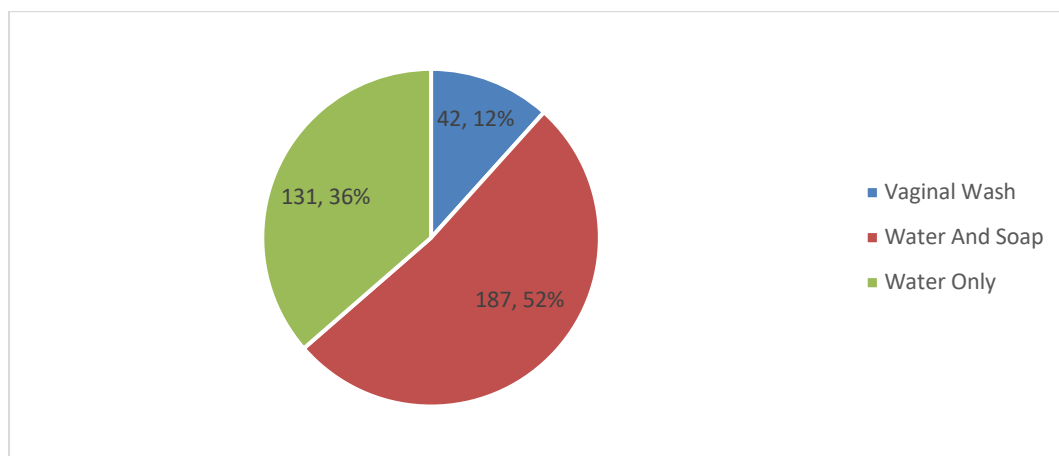


Figure 3: Method of cleaning genitalia during menses

Most (42.7) of the study participants reported that they clean for 5 times or more during their menses (Figure 4).

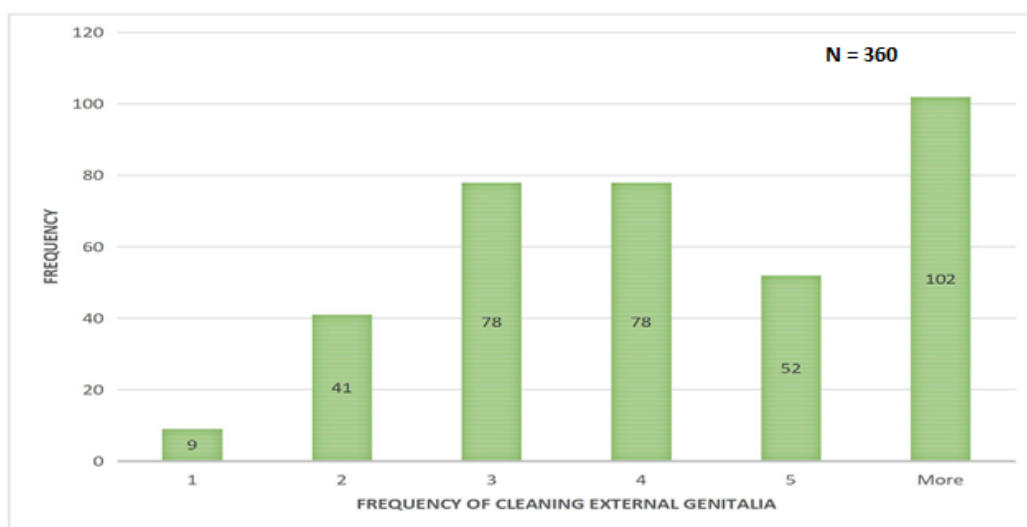


Figure 4: Frequency of cleaning

Among 360 participants of the study 72 of them had complaints of discomfort in the genital area. There were 93 patients who has some form of symptoms of genital infections which were causing discomfort to the participants. Among the discomforts experienced by those with symptoms of infection, itching was most frequent complaint in 69 students followed by rashes in 40 students. Only 27.78% of those with these symptoms have consulted a doctor so far. Among the participants having discomfort in the genital area, 33.33% of

them had history of recurrent genital infection. Among 360 participants of the study 13.6% of them had history of foul-smelling discharge anytime in the past. Among 360 participants of the study 30 of them had history of family members with similar complaints. Among 360 participants 4 of the participants had history of genital ulcer. Among 360 participants 33 (9.2%) of them had or currently having reported of genital infections. 14% of those using cup and 10% of those using Disposable pads had history of genital infections.

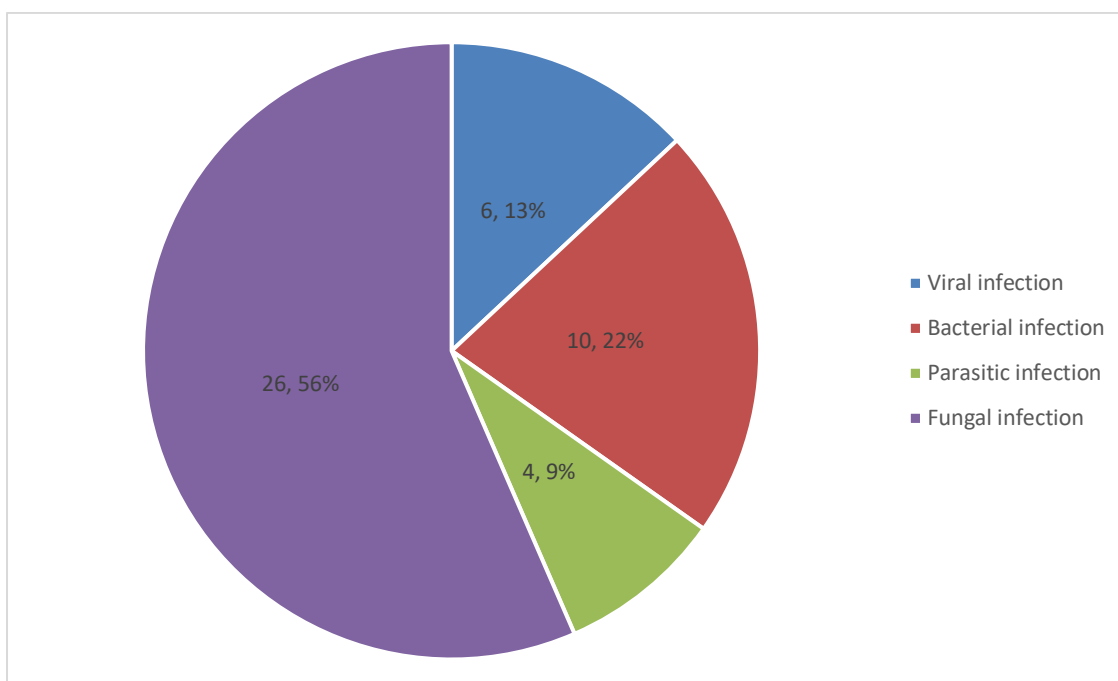


Figure 5: Frequency of genital infections

Fungal infection (56.52%) was the most common prevalent infection among the study participants with most being candidiasis. This was followed by

bacterial infections (E.g. bacterial vaginosis), Viral infections and parasitic infections. There were also study participants who have reported multiple type

of infections either coexisting or in the past (Figure 5). There was no statistically significant association between the infection rates among various menstrual hygiene methods.

Among the participants with history of pad change for more than 4 times a day, there was no one with infection. The risk of getting a genital infection was higher with less frequent change in pads. In bivariate analysis, except leak during menses the other factors were not statistically significantly associated with genital infection among the study participants.

Discussion

This study aimed to explore the menstrual hygiene practices among female medical students in a medical college in South India. The socio-demographic characteristics of the participants reveal insights into their backgrounds, which can influence menstrual practices and health outcomes. Majority of participants were urban residents and this urban skew might reflect the educational setting of the medical college and its catchment area. Additionally, a substantial proportion of participants belonged to the Christian community, which could suggest cultural influences on menstrual practices.

Most participants reported menstrual cycle lengths within the normal range, indicating a general regularity in menstrual patterns. However, a notable percentage experienced either shorter or longer cycles, which could signal underlying health concerns or hormonal imbalances.

The preference for disposable pads as the primary absorbent method aligns with the findings of surveys like NFHS 5 conducted in the recent years [5]. This could be due to the widespread availability and convenience of using disposable pads. On the other hand, the proportion of those using the other menstrual hygiene methods differs from the findings of studies done in other parts of India, where the usage of traditional methods like cloths were still highly prevalent [6,7]. The diversity in preferences is limited as compared to the above studies even though the assess to menstrual products in a state like Kerala with high literacy rates and availability of online shopping platforms to purchase methods like menstrual cups is available. Hence this preference of menstrual hygiene methods results could be generalizable to the study populations involving higher educational institutions of Kerala but not other regions of India.

Financial considerations play a significant role in absorbent choice, with a majority of participants spending moderate amounts on menstrual products monthly. This cost factor playing a role in the choice of menstrual hygiene methods is also observed in other studies [8,9]. Family influence

was relatively low in absorbent choice, suggesting individual autonomy in decision-making. However, the role of social media in introducing alternative methods like menstrual cups signifies the evolving landscape of menstrual health education and awareness.

Leakage emerged as a common issue, potentially predisposing individuals to genital infections, highlighting the importance of addressing product effectiveness and fit. Hygiene practices, particularly regarding external genitalia, varied among participants, with implications for genital infection risk. Notably, a considerable proportion reported discomfort or symptoms related to genital infections, indicating the need for improved hygiene education and healthcare access. Fungal infections, particularly candidiasis, emerged as the most prevalent genital infection, underscoring the importance of targeted interventions for specific pathogens. While no significant association was found between infection rates and menstrual hygiene methods, frequent pad changes appeared protective against infections, emphasizing the importance of hygiene maintenance during menstruation.

Conclusion:

This study sheds light on the menstrual hygiene practices and health outcomes among female medical students in South India. 333 (92.5%) of the students are using disposable pads as their primary methods of menstrual hygiene followed by 23 (6.3%) using menstrual cups. Among the study participants 33 (9.2%) of them had or currently having reported of genital infections. Further research is needed to explore longitudinal trends and interventions to mitigate genital infection risks associated with menstrual hygiene practices

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