

Assessing the Perception of Risk Factors Associated With Unhygienic Use of Sanitary Pads in Kerala, India

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Abstract: *AIM To assess the knowledge, sources of information, hygiene status and menstrual problems of females while using sanitary pads. METHODOLOGY The investigation was conducted as an observational, cross-sectional study among females aged between 11 and 55 years in Kerala, India during the lockdown period. The study was carried out by circulating google forms to about 1200 females with questionnaires that were designed in such a manner that it takes just five minutes to complete the survey with 18 questions. RESULT The study showed that 82.41% of women had prior knowledge about menstruation before menarche and the primary source of information received was from the mothers in the case of 57.28% of the participants. 91.66% stated that they used disposable pads as their absorbents and 75.91% adopted incineration as a method of disposal of napkins. 82.16% suggested the installation of an incinerator in public toilets. CONCLUSION In a country where speaking about menstruation is still considered taboo and the purchase of sanitary pads is an awkward situation. A state like Kerala with a high literacy rate of 96.2 percent, states the use of cloths for hygiene, indicating that education on menstrual health and hygiene should be a pivotal instruction that should be received in the early stage of menstruation and women should be encouraged to follow all hygienic practices. The study also reveals the requirement for certain policies to be adopted, where the product under study is affordable to the common people for its use.*

Keywords: Menstrual hygiene, Sanitary pads, Menstruation

INTRODUCTION

Adequate management of menstrual hygiene is taken for granted in affluent countries; however, inadequate menstrual hygiene is a major problem for girls and women in countries where speaking or discussing it is considered taboo, which can adversely affect the health and development of adolescent girls. The case is worse in rural areas, where awareness is even worse which leads to various difficulties and challenges faced by young women at home, schools, and workplaces. These include lack of support from teachers, teasing by peers when accidental menstrual soiling of clothes occurs, poor familial support, lack of cultural acceptance of alternative menstrual products, limited economic resources to purchase supplies, inadequate water, sanitation facilities at school, menstrual cramps, pain, discomfort and lengthy travel to and from school/ college or work, which increase the likelihood of leaks/stains. In rural areas, women have no access to sanitary products or they know very little about the types and methods of using them or are unable to afford such products. Therefore, they mostly rely on reusable cloth pads which can be washed and reused. Women manage menstruation differently when they are at home or outside; at home, they dispose of menstrual products in domestic waste and public toilets and flush them into the toilets without knowing the consequences of clogging. The implementation of modern techniques like incineration can help to reduce waste. In addition, awareness should be created to emphasize the use of reusable sanitary products or natural sanitary products made from materials such as banana fiber, bamboo fiber, sea sponges, and water hyacinth. Therefore, there is a need to educate people and make them aware of the associated environmental pollution and health hazards. Therefore, education on awareness and hygiene, access to absorbents, proper disposal, and management of menstrual hygiene products requires proper addressing.

METHODOLOGY

The investigation was conducted as an observational cross-sectional study among females aged between 11 to 55 years in Kerala during the Covid lockdown time frame.

The study was conducted on an online platform by using Google Forms. The participants were informed about the purpose, benefits, and privacy of the study, and their consent for participation was obtained.

The study involved the female population in Kerala who were approached via Google form circulated through social media. The questionnaire was kept short such that it took 5 minutes to complete the survey. The data collection was stopped after 4 weeks when the total number of participants reached 1200.

A predesigned set of 18 questions that included both open and close-ended questions in the English language were circulated for the survey after various discussions and corrections.

RESULT

	Female	Percentage
Age		
11-20	310	25.83
21-30	656	54.66
31-40	88	7.33
41-50	105	8.75
51-55	41	3.41
Geographical area		
Rural	442	36.83
Semi-Urban	453	37.75
Urban	305	25.41
Economic status		
Primary	11	0.91
High school	109	9.08
Middle school	15	1.25
Other degrees	1065	88.75

Table No:2 Knowledge of Pads

Did you have any knowledge about menstruation before menarche?		
	Females	Percentage
Yes	989	82.41
No	211	17.6
The primary source of information regarding menstruation		
Mother	948	57.28
Elder sister	155	9.3
Teacher	246	14.86
Friends	281	16.97
Others:		
Advertisements	2	0.12
Internet	4	0.24
Books	8	0.48
Awareness class from the health center	5	0.30
Relatives	5	0.30
No knowledge	2	0.12
Duration of Menstruation:		
>5 Days	214	17.84
2-3 Days	264	22
4-5 Days	722	60.16
Whether the menstrual cycle is:		
Regular	939	78.25

Irregular	261	21.75
What the participants used as an absorbent during their periods?		
Disposable pads	1100	91.66
Reusable cloths	68	5.66
Both pads & cloth	6	0.5
Menstrual cups	25	2.08
Tampon	1	0.083
Who introduced the participants to the above sanitary methods?		
Mother	1034	86.16
Elder sister	74	6.16
Teachers	24	2
Friends	61	5.08
Others:		
Advertisements	1	0.083
Social media	2	0.16
Self	2	0.16
Relatives	2	0.16
If they were using sanitary pads, what kind of pad they were using? (n=1106)		
Organic pad	424	38.33
Pads that are made up of synthetic fibers	672	60.75
Based on cost, whether it is:		
Cheap	100	9.04
Costly	466	42.14
No comments	194	17.54
Nor costly nor cheap	346	31.28
Disposal methods adopted for sanitary pads?		
Dustbin	167	15.09
Open drain	8	0.72
Flush in closet	90	8.13
Incineration (Burning)	804	72.69
Dumping in landfills	30	2.71
Open burning	4	0.36
Tear and throw the cotton to flush and burn the cover	3	0.27

Feels that in each public toilet there should be an installed incinerator for disposing of the pads		
YES	986	82.16
NO	64	5.33
May be	150	12.5
Has the disposal methods caused any problem in your life, like:		
Clogging of sewer pipes	184	13.80
The smell of smoke	1012	75.91
Lack of availability of disposal bins	1	0.07
No problem	134	10.05
Smell during washing the reusable cloths	1	0.07
Difficulty in burning due to moisture content.	1	0.07
Frequency of changing your adsorbent pad/day		
Once	17	1.53

Twice	372	33.63
Thrice	497	44.93
>3 times	220	19.89
Have you used the pads for the excess duration of time which has caused some discomfort		
YES	670	60.57
NO	436	39.42
If YES, did you face any discomfort like		
Rashes	297	26.85
Itching	597	53.97
Bacterial/Fungal or other infection	99	8.95
UTI	48	4.33
PCOD	8	0.72
Irritation	4	0.36
Wettness	4	0.36
Nil	49	4.43
Have you visited any of these specialists for menstruation-related problems?		
NO	884	73.66
Gynaecologist	295	24.58
Endocrinologist	21	1.75

The survey involved 1200 female participants aged between 11 and 55 years who were categorized into various age groups (Table 1). The maximum number of respondents were from the Semi-urban area (37.75%) followed by rural (36.83%), and the urban area (25.41%). The educational status indicated that the majority of the participants were degree holders (88.75%), and others were graduates from high school (9.08%), middle school (1.25%), and primary school (0.91%).

The knowledge about menstruation showcased that about 82.4% of participants were aware of menstruation and 17.6% were unaware of it before menarche. On enquiring about the primary source of information on menstruation, a higher percentage (57.28%) stated it was a mother, whereas 16.97% knew it from friends, 14.86% from the teacher, and 9.3% from elder sister (Table 2). Whereas, 0.12% of the participants did not have a primary source of information about menstruation. While assessing the duration of menstruation, most of the participants were having a menstrual period of 4-5 days (60.16%) (Table 2). The survey also recorded 78.25% having a regular cycle and 21.75% having an irregular menstrual cycle. A higher number of participants reported that they were mostly using disposable pads (91.66%) as an absorbent during their period days followed by using reusable cloths (5.66%), menstrual cups (2.08%), and tampons (0.083%). While 0.5% of study participants were using both disposable pads and clothes during their period days (Figure 1). The sanitary methods adopted by participants were introduced to them mainly by mothers (86.16%) (Table 2). The inquiry regarding the quality of material used revealed the use of pads that are made up of synthetic fibers (60.75%) and organic pads (38.33%).

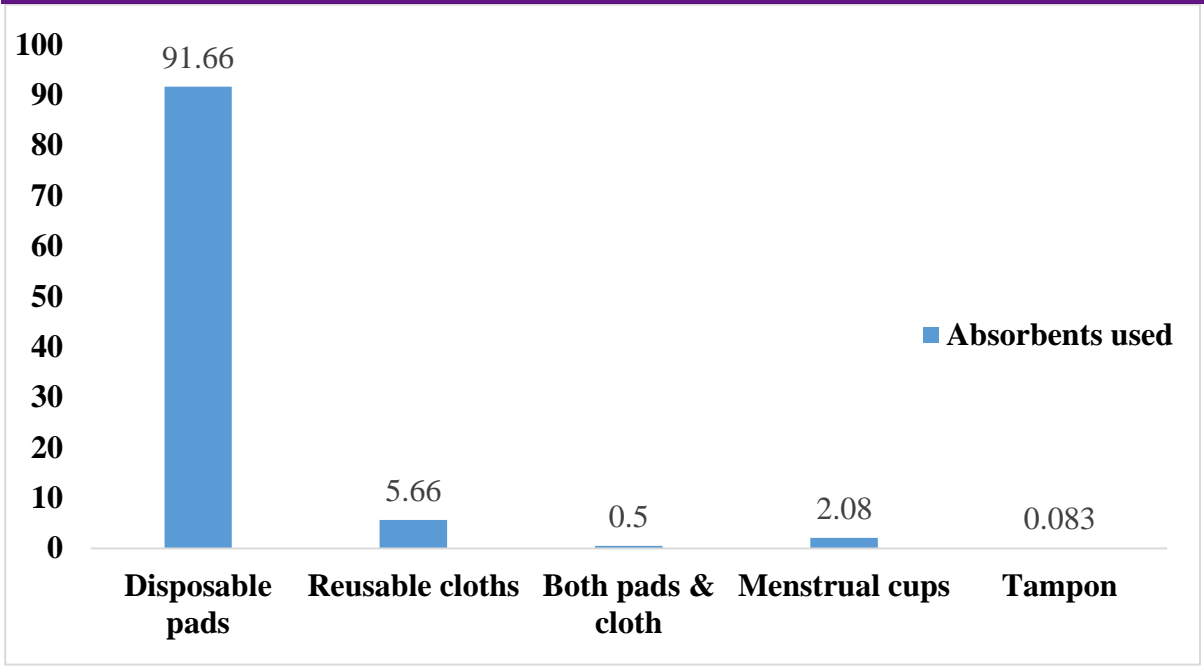


Figure 1: Absorbents used by the participants during their periods.

A sanitary napkin is an absorbent item worn by a woman while she is menstruating and requires a regular change. The number of pads used differs from person to person hence it's necessary to assess the cost of sanitary pads which affects their livelihood. The cost involved is based on representation indicated that the pads were not costly nor cheap to use by 31.28%, and 9.04% responded that pads are cheap to use, whereas 42.14% considered them as costly.

Disposal was another problem that was faced, and 72.69% responded that they were dependent on incineration as a disposal procedure, while the rest disposed of it in an unrecommended fashion (Figure 2). The study revealed the requirement of an incinerator for disposing of the pads in a public toilet based on 82.16% of the response. The survey projected the problem faced in adopted disposal methods of pads (Figure 1) and the majority responded that, while the pads are burned smoke of foul smell (75.91) occurs and some reported clogging of sewer pipes (13.80%) while flushing out the pads. Alternatively, 10.05% didn't face any problem with their disposal methods. Most of them (44.93%) changed their absorbents thrice a day and others depended on the flow of blood (Table 2).

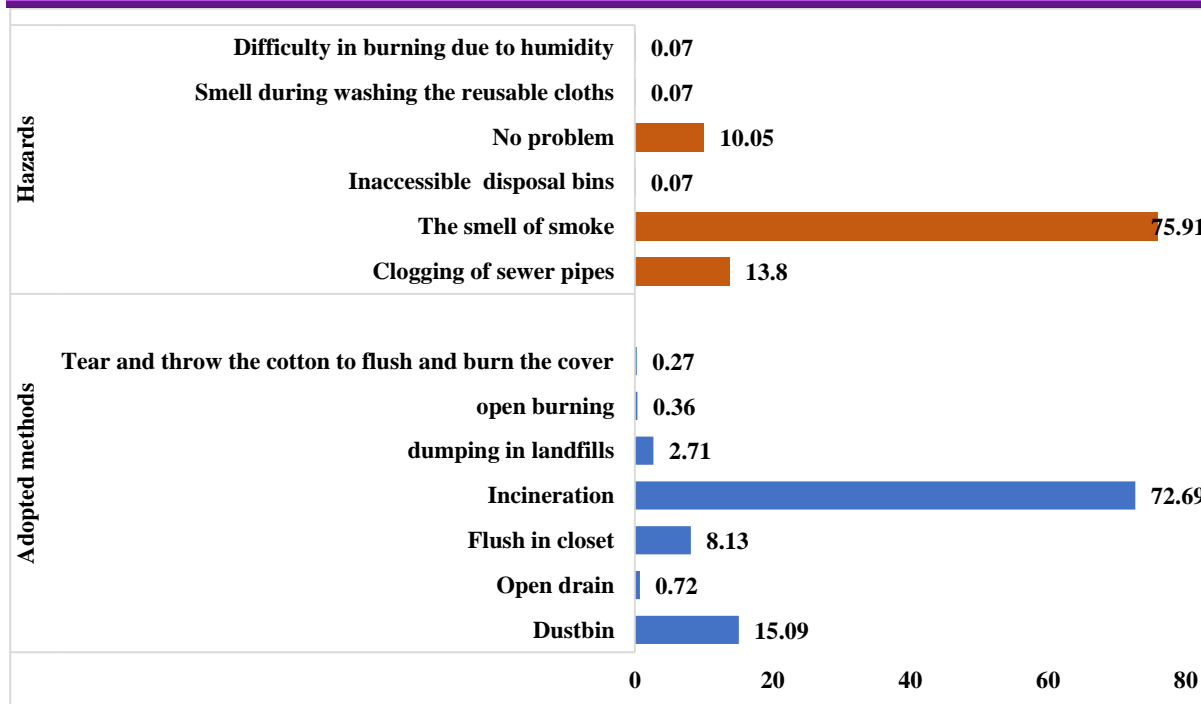


Figure 2: Disposal methods adopted by the participants and the problem faced by the participants.

The question on the time duration of usage of pads and their discomfort revealed that about 39.42% did not use the pads for an excessive time, while 60.57% responded that they used the pads for a longer duration and had felt some discomfort. On asking the type of discomfort they faced, it was revealed that 4.43% of participants did not showcase any effect or discomfort over extensive use of pads but the rest stated some discomfort being faced, with the highest stating that they suffered from itching (53.97%), followed by rashes (26.85%) and bacterial/fungal or other infections (8.95%) (Table 2). As the majority of participants suffered from menstrual-related diseases/ discomfort, the next approach was to know whether there was any need to consult a physician for the same and 73.66% responded negatively, whereas 24.58% consulted a gynaecologist and 1.75% consulted an endocrinologist.

DISCUSSION

Many studies state that females do not have adequate knowledge about menstruation and have low levels of knowledge about pre-menarche. 60.3% of females in India, did not know about menstruation before menarche and they reported a lack of understanding of the source and pathway of the menstrual blood.¹ The common trigger to learn about menstruation was menarche.²⁻³ But in this study, 82.41% of women knew about menstruation pre-menarche, as most of the women (88.75%) who participated were well educated. Although mothers were not necessarily the preferred source of information, most studies indicated that adolescents receive information about puberty or menstruation from their mothers. In Turkey, when schoolgirls were asked who should educate them about menstruation, a majority reported health care professionals compared to families or teachers.³⁻⁴ Studies reveal that girls who did not receive the pads used cloth as the most common absorbent. Some girls used clean, new clothes or large sheets cut into pieces. Those who could not afford the cloth or pads used old sweaters or discarded rags. Some girls used underwear alone or multiple pairs of underwear. Unreliable absorbents kept them away from the school, particularly those who could not afford the absorbents were absent.⁵ However, the study, indicates 91.66% of women use disposable pads and only 5.66% use reusable clothes.

Concerning menstrual health, bleeding patterns are the observed pertinent indicators of reproductive health and the changes in the bleeding pattern may influence the quality of life for pre-and peri-menopausal women. Menstruation is usually irregular among women of early and late reproductive ages. Irregular bleeding patterns may be indicative of endocrinologic and uterine abnormalities and also long menstrual cycles have been associated with an increased risk of coronary heart disease (CHD), cancer, and mental health problems. PCOS (Polycystic ovary syndrome) is a common endocrinologic disorder with excess androgen and ovarian dysfunction.⁶⁻⁷ Generally, most women bled for a median of 5 days and reported the heaviest bleeding on the second day. This study, reveals that most of the women (60.16%) bled for 4-5 days and 22% for 2-3 days, whereas 21.75% stated that they had irregular menstruation. So that the gynaecologic and endocrinologic health visit was considerably less (Table 2). According to several studies, mothers are considered the best sources of information or knowledge for their children regarding reproductive-related health matters and sexual communication with their daughters.⁸⁻¹⁰ This study also proves that the majority of the participants (86.16%) were introduced to their menstrual absorption preferences by their mother or elder sister (6.16%) and other relatives (0.16%). Whereas only a few respondents stated that they obtained the information and guidance on menstrual absorption preferences from

advertisements (0.083%) and social media (0.16%). Therefore, the role of media is not only limited to information providers, but it also helps in awareness and developing values among the illiterate mass population for their movement towards the literate world and thereby activate the educated people to contribute towards the development of a foundation for the people's socio-development.
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Menstrual health and hygiene have become synonymous with access to sanitary napkins and there is a pervasive misconception existing, that the centuries-old practice of using cloth as an absorbent is unhygienic, and that leads to the onset of usage of sanitary napkins. Clean, cotton cloth is one of the best available choices because it offers high absorption, retention, and flow of air. To maintain menstrual hygiene, they have to practice single-use behavior. So as a result, many women have shifted to the use of cheap, synthetic cloth which does not offer much absorbency and its usage can result in microbial growth leading to a higher risk of reproductive tract infections. There exist various myths and taboos that limit women's ability to change, wash and dry used cloth hygienically. Thus, making them shift towards the use of sanitary pads because of their comfort and reliability. Providing pads also reduced the financial burden, the need for frequent change with higher reliability and comfort level which was not associated with clothes that needed to be washed and dried instantly. Thus the usage of pads allowed females to feel more confident that they would not soil garments during menses.¹³ In this study, about 60.75% of the respondents relied on using synthetic pads, these pads are having apertured film top sheets to keep the surface of the pad cleaner and drier; had side panty-shields ("wings") to reduce undergarment soiling; cellulosic based cores employed with superabsorbent gel particles for better protection in substantially thinner pads; and the use of cloth-like perforated top sheets for improved comfort and dryness.¹⁴ On the other hand, 38.33% of responders were using an organic pad, which is a wise decision as it is made from plant-based fibers which are not only natural pads but they are also biodegradable, where the top sheet provides a soft and comfortable feel. Hence, organic pads not only ensure safety for those 3-5 days but will also ensure your body does not face any uncomfortable side effects. Interestingly, 0.83% of the participants are still residing on the old practice of using cloth during their period days and they need to wash those clothes and reuse them. This practice is both unhygienic and is also extremely harmful to the vaginal area because the cloth may contain soap or detergent which may cause itching and the presence of bacteria from being put to dry outside can result in the development of infection.¹⁵ As the price of pads plays an important role in their purchase, the response recorded stated that about 42.14% felt the frequent purchase of pads is a costly process and thus requires authorities to minimize the rates for effective, safe, and affordable utilization of menstrual products¹⁶ or else will lead to the use of these products for a longer duration of time to minimize cost per cycle.¹² A lack of affordable and effective menstrual products can result in leakage and chaffing in menstruating girls and women and these can affect their health.¹⁶⁻¹⁷

Disposable sanitary pads have an extremely damaging impact on the environment and this study indicates that 72.69% of the participants disposed of their used pads via incinerators (Figure 2). In places where small-scale incinerators are installed, the burning of menstrual waste via inefficient chambers at low temperatures led to the release of extremely hazardous dioxins and furans into the environment.¹³ The study indicates a lack of resources for handling increasing volumes of menstrual waste and many institutions or schools are using incinerators or 'feminine hygiene bins' for proper disposal of napkins. These kinds of initiatives are a sign of relief for school-going girls and working women. To know more about the environmental impact of used sanitary pads, it is essential to understand the composition of sanitary pads.¹⁸ The core of a sanitary pad is made of an absorbent material, typically employed of cellulose-based cores. While cellulose-based cores are naturally compostable material, it is encased within a fluid permeable surface (top sheet) which is made up of polymer-based fibers and a moisture impermeable backing (back sheet), which are not compostable and is made with polyethylene. In present-day variants, even the absorbent layer has transformed into a non-woven fabric with the emollient finish and polyethylene/polypropylene materials for added absorbency and improved spatial distribution. These products would take up to 800–900 years to decompose completely and are hence termed non-compostable. With the increasing use of sanitary pads and consumer choice for highly absorbent products, the annual assessment of waste load on the eco-system is anticipated to be 12 billion pads, of which the majority is non-compostable.^{11,19} This study also points out that, 8.13% of the respondents were flushing their soiled pads and 0.24% were tearing and throwing the cotton to flush and burned the cover (Figure 1). The open burning of used pads is prevalent in rural areas as compared to urban areas for the final disposal of pads; whereas in urban areas women forget about the consequences of disposal after they have thrown it in the dustbin.²⁰ This study also states that 0.36% of the respondents were burning their menstrual waste. Disposing of conventional plastic pads in landfills is not an ideal option for disposal and the finding here states that 2.71% of the participants were dumping their used pads in landfills. As non-biodegradable sanitary pads do not decompose for a long time and they can lead to clogging of the drainage system as confirmed by 0.72% of respondents. Whereas, 6.16% of the participants were reusing clothes after washing. But, the biggest drawback of this usage is that hygiene is largely dependent on the cleanliness of the cloth. Apart from this drawback, reusable cloth pads offer a viable, healthy, and environmentally friendly option to manage menstruation (Figure 1). Likewise, menstrual cups are another type of reusable menstrual hygiene product. Menstrual cups can be emptied and reused over a day and as per this study, 2.08% are dependent upon menstrual cups. The study also highlights a need to install an incinerator in public toilets, educational institutions, offices, etc. for disposal of used pads, as stated by 82.16%. If incinerators could be used according to eco-friendly guidelines with temperatures around 800°C they create less air pollution by emitting less harmful gases.²¹⁻²²

The investigation on problems generated due to unethical disposal methods adopted generated a result that states foul smell of the smoke (75.91%) and clogging of sewer pipes (13.80%) as the most commonly witnessed problems, whereas 0.75% of women came across circumstances like smell during washing reusable clothes and difficulty in burning used pads due to humidity (Figure 2). As stated in other studies 167 (20.2 %) of the respondents were disposing of their used sanitary pads in the dustbin and One-third 274 (33.3 %) of girls used paper to dispose of the pads by wrapping, whereas only 15.09% in this study states the disposal method as throwing into the waste bin.²³ According to another article, it is mentioned that women and girls may not even know about the existence of commercially manufactured sanitary products, how to use or dispose of them, and perceive these products to be unaffordable.²⁴

In India, the toilet facilities lack bins for the discarding of sanitary napkins and handwashing facilities for menstruating women to keep up menstrual hygiene.²⁵ There are several choices for destructing menstrual waste such as burying, flaming and throwing in the garbage or pits. Incinerators or “feminine hygiene bins” are used for disposing of menstrual waste material in some schools but due to shyness or fear of being seen by others, they abstain from using it. In public settings, some flush them in the toilets or wrap and throw them in the dustbins without having a realization about the consequences of flushing the pads. In the toilet corners, they leave the stained pads wrapped or unwrapped where dustbins are not placed.²⁰ The dumping of commercial pads is a matter of concern because of their large content of non-biodegradable elements and thus the safe disposal will become a growing problem across India as more and more females are turning towards the use of commercial pads.²⁶ In an analysis conducted in rural Pakistan (2011), 60% of the teachers insisted on safe disposal implements, and 48% of mothers demanded separate waste bins.²⁷ While only a few studies have tested the relationship between infections and the type of material or product used to manage menstrual bleeding and those that have proposed that reusing old clothes may increase the risk of urogenital infections. As per another article where the study was conducted among schoolgirls in India, 65.7% stated that the use of homemade menstrual cloth resulted in urogenital infections compared to 12.3% of those using sanitary pads. Some women also place newspaper or tissue paper into their vaginas to diminish the possibility of menstrual leakage despite their concerns that this might not be secure and that the newspaper ink might cause cancer.²⁴ Practices accompanying menstruation hygiene are of prime concern as it has a health impact; if failed taken care of, it leads to toxic shock syndrome, reproductive tract infections (RTI), and other vaginal diseases.²¹ Similarly, this study population, has pointed out that, itching (53.97%) was encountered by most of the women followed by rashes (26.85%), bacterial/fungal infections (8.95%), UTI (4.33%), PCOD (0.72%), irritation (0.36%), and wetness (0.36%). A concomitant reporting was done by another author where a frequent problem faced was genital rashes (56.4%), followed by genital itching (34.5%), and burning micturition (9.1%). As all the stated problems are causing short-term trouble, these complications are not frequently reported.²⁶⁻²⁷ Premenstrual syndrome (PMS) and dysmenorrhea are the usual challenges among young women²⁸⁻²⁹ and changing the absorbents frequently is a major challenge³⁰ where the study points out that the majority changed their napkins thrice daily (44.93%) and 19.89% of women changed their napkins more than three times daily. The non-changing of napkins or using them for an excessive duration of time resulted in some sort of discomfort as reported by 60.57% of women.

CONCLUSION

Kerala is having a literacy rate of 96.2 % and is the most literate state in India. The study points out that, 5.66% of the participants were using reusable cloth and 0.5% were using both pad and cloth, indicating that still in a highly literate state, some rely on cloth as absorbent and the disposing techniques adopted are harming the environment with the unkind behaviour. Education to the women regarding menstrual health and hygiene should be provided in the early stage of menstruation and women should be encouraged to follow all the hygienic practices. Certain policies should be adopted to make the absorbent as affordable as possible to the common people and make necessary arrangements at all public places for proper disposal of pads.

INFORMED CONSENT

Prior consent has been obtained from the participants.

DECLARATION OF INTEREST: There is no declaration of interest.

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