

EXPLORING PERCEPTIONS OF MENSTRUAL HYGIENE PRACTICES AND MANAGEMENT IMPLICATIONS AMONG FEMALE STUDENTS AT THE UNIVERSITY OF COLOMBO: FROM A MEDICAL GEOGRAPHICAL PERSPECTIVE

ARTICLE INFO

Article History:
Received 24 Dec 2024
Accepted 04 Apr 2024
Issue Published Online
25 June 2025

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SLJGEM (2025), Vol. 02,
Issue (01), Pp.52-73

KEYWORDS

Menstrual Hygiene Practices
Menstrual Hygiene Management
Perceptions
Eco-Friendly Products

ABSTRACT

Menstrual hygiene is an essential yet often neglected public health issue, particularly within university environments. This study explores how female students at the University of Colombo manage their menstrual hygiene, the challenges they face, and the broader health and environmental impacts, through a medical geographical lens. The research set out to understand students' perceptions, examine the types of menstrual products they use and their attitudes toward them, assess the health and environmental effects of these practices, and suggest practical, sustainable solutions. Data were collected from 130 questionnaires and 52 interviews across all academic years. Results revealed a strong reliance on single-use sanitary pads, with 94% of students using them and only 6% choosing reusable options. Eva (48%) and Fems (40%) were the most preferred brands. Many students experienced health concerns like irritation, inflammation, and allergies. Most changed pads three times a day, with monthly costs ranging between Rs. 270 and Rs. 700 often a burden for students living away from home. Alarmingly, 76% said they lacked proper menstrual hygiene education, and 51% felt the university's Youth Wellness Center services needed improvement. The study calls for better awareness programs, affordable sustainable alternatives, and improved hygiene facilities on campus.

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ISSN 3051 5335X (Online)

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Published by:

Department of Geography and
Environmental Management,
Faculty of Social Sciences and
Languages, Sabaragamuwa
University of Sri Lanka

How to Cite this Article: Hasna MHP & Fareena R (2025). Exploring Perceptions of Menstrual Hygiene Practices and Management Implications among Female Students at the University of Colombo: From a Medical Geographical Perspective. *SLJGEM, 02 (01)*, Pp. 52-73.

1.INTRODUCTION

Menstrual health management is an essential component of women's overall well-being and reproductive health. It is a natural biological process that affects all women at different stages of their lives, yet it is often neglected or stigmatized in many societies. Proper management of menstrual hygiene is crucial not only for physical health but also for emotional well-being, as it directly influences women's ability to participate in daily activities such as education, work, and social interactions. However, managing menstrual hygiene, particularly the use of menstrual products, presents numerous challenges. Among these challenges are the types of menstrual products available, their quality, the accessibility of these products, and the disposal of used products, all of which are critical for promoting a healthy and sustainable menstrual hygiene culture.

Menstrual products such as pads, tampons, and menstrual cups are widely used across the world. The most common menstrual product, particularly in urban settings, is the disposable sanitary pad. However, disposable pads are often made with synthetic materials such as plastic, rayon, and chemicals that can be harmful to both health and the environment. These products contain plasticizers, chloroform, benzene, chloromethane, dioxane, and styrene – toxic substances that are not only harmful to human health but also contribute to environmental pollution. The chemicals found in menstrual products have been linked to various health concerns, including menstrual toxic shock syndrome (TSS), which has seen an alarming rise since the widespread use of synthetic components in

sanitary products (Nicole, 2013). These health issues are compounded by the fact that most menstrual products are not biodegradable and, when discarded, take hundreds of years to decompose in landfills. As a result, an increasing amount of waste, which cannot easily break down, is generated annually.

In developing countries like India, this problem is particularly evident, as large amounts of menstrual waste are produced every year. Research indicates that approximately 113,000 metric tons of menstrual waste are added to the environment annually in India alone (Anumadhi et al. 2023). This represents a significant environmental burden, as the improper disposal of used menstrual products contributes to pollution and the degradation of ecosystems. In addition, the chemicals used in manufacturing disposable sanitary pads are often not regulated, which exacerbates the health risks posed to both the users and the communities that are impacted by improper waste disposal.

Here in Sri Lanka, the conversation around menstrual hygiene is even more limited. Cultural taboos and lack of education have made menstruation a topic that's often avoided, even in academic spaces. One major challenge faced during this study was the lack of published research on menstrual hygiene practices among Sri Lankan university students. Because of this gap, this research draws from studies conducted in other countries particularly India, which shares similar socio-cultural and economic characteristics. This lack of local evidence is not a weakness, but rather a critical gap that this study aims to address. By shedding light

on the real experiences of young women at the University of Colombo, this research hopes to contribute meaningful, Sri Lanka-specific insights into menstrual hygiene and management.

Despite the growing awareness of these issues, there remains a significant lack of education regarding menstrual hygiene management, especially in rural or underserved areas. According to The World Bank, approximately 500 million people worldwide lack access to proper menstrual hygiene management, which is not only a health concern but also an obstacle to gender equality and social inclusion (The World Bank, 2018). This lack of education often stems from social taboos surrounding menstruation, particularly in countries like Sri Lanka, where menstruation is still seen as a subject of shame or embarrassment. University students, particularly those at institutions like the University of Colombo, represent a large demographic of women who face challenges in accessing accurate information about menstrual hygiene management. These challenges include a lack of proper waste disposal systems and insufficient knowledge about eco-friendly alternatives.

The increasing female student population at universities, especially in urban areas, calls for urgent action to address these concerns. In Sri Lanka, like in many parts of the world, the growing number of women in educational institutions presents a unique opportunity to implement sustainable menstrual hygiene practices. Universities, particularly those in urban areas, are ideal spaces to raise awareness about the environmental and health impacts of synthetic menstrual products and to promote the adoption of eco-

friendly alternatives. These alternatives, such as reusable cloth pads, menstrual cups, and organic cotton-based sanitary products, offer sustainable solutions that can significantly reduce the environmental footprint of menstrual waste.

One of the most effective ways to combat the issue of improper menstrual product disposal and reduce the negative impact of menstrual waste is through education. By promoting awareness on the proper disposal of menstrual products and providing information on environmentally friendly alternatives, universities can play a crucial role in improving menstrual hygiene practices. Educational campaigns can focus on the long-term benefits of using reusable products, which not only reduce waste but also offer women an affordable and healthy alternative to disposable sanitary products. Furthermore, universities can support the development of infrastructure that allows for the safe and hygienic disposal of menstrual waste, such as waste segregation bins and recycling initiatives.

In conclusion, addressing the challenges of menstrual health management, particularly the disposal of menstrual pads, requires a multi-faceted approach. This includes raising awareness about the harmful ecological and health impacts of synthetic products, educating women on alternative, eco-friendly products, and creating a supportive environment for the proper disposal of menstrual waste. The growing female population in universities presents an excellent opportunity to implement these changes and create lasting impacts that benefit not only individual women but also the broader community. Through these efforts, we can move toward a future where

menstrual hygiene is managed sustainably, without compromising health or the environment.

2.LITERATURE REVIEW

In order to carry out this research, Literature review was carried out from related books, research articles, international journals, reports and various documents related to the research topic. The Faculty of Arts at the University of Colombo, located in the Colombo District of the Western Province of Sri Lanka, has been selected as the study area. This research aims to explore the perceptions of female students regarding the use of menstrual pads and the management of menstruation. To provide a comprehensive understanding, relevant concepts will be explained based on various research articles, information obtained from websites, and a literature review organized around several key themes.

Although this study is specifically focused on Sri Lanka, a significant research gap exists due to the lack of studies on this topic within the country. As a result, much of the literature for this review has been sourced from developing countries such as India. Given that Sri Lanka and India share similar socio-economic characteristics, the data and research from India are considered relevant and applicable to this study.

2.1 Overview of Menstrual Hygiene Practices

Menstrual hygiene remains a vital yet often overlooked aspect of women's health, especially in relation to the use and disposal of menstrual products. Rai et al. (2019), in their study among Indian university students, found that while 98.3% of participants used

sanitary pads, only 48.1% used single-use varieties. This suggests a gradual shift toward disposable products, but also highlights the prevalence of other methods. Similarly, Ravali et al. (2023) reported that among Indian adolescents aged 15 to 19, around 64.5 million used sanitary pads, 49.3 million relied on cloth, 15.2 million used locally made pads, and only 0.3 million had adopted menstrual cups. These statistics reflect how traditional methods still dominate in many regions due to cultural norms, accessibility, and affordability.

George et al. (2023) explored adolescent girls' awareness and attitudes regarding menstrual health, finding that many lacked proper education and access to reliable information. In a related study conducted in the United States, Hand et al. (2023) found that 17% of high school girls had missed at least one day of school due to a lack of menstrual products, showing how product unavailability can directly affect education and well-being.

Looking beyond Asia and North America, Nhlapo et al. (2019) conducted research in South Africa, where 69% of women aged 18 and above preferred disposable pads. Their findings also highlighted a growing public demand for affordable and environmentally sustainable alternatives. Meanwhile, Aboh et al. (2021), in a Nigerian study, examined public perceptions of menstrual hygiene and noted wide variation in practices shaped by social, economic, and cultural factors. Similarly, Sushmitha et al. (2023) reported that nearly half of their participants in India had no knowledge about menstruation before experiencing it themselves, emphasizing the ongoing need for education.

In Korea, Kim et al. (2019) found that 80% of women used sanitary pads, reflecting high dependency on commercial products. However, a contrasting picture emerged in a rural Indian study by Kala et al. (2020), where 32.1% of respondents used pads and 12.2% used cloth. Alarming, many disposed of these items by burning or flushing them, leading to increased health risks such as bacterial vaginitis and candidiasis. These diverse findings collectively suggest that menstrual hygiene practices remain varied and are often influenced by cultural norms, education, and socioeconomic status.

2.2 Types and Features of Menstrual Products

Menstrual products come in a range of forms, each with distinct materials and health implications. Dobur et al. (2022) described pads as thin, absorbent materials typically made of cotton, polymers, and plastic layers designed to absorb menstrual flow. Rai et al. (2019) noted that disposable pads are also used after childbirth or surgical procedures to manage bleeding. On the other hand, Van Eijk et al. (2019) emphasized the benefits of menstrual cups, which are reusable, eco-friendly, and free from harmful chemicals. These products have a lifespan of over ten years and have been found to reduce the risk of irritation and infections.

Smith (2022) highlighted the increasing popularity of organic cotton-based pads, which are free from fragrances and synthetic additives. These alternatives are not only biodegradable but are also preferred by many women for their gentleness and health safety. Eti et al. (2019) supported this trend, pointing out that menstrual cups are gaining ground as a sustainable and cost-effective

choice, especially when promoted through educational campaigns.

2.3 Chemical Composition and Safety Concerns

Recent research has raised concerns about the chemical ingredients used in many commercial menstrual products. Ganguly et al. (2022) analyzed common menstrual wipes and found high levels of volatile compounds such as polyethylene, polypropylene, and phthalates some of which may pose long-term health risks. A study by Babagoli et al. (2022) in Korea identified 84 different volatile organic compounds (VOCs) in menstrual pads, including hazardous substances like chloroform, benzene, and styrene.

Kara (2021) added that over 85% of menstrual wipes sold in Turkey contain harmful chemicals. Her study, which focused on consumer expectations and product design, emphasized the urgent need to develop safer and more functional sanitary products. These findings underline a growing global concern about the hidden health risks associated with seemingly every day hygiene items.

2.4 Health Implications of Menstrual Product Use

The link between menstrual products and women's health has become a growing area of concern. Johnson (2020) noted that as awareness increases, many women are choosing sanitary napkins made from non-toxic materials such as organic cotton. These alternatives, being free from artificial fragrances and plastic layers, help reduce the risk of allergies, irritation, and infections.

Ravali et al. (2023) also reported that widespread reliance on single-use menstrual pads in India estimated at 121 million women has been associated with issues such as urogenital infections and discomfort.

In Pakistan, Michael et al. (2020) found that 70% of women used commercially available pads, but many lacked proper knowledge of menstrual hygiene practices. This gap in education contributed to an increased incidence of reproductive tract infections, highlighting the need for both product reform and better awareness among users.

2.5 Environmental Concerns and Waste Management

The environmental impact of disposable menstrual products is increasingly being acknowledged. Anumadhi et al. (2023) estimated that India generates about 113,000 tons of menstrual waste annually, largely due to the high consumption of plastic-based sanitary pads. According to Eti et al. (2019), approximately 12.3 billion pads are discarded each year in India, often ending up in open dumps or water bodies, where they take centuries to decompose.

Dobur et al. (2022) pointed out that despite the rise of reusable alternatives, the majority of consumers between 90 and 95 percent still prefer single-use products. In Europe, 87% of these pads are sent to landfills, and the microplastic components may take up to 500 years to fully break down. These materials not only contribute to long-term pollution but also release harmful toxins into the environment, making menstrual waste a pressing issue in sustainable development.

2.6 Objectives of the Study

To explore how female students at the University of Colombo perceive and manage menstrual hygiene, viewed through a medical geography lens—with a focus on how differences in location and socioeconomic background affect their access to products, knowledge, and overall experiences.

- To understand the types of menstrual products female students use and their attitudes toward them, especially in relation to whether they come from urban, rural, or estate areas.
- To look at how menstrual hygiene practices impact students' health, education, and the environment.
- To suggest eco-friendly and health-conscious ways to improve menstrual hygiene management, paying close attention to accessibility and awareness gaps among students from different geographic and economic backgrounds.

3. MATERIALS AND METHODS

3.1 Study Area

This research focuses on the Faculty of Arts at the University of Colombo, situated in the city of Colombo, within the Western Province of Sri Lanka. The faculty is located in the Timbrigasaya Grama Niladhari Division, which falls under the jurisdiction of the Colombo District in the Western Province. Its specific geographic coordinates are 6.897223°N and 79.869418°E (Wijerathne, 2020).

The research is limited to the first, second, third and fourth - year students of the faculty

of Arts, with a total student population of 3,006 (IDC Register Book, 2022-2023), of whom 2,611 are female. Students in the faculty study in three languages: Tamil,

English and Sinhala. For the purposes of this study, a stratified random sample of students from all four academic years was selected.

Table 1: Number of Students in the Study

Year	Total Count of the Students	Total Female Students
First Year	808	703
Second Year	767	681
Third Year	882	758
Forth Year	549	469
Total	3006	2611

Source: Information and Documentation Centre, University of Colombo (2022/2023)

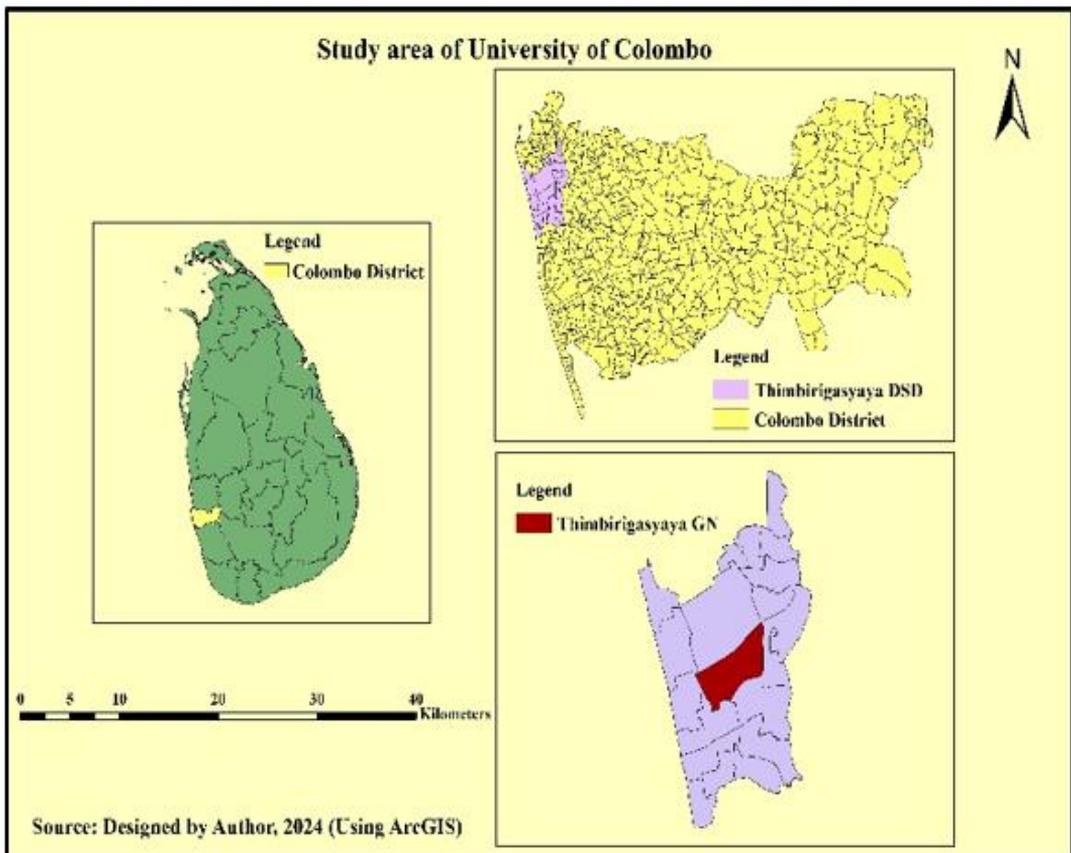


Figure 2: Study Area map of University of Colombo
Source: Prepared by Author, 2024 (Using ArcGIS)

3.2 Data Collection

This research endeavor has been structured around the acquisition and analysis of both primary and secondary data, aiming to address the research objectives comprehensively.

3.2.1. Primary Data Collection Methods

Primary data sources refer to the process of directly gathering data from the field. In this study, primary data were collected through questionnaires and interviews.

3.2.1.1 Questionnaire

The questionnaire method is a widely used approach for collecting data through field research.

Table 2: Number of Samples for – (Questionnaires)

Year	Total Female Students	Identifying Sample	Selected Sample of Female Students
First Year	703	$130 \div 2611 * 703$	35
Second Year	681	$130 \div 2611 * 681$	34
Third Year	758	$130 \div 2611 * 758$	38
Fourth Year	469	$130 \div 2611 * 469$	23
Total	2611		130

Source: Field Survey, 2024

Since this study aims to assess the environmental and health impacts associated with the use and management of menstrual hygiene products, data were collected from female students at the Faculty of Arts, University of Colombo. The total population of female students registered in the Faculty of Arts consists of 2,611 students from the first, second, third, and fourth years. To obtain data

from this population, a stratified random sampling method was applied. A 5% sample was selected from the total number of female students in each year, resulting in the selection of 130 samples. The samples were chosen randomly from each year group. The calculation for determining the number of samples is outlined below.

The number of samples was calculated as follows:

$$\begin{aligned} \text{Number of Samples} &= 5 \div 100 * 2611 \\ &= 130.55 \\ &= 130 \text{ samples} \end{aligned}$$

Thus, 130 samples were selected.

This questionnaire method was extensively employed to address both the primary and secondary objectives of the study. The sample area from which the participants were selected for the study is outlined as follows. Questionnaires were administered to the selected participants to gather data on the environmental and health impacts of menstrual hygiene use and management in the specified study area, as well as to assess the level of awareness among female students regarding this issue.

3.2.1.2. Interview

To gain further insights into the environmental and health impacts associated with the use and management of menstrual cups, interviews were conducted with approximately 52 female students from the Faculty of Arts, University of Colombo. The participants were selected by approaching them according to their department and language groups. A 2% sample was drawn from the total number of female students in each year using the Stratified Random Sampling Method, resulting in a total of 52

randomly selected participants. Interviews were then conducted with these 52 female students to collect the necessary data.

$$\begin{aligned} \text{Number of Samples} &= 2 \div 100 * 2611 \\ &= 52.22 \\ &= 52 \text{ Samples} \end{aligned}$$

The distribution of samples taken from each academic year, based on the stratified random sampling method, is presented in the above mentioning table.

Table 3: Number of Samples for – (Interviews)

Year	Total Female Students	Identifying Sample	Selected Sample of Female Students
First Year	703	$52 \div 2611 * 703$	14
Second Year	681	$52 \div 2611 * 681$	14
Third Year	758	$52 \div 2611 * 758$	15
Fourth Year	469	$52 \div 2611 * 469$	9
Total	2611		52

Source: Field Survey, 2024

3.2.2 Secondary Data Collection Methods

Secondary data refers to data that the researcher obtains from pre-existing sources. This type of data helps provide background information on the study, clarify its significance, and understand the characteristics of the study area. For this research, secondary data was collected from a variety of sources, including journals, research articles, research reports, websites, and student registry reports. Secondary data serves as the foundation for a comparative analysis of certain issues addressed in this study. The following are the key secondary data sources utilized:

- Student Registry Report (Report from the Information and Documentation Center of the Faculty of Arts, University of Colombo)
- Research reports
- Research articles
- Journals and websites



Figure 2: Study area map of sample selection
Source: Google Earth Pro, 2024

3.3 Data Analysis

To meet the objectives of this study, both quantitative and qualitative data were carefully analyzed using methods that helped bring out patterns, perspectives, and deeper insights from the participants. The goal was not just to report statistics, but to truly understand how female students manage their menstrual hygiene and what challenges they face. The quantitative data, collected through questionnaires, were analyzed using basic descriptive statistical methods such as percentages, frequency distributions, and simple comparisons. These helped illustrate trends in menstrual product use, how often products are changed, cost patterns, brand preferences, and disposal methods. All the data were processed and visualized using Microsoft Excel, making it easier to present the findings clearly in the form of tables,

charts, and graphs. On the other hand, the qualitative data mainly gathered from interviews and open-ended questionnaire responses were analyzed using a thematic analysis approach. After reviewing the responses, common themes were identified and grouped to reflect the real voices and concerns of the students. These included topics like lack of awareness, environmental worries, economic challenges, and personal health experiences.

This helped give life and depth to the numbers, offering a fuller understanding of the issues. To support the geographical context of the study, GIS tools like ArcGIS and Google Earth Pro were used to create maps of the study area and sample distribution. These visual tools helped show where the study took place and how the student samples were spread across different academic years. Although GIS wasn't used for in-depth spatial analysis, the maps played an important role in making the research more visual and accessible. By combining statistics, personal voices, and geographic context, this study aims to offer a well - rounded view of menstrual hygiene practices and perceptions among female students at the University of Colombo.

4.RESULTS AND DISCUSSION

Based on the questionnaires and interviews, this study explored the geographical backgrounds of the students in the Faculty of Arts. Specifically, the focus on students' residence in urban and rural areas was intended to examine how the use of menstrual hygiene products, awareness of related issues, and educational levels vary across different regions. Given that the university attracts students from diverse

areas, the findings from this study are aimed at providing insights that can be applied to rural, urban, and estate contexts. The analysis of students' residence was conducted with the goal of addressing these regional differences and reaching a broader audience across rural, estate, and urban.

Based on the data, the majority of female students attending the Faculty of Arts at the University of Colombo come from rural areas, with 58% originating from these regions. In contrast, the proportion of female students from estate areas is significantly lower, accounting for only 20%. Additionally, it is noteworthy that, on average, 52% of the female students in the Faculty of Arts come from urban areas.

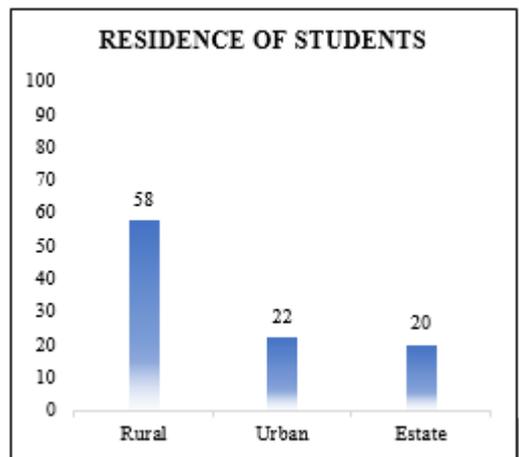


Figure 3: Residence of Students

Source: Field Survey, 2024

4.1 Types and Use of Menstrual Pads Among Female Students

According to data obtained from the students, 94% are using single-use sanitary napkins. Among those who use sanitary napkins, 48% reported using the Eva brand and 40% reported using the Fems brand, making these

the most popular choices. Other brands of sanitary napkins are utilized to a lesser extent, with only 6% of students indicating they use reusable cloth pads.

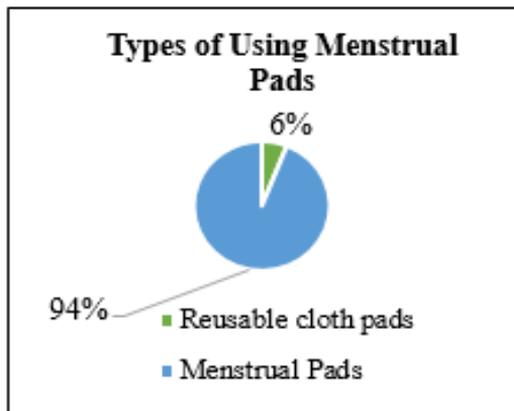


Figure 4: Types of Using Menstrual Pads
Source: Field Survey, 2024

This small percentage cited factors such as excessive bleeding, itching, irritation, inflammation, and cost as reasons for their choice of reusable pads. By analyzing the most common types of menstrual pads and the brands preferred by female students, we can identify the most popular options as well as assess their quality, price, and suitability for physical health. This analysis is crucial for highlighting the statistical data regarding menstrual pad usage and can aid in conducting awareness activities at the university level. Additionally, it provides guidance for students in selecting the best types of menstrual pads.

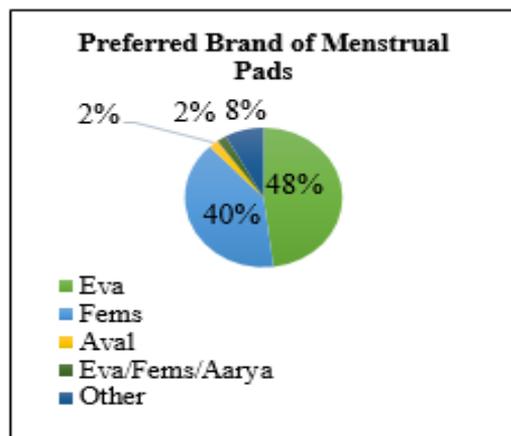


Figure 5: Preferred Brand of Menstrual Pads
Source: Field Survey, 2024

4.2 Receiving formal education about menstrual hygiene management

The surveyed female students were asked about how they maintain their well-being and health during menstruation. Specifically, the study examined whether they had received formal education at the school or university level regarding proper menstrual hygiene and practices to protect their health and genital area during menstruation.

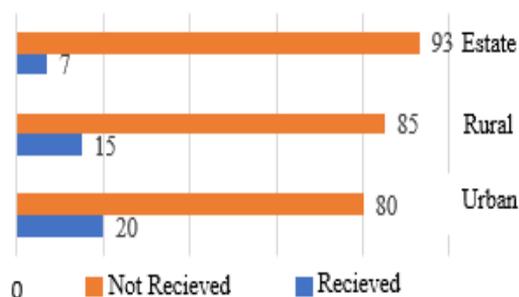


Figure 6: Receiving formal education about menstrual hygiene management
Source: Field Survey, 2024

While all the female students said they had at least some basic knowledge about menstrual hygiene mostly picked up from family, friends, or social sources very few had actually received proper formal education on the topic. The findings show that only 7% of estate area students, 15% of rural students, and 20% of urban students had access to formal lessons about menstrual hygiene management. This shows a clear gap, especially in rural and estate areas, where most students still lack structured guidance and accurate information to manage their menstrual health confidently and safely.

4.3 Frequency of changing Menstrual pads Per Day

Most students said they changed their menstrual pads around three times a day during their periods. Around 29% changed their pads twice a day, 43% changed them three times a day, and 28% said they changed their pads more than three times daily, especially on heavy flow days. This shows that many students are aware of the importance of staying clean and healthy during menstruation. Changing pads regularly helps prevent discomfort, infections, and other health problems, making it an important part of good menstrual hygiene.

Therefore, understanding the frequency of pad changes is essential for ensuring proper hygiene, especially during periods of excessive bleeding. Furthermore, it is important to examine the costs associated with the number of menstrual pads used monthly. This analysis can help distribute economically, hygienically, and environmentally sustainable menstrual hygiene products to university students and

suggest better mentoring programs for women throughout the university.

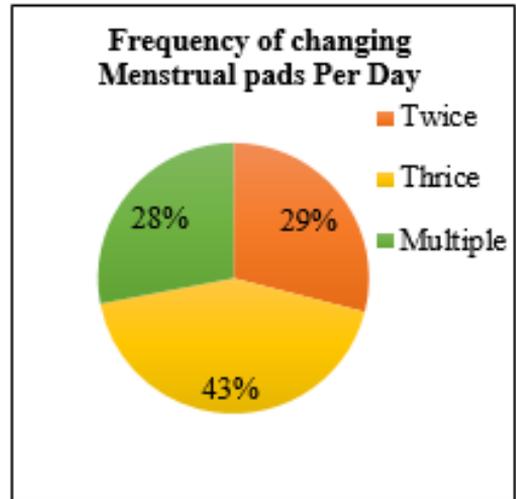


Figure 7: Frequency of changing Menstrual pads Per Day

Source: field Survey, 2024

4.4 Student Perceptions Regarding the Youth Wellness Center

When students were asked about the possibility of providing low-cost menstrual pads through a Youth Wellness Center to be established in the study area, 49% of respondents viewed this as a viable solution, noting that such a facility already exists on the university premises. However, 51% of the students expressed the opinion that the activities of the Youth Wellness Center should be expanded, and that further initiatives could be developed to better serve the needs of students on university premises.

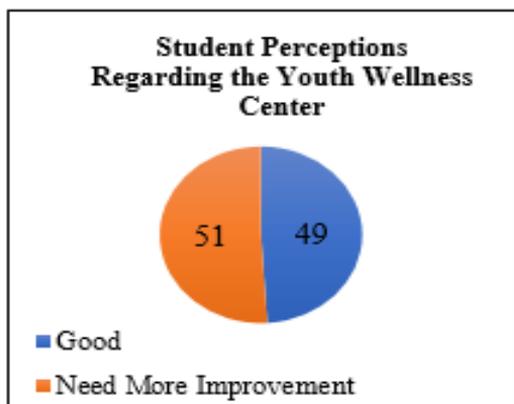


Figure 8: Student Perceptions Regarding the Youth Wellness Center
 Source: Field Survey, 2024

4.5 Monthly Cost of Menstrual Hygiene Products

Menstruation is often perceived as a challenge that women face each month, and as a result, the expenditure on menstrual hygiene products can be significant. According to the feedback received from the female students in the study area, the number of menstrual pads used each month was categorized into five groups, with costs ranging from 270 to 700 rupees.

Most students incur expenses between 270 and 400 rupees. Specifically, 36% of female students require between 1 and 10 menstrual pads during their menstrual cycle, resulting in monthly spending within this range. Conversely, 6% of female students indicated they spend between 550 and 700 rupees due to using more than 20 menstrual pads monthly. The study results highlight that costs also vary based on the number of menstrual pads, as each student purchases different sizes each month.

The monthly expenses of students vary depending on the type, brand, and price of the menstrual pads they use. For instance, 16% of female students use fewer than 10 menstrual pads per month, with a monthly expenditure between 240 and 300 rupees. Meanwhile, 18% of female students use 15 to 20 menstrual pads per month, with costs ranging from 540 to 700 rupees. Furthermore, 24% of students reported using between 10 to 15 menstrual pads per month, with a monthly expenditure ranging from 350 to 560 rupees.

A significant challenge noted by the students is the financial burden of purchasing disposable menstrual pads, which they must manage willingly or unwillingly. The monthly cost can escalate from 300 to 700 rupees when using more than 10 to 20 menstrual pads.

Table 4: Monthly cost of hygiene products

Number of menstrual pads used	Number of Female Students	Cost
Users of fewer than 10 menstrual pads	16%	270 - 300/=
Users of 1 to 10 menstrual pads	36%	270 - 400/=
Users of 10 to 15 menstrual pads	24%	350 - 560/=
Users of 15 to 20 menstrual pads	18%	540 - 700/=
Users of more than 20 menstrual pads	6%	550 - 700/=

Source: Field Survey, 2024

This poses a substantial challenge for students who are pursuing their education while living away from home, as they must budget for these expenses in addition to education, food, and accommodation costs. Moreover, menstrual hygiene issues can lead to various health complications, further complicating this situation.

The research indicates that the average monthly expenditure for 36% of the students

is between 270 and 400 rupees for the purchase of menstrual pads. Overall, the findings suggest that the monthly cost for menstrual hygiene products varies significantly among students based on their usage patterns and the types of products they choose. Consequently, this analysis underscores the need for action plans at the university level to manage costs and maintain students' menstrual hygiene, including programs to distribute hygienic menstrual products at reduced prices on campus.

4.6 Purchasing Methods of menstrual Pads

Understanding how to purchase menstrual pads is crucial for students. The data indicate that 50% of female students primarily buy menstrual hygiene products at supermarkets. Additionally, 22% purchase from pharmacies, while 18% buy from supermarkets, and 10% obtain products from local stores. Diversifying the locations for purchasing menstrual hygiene products such as supermarkets, pharmacies, and retail shops is essential. Despite this, many women face challenges when purchasing menstrual pads.

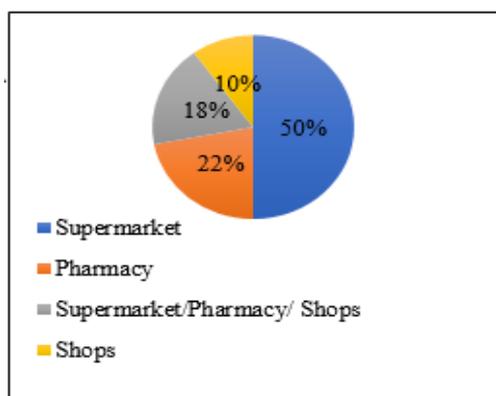


Figure 8: Purchasing Methods of menstrual Pads

Source: Field Survey, 2024

These challenges include feelings of shyness, concerns about being judged, and the discomfort of having men witness their purchases. This analysis is vital for understanding how university students, particularly young women, navigate their personal needs. Some students noted that they can purchase more menstrual pads at lower prices in supermarkets and pharmacies compared to the youth wellness center at the university. Therefore, it is essential to analyze the purchasing methods for menstrual hygiene products, considering students' natural thoughts, emotions, and financial situations, and to promote a comfortable purchasing experience that alleviates any discomfort associated with this necessity.

4.7 Potential Ecological Impacts of Menstrual Pads Use

According to the data obtained from the female students sampled in the study area, the following responses were provided regarding the possible ecological impacts of menstrual pads use and management. The students noted various environmental impacts associated with the use and management of menstrual pads:

High Resource Consumption

The production of menstrual pads requires a significant amount of raw materials such as water, wood pulp, and plastic. The students noted that this contributes to resource depletion.

Waste Generation

Disposable menstrual pads contribute to landfills due to non-biodegradable components such as plastic and synthetic fibers. This means they are buried in the

ground or burned, taking years to decompose. Consequently, the students mentioned that this practice causes land pollution.

Toxic Chemical Discharge

Some menstrual pads contain toxic chemical compounds and various plastics that leach into the environment during production, use, and disposal, harming ecosystems and human health.

Water Pollution

Single-use sanitary towels pose a threat when released into the environment after use, causing runoff and reaching water bodies. The data obtained from the students indicated that the release and improper disposal of chemicals lead to water pollution. According to the opinions expressed by many students, even if used menstrual pads are burned or buried in the ground, they still contribute to soil pollution (Source: Field Survey, 2024).

4.8 Disposable methods of Menstrual Pads

Similarly, when asked how they dispose of used menstrual pads, the majority of surveyed students provided the following responses:

- Wrapping in paper and placing in the trash
- Burial
- Some indicated procedures such as burning

Generally, all menstrual pads contain polyethylene and plastic components, which take approximately 500 to 800 years to decompose and release back into the

environment through the disposal methods mentioned by the students.

Therefore, this analysis revealed that although the students highlighted various environmental impacts related to the use and management of menstrual pads, there is a lack of awareness regarding the environmental pollution caused by their disposal and management practices. This analysis also contributed to achieving the second research objective.

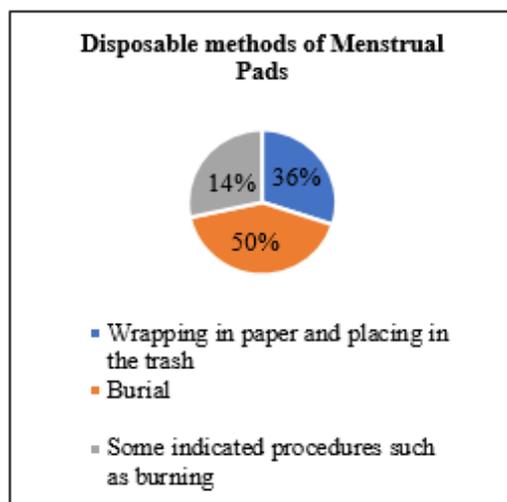


Figure 10: Disposable methods of Menstrual Pads

Source: Field Survey, 2024

4.9 Awareness Regarding Menstrual Health Management

Data collection regarding awareness related to menstrual hygiene and the use of menstrual pad was conducted among female students at the Faculty of Arts, University of Colombo. The findings indicated that a significant number of students believe proper awareness is not provided at the university, leading to various challenges in the study area.

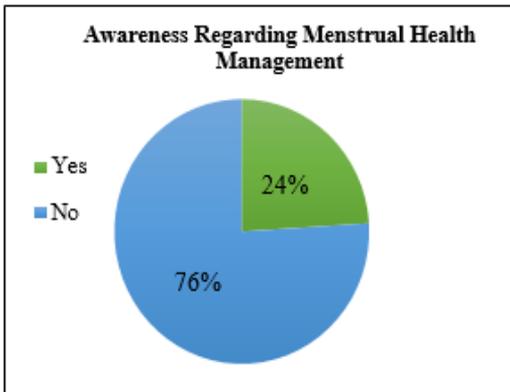


Figure 11: Awareness Regarding Menstrual Health Management

Source: Field Survey, 2024

Specifically, among the 76% female students surveyed, it was noted that warnings related to menstrual hygiene are rarely issued, with only 24% female students stating that such warnings are provided occasionally.

4.10 Challenges in Implementing Menstrual Hygiene Management in the Study Area

The data collected through questionnaires and interviews revealed significant challenges in implementing menstrual hygiene management within the study area. When asked about the obstacles they face in menstrual toilet management, the majority of female students reported the absence of sanitary procedures for menstrual toilet management on the Faculty of Arts premises of the University of Colombo.

In total, 76% female students indicated that there is a lack of menstrual hygiene management facilities on the university premises, whereas only 24% male respondents commented that menstrual hygiene management exists.

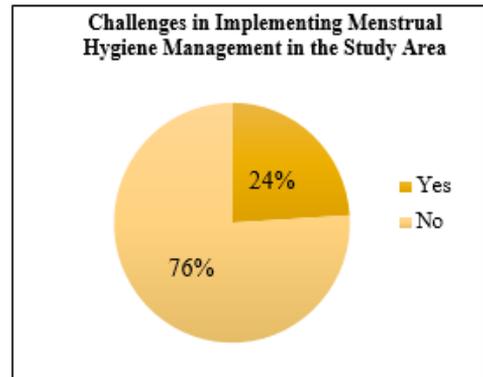


Figure 12: Challenges in Implementing Menstrual Hygiene Management in the Study Area

Source: Field Survey, 2024

4.11 Potential Health Effects of Menstrual Pads Use

The use of menstrual pads can have various impacts on human health as well as environmental consequences. Based on the interviews and questionnaires, the data obtained from the students in the study area indicated several health effects, which can be exemplified as follows: Irritation, Respiratory diseases, Itchiness in the genital area, Frequent wetness, Allergies (irritation and inflammation), Changes in mood, Anger, Specific site redness, Swelling, Soreness, Pancreatic infections, Difficulty walking, Body aches and headaches.

The students reported experiencing various allergic reactions due to exposure to blood that can accumulate in sanitary napkins during menstruation. Female respondents indicated symptoms such as itching, swelling, and redness, particularly in the genital area. These reactions were noted to occur especially when menstrual blood interacts with the chemicals potentially present in menstrual pads, leading to a moist

environment that exacerbates these allergic symptoms.

According to the Menstrual Hygiene Alliance of India, approximately 121 million women prefer single-use menstrual pads to maintain menstrual hygiene. However, the use of these products is associated with several health issues, including urogenital infections, skin irritation, discomfort, and reproductive health problems (Ravali et al. 2023). Additionally, the students highlighted that the inflammation of the genital area can lead to physical discomfort, manifesting as wounds and sores, which adversely affects overall well-being.

According to the feedback provided by the students, irregular menstrual hygiene practices are linked to various health issues, including bacterial infections, skin irritations, genital infections, and yeast infections. The use of reusable cloths without proper cleaning poses a significant risk for genital infections. Furthermore, menstrual pads containing toxic chemical ingredients, such as perfumes, plasticizers, and dioxins, can adversely affect health by being absorbed directly into the bloodstream, potentially harming fetal development and disrupting the endocrine system (Ganguly et al. 2022). In light of this information, the students underscore the critical importance of addressing these issues within the context of menstrual health management.

4.12 Menstrual waste management practices

In many countries around the world, proper practices for the disposal of used menstrual products have yet to be implemented. This is particularly true in developing countries like India, where environmentally harmful

practices such as dumping in garbage bins, flushing toilets, and burning are still common (Kaur et al. 2018).

Inadequate menstrual hygiene management is a global issue, particularly affecting women in developing countries. It is estimated that between 12.3% and 75% of women lack access to or the ability to purchase sanitary products, often resorting to using low-quality alternatives such as old cloths, toilet paper, or sponges (Anbesu & Asgedom, 2023).

Menstrual waste disposal practices vary significantly worldwide. Due to the lack of proper waste management systems, in developed countries, menstrual waste is typically disposed of in landfills, while in developing countries, it is often discarded in open spaces or water bodies. In the United States, most menstrual waste is incinerated, whereas in Canada, it is landfilled (Hygiene, 2023).

4.13 Challenges encountered during the study and strategies adopted to overcome them

This study faced several challenges, which were addressed through specific strategies:

Lack of Reliable Responses: Incomplete or unclear student responses to questionnaires were a concern. To improve reliability, students were asked for clarifications, and discussions were held to ensure accuracy and consistency.

Lack of Secondary Data: Limited research on female students' perceptions of menstrual hygiene and agency created a data gap. To address this, a comprehensive literature review was conducted, and additional

insights were gathered through student interviews.

Insufficient Time: A tight deadline hindered data collection and analysis. To meet the timeline, telephone interviews were used, and data collection was accelerated.

Language Barriers: Language difficulties arose across Tamil, Sinhala, and English. To mitigate this, English questionnaires were provided with Sinhala translations for unclear terms, ensuring smooth data collection.

Lack of Timely Data Availability: Delays in receiving completed questionnaires and scheduling interviews were managed by setting deadlines for submissions and conducting phone interviews to expedite data collection.

5.CONCLUSION

This study, conducted at the Faculty of Arts, University of Colombo, provides preliminary findings and future trend predictions regarding menstrual hygiene perceptions and practices among female students. Results indicate that 58% of students engaged in learning activities are from rural areas, while 52% are from urban areas. Notable disparities exist between rural and urban students regarding access to sanitary napkins, knowledge of their use, and disposal practices, highlighting distinct perceptions influenced by regional background. Notable disparities exist between rural and urban students regarding access to sanitary napkins, knowledge of their use, and disposal practices, highlighting distinct perceptions influenced by regional background. These disparities can be attributed to several

factors. In many rural and estate areas, structured menstrual hygiene education programs are limited, and traditional cultural taboos often discourage open discussions about menstruation. Additionally, financial barriers make it difficult for many families to prioritize menstrual hygiene products, and a lack of proper sanitation facilities further limits awareness and safe practices. These combined social, economic, and infrastructural challenges contribute to the significant gap observed between rural, estate, and urban students. Only 15% of rural and 7% of estate area students have basic menstrual hygiene knowledge, compared to 20% of urban students. This significant gap underscores the need for improved educational guidelines, particularly in rural areas, where engagement with menstrual well-being guidelines remains low. These findings can guide the development of future educational resources focused on menstrual health. The study also outlines brand preferences, with 48% of students using Eva and 40% using Fems. While 94%-100% use single-use menstrual pads, only 6% rely on reusable cloth pads due to concerns about comfort and cost. Diagrams accompanying the study illustrate various menstrual hygiene products, supporting students in choosing products suited to their physical needs.

Monthly spending analysis reveals costs ranging from Rs. 270 to Rs. 700, with 36% of students spending Rs. 270 to Rs. 400 and 6% incurring costs between Rs. 550 and Rs. 700. This financial burden highlights the necessity for university initiatives to ensure access to affordable menstrual products. Additionally, the study notes that 43% of students change their pads three times a day, with supermarkets, pharmacies, and local stores

servicing as primary purchasing locations. While most students report a regular menstrual cycle, 24% experience irregularities, such as frequent periods or heavy bleeding. Environmental and health impacts are also significant, with improper disposal of menstrual pads - littering (57%), burying (25%), and incineration (18%) - posing both ecological and health risks. Feedback from the Youth Wellness Center initiatives shows that 51% of students advocate expanding these programmes. In a context where over 80% of the local population is female, awareness of menstrual hygiene is critical, yet 74% of respondents report insufficient educational access. These findings point to a pressing need for comprehensive solutions that address both educational and accessibility gaps.

6.RECOMMENDATIONS

The students of the Faculty of Arts at the University of Colombo face not only various health issues related to the types of menstrual pads they use daily but also contribute to significant environmental challenges due to improper management of these products. To address these concerns, the researcher proposes seven recommendations under the topic of strategies and methods for alleviating such problems. These recommendations were deemed appropriate by the students. The proposed strategies aim to reduce the social, economic, health, and environmental issues faced by female students in the study area, focusing on the use and management of menstrual pads. Additionally, the recommendations emphasize the importance of accessing reusable, environmentally friendly, health-conscious, and cost-effective menstrual products.

Promotion of Reusable Menstrual Pads or Menstrual Hygiene Products

Encouraging the use of reusable menstrual products, such as menstrual cups and cloth sanitary napkins, and extending this guidance from school to university level, would make these products more accessible to the entire female student community. This approach could help reduce environmental threats and health risks associated with disposable products.

Providing Proper Education on Menstrual Hygiene

Integrating topics such as health risks related to menstrual pad use, environmental pollution, proper disposal of menstrual pads, and maintaining personal hygiene during menstruation into existing health education programs would enhance menstrual hygiene practices. This education, delivered in an accessible manner, could also help change societal and cultural misconceptions about menstruation.

Establishing Procedures for Accessing Affordable, Hygienic Menstrual Pads

In countries such as India and Kenya, environmentally and health-friendly menstrual pads made from hemp and banana fibers are distributed. Similarly, in Sri Lanka, these products could be made easily accessible to students at low or subsidized prices, without imposing taxes. This approach would not only enhance health safety but also support the implementation of environmentally sound waste management practices.

Introducing Menstrual Hygiene-Related Courses in Universities

The study revealed that many female university students lack knowledge about

menstruation and menstrual hygiene. Including menstrual hygiene programs in university curricula and raising awareness can contribute to better menstrual health practices among the female student community and encourage their integration into daily life.

Expanding Appropriate Waste Disposal and Management Techniques in Universities

Existing waste disposal systems in university latrines should be upgraded to more hygienic and convenient systems. Expanding the cleaning protocols for latrines and creating separate facilities for male and female students can help maintain a hygienic environment, especially in managing menstrual waste.

Developing Plans for Collaboration with Local NGOs and Community Organizations

At the university level, in collaboration with local NGOs and community organizations, initiatives like the Youth Wellness Center could be expanded. Students could form groups or organizations dedicated to educating their peers about sustainable menstrual hygiene practices, including the use and disposal of menstrual cups, and facilitate information exchange.

Conducting Research and Monitoring Activities in the Study Area

Encouraging faculty members to conduct research and publish papers on sustainable menstrual hygiene would help raise awareness among students. Additionally, establishing a committee to monitor and assess the implementation of proper menstrual hygiene practices among students could provide continuous feedback and identify areas for improvement.

These recommendations aim to address the dual challenges of menstrual health and environmental sustainability faced by female students at the Faculty of Arts, University of Colombo. A holistic approach to improving their well-being and protecting the environment is critical for lasting impact.

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