Greening The Period: Organic Menstrual Practices Among Female Students at Periyar University

Kalaiyarasi K[1], Sundara Raj T[2]
[1]*Ph. D Researcher, Department of Sociology, Periyar University, Salem*
[2]*Professor and Head, Department of Sociology, Periyar University, Salem*

***Abstract*—Menstrual hygiene management is an important component of women's health, dignity, gender equality, and environmental sustainability. Although disposable sanitary pads remain the most commonly used menstrual product, their widespread use raises concerns regarding plastic waste, disposal practices, and the long-term environmental burden associated with single-use products. At the same time, menstrual practices are shaped not only by individual preferences but also by cultural beliefs, family norms, economic conditions, accessibility, social stigma, and environmental awareness. This article examines the sociological dimensions of sustainable menstrual practices among female students at Periyar University. It focuses on the relationship between ecological consciousness, menstrual stigma, product accessibility, affordability, and the knowledge–practice gap surrounding eco-friendly menstrual products. The article argues that university students occupy a significant transitional position: they are increasingly exposed to environmental education and sustainability discourses while continuing to experience traditional beliefs and family-based restrictions surrounding menstruation. Previous research suggests that sustainable menstrual products can reduce waste and may offer long-term economic benefits, but adoption is influenced by affordability, accessibility, cultural norms, hygiene concerns, and the availability of appropriate education. Life-cycle evidence further indicates that reusable products can have substantially lower environmental impacts than many disposable alternatives, although environmental performance depends on the complete life cycle of the product and patterns of use. The article proposes a sociological framework connecting socio-cultural practices, perceived health and environmental risks, and behavioural change. It concludes that promoting sustainable menstrual hygiene requires more than simply increasing awareness; it requires culturally sensitive education, affordable access, improved availability, supportive infrastructure, and the normalization of open conversations about menstruation.**

***Index Terms*—Menstrual hygiene management, sustainable menstruation, eco-friendly menstrual products, menstrual stigma, environmental awareness, university students, Periyar University**

I. INTRODUCTION

Menstruation is an inevitable and fundamental biological phenomenon, yet its management has evolved into a complex intersection of public health, environmental sustainability, and socio-cultural dynamics. During a typical reproductive lifespan, a woman utilizes between 10,000 and 15,000 sanitary pads. According to the National Family Health Survey-5 (NFHS-5), an overwhelming 77% of Indian women currently rely on commercially manufactured, plastic-based sanitary napkins. While these products offer high absorbency and convenience, their material composition comprising synthetic fibers, polypropylene, super-absorbent polymers (SAP), and chemical adhesives poses significant hazards. Prolonged dermal exposure to these materials is linked to localized irritation, contact dermatitis, infections, and potential long-term endocrine disruption.

Concurrently, the environmental toll of conventional menstrual hygiene management is devastating. A single disposable plastic pad requires between 500 and 800 years to fully decompose. When disposed of improperly through burying or unregulated incineration, these products contribute to severe soil and water contamination, simultaneously releasing highly toxic dioxins into the atmosphere. In response to these dual crises of health and ecology, "greening the periods" has emerged as a critical imperative. Eco-friendly alternatives manufactured from naturally

derived, biodegradable materials such as organic cotton, bamboo, and banana fiber present a viable solution that mitigates both physiological harm and ecological degradation.

However, the transition toward organic menstrual practices is not merely a logistical matter of product substitution; it is a complex sociological negotiation. Menstrual practices remain deeply entrenched in traditional frameworks where menstruation is stigmatized as a state of impurity and defilement. Enduring myths manifest as spatial and behavioral restrictions such as exclusion from kitchens, temples, and communal spaces functioning as a pervasive mechanism of social control. This stigma stifles open discourse on menstrual hygiene, rendering the shift toward sustainable alternatives an arduous behavioral and cultural challenge.

II. REVIEW OF LITERATURE

To contextualize the behavioral dynamics surrounding sustainable menstrual hygiene, a review of recent literature reveals several distinct themes. The existing scholarship predominantly highlights a systemic disconnect between ecological awareness and practical product adoption, deeply influenced by socio-cultural, psychological, and economic determinants.

The Knowledge-Practice Disconnect

Recent empirical studies consistently identify a pronounced knowledge-practice gap regarding sustainable menstrual products. While awareness of eco-friendly alternatives has reached moderate levels among educated urban and semi-urban populations, actual behavioral adoption remains disproportionately low (Bansal & Mehta, 2022; Hani & Nilaya, 2025). For instance, research examining university cohorts demonstrates that despite an intellectual recognition of the environmental and health benefits associated with green products, less than a quarter of participants actively transition away from disposable plastics (Patel & Singh, 2023; Sharma & Joshi, 2023). A systematic review by Van Eijk et al. (2019) corroborated that while sustainable products like menstrual cups are highly effective and safe, initial adoption is frequently hindered by a steep learning curve and a lack of sustained educational reinforcement.

Socio-Cultural and Psychological Barriers

The literature universally identifies entrenched cultural stigma as the primary impediment to the adoption of sustainable menstrual products. A pervasive fear of physical discomfort, deeply rooted hygiene misconceptions, and cultural taboos heavily restrict the trial of unfamiliar products (Agarwal & Singh, 2023; Sharma & Iyer, 2023). Furthermore, Kaur and Bedi (2022) note that adolescent girls and young women often lack the necessary familial support or intergenerational guidance to navigate away from normative plastic products. Consequently, these young women remain tethered to conventional, culturally sanctioned options, even when they possess a strong degree of modern ecological awareness. The stigma surrounding menstruation ultimately dictates that products must be purchased discreetly and disposed of invisibly, a requirement that conventional plastic pads easily fulfill.

Economic and Logistical Constraints

Beyond psychological hesitance, structural and economic constraints significantly impede behavioral change. Research by Nikhil and Sharma (2022) and Jain and Choudhary (2023) underscores that limited local availability, fragmented supply chains, and the perceived premium cost of organic pads deter women from making sustainable choices. Even among demographics that express a definitive willingness to transition to organic practices, the immediate accessibility and immediate affordability of plastic pads during menstrual "emergencies" often override long-term environmental intentions (Singh & Chawla, 2023).

The Role of Facilitators and Interventions Conversely, the literature also identifies key facilitators that promote the shift toward organic practices. Higher educational attainment, robust peer influence, and targeted awareness interventions positively correlate with green product adoption. Multi-stakeholder approaches involving health educators and non-governmental organizations (NGOs) have proven highly effective in dismantling myths, fostering positive product perceptions, and localized distribution (Das & Kumar, 2021; Verma & Rao, 2023). However, Thomas and Nair (2023) caution that while educational campaigns effectively elevate basic knowledge, overcoming systemic socio-cultural

resistance requires sustained, community-embedded interventions rather than isolated, short-term awareness drives.

III. RESEARCH GAP AND UNIQUENESS OF THE STUDY

While the existing literature provides a robust foundation for understanding menstrual hygiene management, significant sociological gaps remain. First, contemporary studies are geographically skewed, predominantly focusing on major metropolitan centers (e.g., Delhi, Mumbai, Bangalore) or strictly rural populations. There is a pronounced lack of localized, sociological inquiry focusing on the transitional demographic of female university students within the distinct socio-cultural landscape of Tamil Nadu, particularly at Periyar University.

Second, the current discourse predominantly treats cultural taboos merely as logistical barriers to adopting products like menstrual cups. There is a critical need to map the "ecological consciousness versus social exclusion" nexus—investigating how educated young women navigate the dissonance between their modern environmental education and their traditional household conditioning. Finally, existing research disproportionately privileges the adoption of menstrual cups, frequently overlooking the specific behavioral dynamics surrounding organic, biodegradable sanitary pads. This includes the unexamined misconception that biodegradable pads are exclusively elite, expensive, or online-only commodities.

IV. THEORETICAL FRAMEWORK

To address these gaps, this study is anchored in a tripartite theoretical framework:

1. The Socio-Cultural Dynamics of Menstruation:
Examining how structural stigma, superstition, and impurity narratives function as social control, limiting awareness and restricting bodily autonomy.

2. Health and Environmental Risk Perception:
Analyzing the "push factors"—how the growing recognition of the physiological hazards (toxins, SAPs) and ecological devastation (plastic pollution, dioxin emissions) of conventional pads drives the imperative for organic alternatives.

3. Determinants of Behavioral Change:
Bridging the knowledge-practice gap by evaluating the economic, logistical, and psychological factors that influence whether an ecologically conscious student will definitively adopt and sustain organic menstrual practices.

V. RESEARCH METHODOLOGY

Research Objectives

This study systematically investigates the transition toward organic menstrual practices among female students.

The primary objectives are fourfold:

1. To analyze the socio-economic determinants shaping menstrual hygiene choices and product accessibility.
2. To assess the respondents' ecological consciousness and awareness regarding the health and environmental impacts of sustainable menstrual products.
3. To investigate how traditional cultural taboos and dimensions of social exclusion influence modern menstrual management.
4. To evaluate behavioral dynamics, including purchasing patterns, peer influence, and the practical transition toward organic menstrual practices.

Research Design and Sampling Framework

The study employs a descriptive research design to observe and analyze the behavioral dynamics of the subjects in their natural socio-academic setting without external manipulation. The universe of the study comprises the female student population at Periyar University. Utilizing a purposive sampling method, data was collected from a targeted sample of 127 respondents.

Participant Criteria

To ensure data relevance and ethical compliance, strict inclusion and exclusion criteria were applied:

- Inclusion:

The study specifically targeted actively menstruating female students currently enrolled in undergraduate, postgraduate, or doctoral programs directly at the main Periyar University campus. Participants had to

demonstrate a willingness to provide informed consent, communicate comfortably in English (the language of the interview schedule), and openly discuss their menstrual practices.

- Exclusion:

The study excluded non-students (faculty, administrative staff, guest lecturers), alumni, dropouts, and students from affiliated external colleges. Additionally, non-menstruating individuals and those exhibiting discomfort or unwillingness to participate due to the culturally sensitive nature of the topic were excluded.

Data Collection

Fieldwork was conducted during March 2026. Primary data was gathered through face-to-face interviews utilizing a structured questionnaire, which afforded respondents the time and space to comfortably articulate their views. To contextualize the primary findings, secondary data was compiled from academic articles, books, printed documents, and official government portals.

Limitations of the Study

The primary limitation of this research is its geographical and demographic confinement. Because the study was conducted exclusively at Periyar University with a specific, localized sample size, the findings and subsequent conclusions reflect the socio-metric patterns of this particular campus and cannot be broadly generalized to other institutions or wider rural demographics.

Research question:

1. Is education level associated with awareness of eco-friendly products?
2. Is family income associated with willingness to adopt eco-friendly products?
3. Is participation in awareness programmes associated with intention to use eco-friendly products?
4. Is residence type associated with menstrual restrictions?
5. Is family support associated with sustainable product adoption?

Data analysis and Interpretation

RQ1: Is education level associated with awareness of eco-friendly products?

- Variables Analyzed: Current Education Level (Q2) and Awareness of eco-friendly menstrual products (Q10).
- Statistical Results: $\chi^2 = 0.0066,\ df = 1,\ p = 0.9351$.
- Interpretation: Since $p > 0.05$, there is no statistically significant association between education level and awareness. The vast majority of respondents, regardless of whether they are Undergraduate (UG) or Postgraduate (PG) students, are already aware of eco-friendly menstrual products (e.g., reusable cloth pads, menstrual cups, biodegradable pads).

RQ2: Is family income associated with willingness to adopt eco-friendly products?

- Variables Analyzed: Family Monthly Income (Q9) and Intention regarding the use of eco-friendly menstrual products in the future (Q17).
- Statistical Results: $\chi^2 = 54.1478,\ df = 6,\ p < 0.0001$.
- Interpretation: Since $p < 0.05$, there is a strong, statistically significant association between family income and willingness to adopt. Respondents from higher-income families (above ₹30,000) show a much higher readiness to definitely use/try or already use eco-friendly products. Conversely, the "interested but hesitant" response is exclusively found among the lower-income brackets (below ₹30,000), suggesting that financial constraints may cause hesitation despite interest.

RQ3: Is participation in awareness programmes associated with intention to use eco-friendly products?

- Variables Analyzed: Attendance at awareness programs regarding green menstrual practices (Q16) and Intention regarding the use of eco-friendly menstrual products in the future (Q17).
- Statistical Results: $\chi^2 = 11.5263,\ df = 4,\ p = 0.0212$.
- Interpretation: Since $p < 0.05$, there is a statistically significant association between program participation and intention to use. Participants who attended formal awareness programs (especially school/college programs) show a notably higher proportion of "already using them" compared to those who never attended any programs. This indicates that structured awareness initiatives

positively influence the actual adoption or definitive intention to use green products.

RQ4: Is residence type associated with menstrual restrictions?

- Variables Analyzed: Type of Residence (Home Town) (Q6) and Restrictions experienced during menstruation (Q20).
- Statistical Results:$\chi^2 = 4.5564, \quad df = 8, \quad p = 0.8038.$
- Interpretation: Since $p > 0.05$, there is no statistically significant association between where a respondent lives (Rural, Semi-urban, Urban) and the menstrual restrictions they face. Restrictions—such as not being allowed in the kitchen or facing multiple restrictions concurrently—are prevalent across all geographical backgrounds at similar relative frequencies.

RQ5: Is family support associated with sustainable product adoption?

- Variables Analyzed: Level of support from family members during menstruation (Q24) and Intention regarding the use of eco-friendly menstrual products in the future (Q17).
- Statistical Results:$\chi^2 = 29.5875, \quad df = 4, \quad p < 0.0001.$
- Interpretation: Since $p < 0.05$, there is a strong, statistically significant association between family support and product adoption. Respondents who receive "Emotional support" are overwhelmingly likely to already be using eco-friendly products. On the other hand, hesitation is most concentrated among those who only receive "Practical support (providing care, buying products)" without the emotional component.

VI. FINDINGS

1. Socio-Economic Profile

- The respondent base primarily consists of young adults, with 56.07% falling into the 21-23 age bracket.
- The sample is academically mature, featuring a majority of postgraduate students (63.55%) predominantly enrolled in the Science stream (60.75%).
- A significant majority of these students originate from rural areas (57.01%) and belong to lower-to-middle-income families, where over 61% survive on a monthly income of ₹30,000 or less, heavily relying on agriculture or daily wage labor.

2. Level of Awareness and Ecological Consciousness

- Ecological consciousness is high; 76.64% of respondents are aware of eco-friendly menstrual products, and over 75% explicitly know that conventional pads contain plastic and take hundreds of years to decompose.
- Despite this high awareness, 84.11% of the students face major structural barriers, reporting that eco-friendly products are unavailable, rarely available, or only available in limited places in their local areas.
- A hazardous disposal crisis exists due to poor infrastructure: 42.06% of these environmentally aware students are forced to dispose of plastic pads by burning or burying them, causing immediate local pollution.

3. Dimensions of Social Exclusion

- There is a sharp contrast between progressive campus life and traditional home environments. Nearly 65% of the respondents report that their home communities still view menstruation as a sensitive topic, a social taboo, or a subject not to be discussed openly.
- More than 76% of the students experience specific forms of marginalization during their periods, including being barred from kitchens and religious activities, or being subjected to separated sleeping arrangements.
- These spatial and social exclusions enforce a stigma that restricts women's confidence to assert their preferences regarding menstrual hygiene products within their households.

4. Behavioural Dynamics

- While 49.53% of students purchase their own products, maternal influence remains a dominant force, guiding the product choices for over 41% of the respondents.
- The adoption of green menstrual practices is largely a recent trend, with 62.62% of users having adopted

them within the last year, heavily driven by social media, online influencers, and peer networks.

- User satisfaction for organic products is deeply rooted in physical comfort (chemical-free/skin-friendly features) and ethical environmental satisfaction. However, economic realities threaten continued use, as 40.19% find eco-friendly products too expensive compared to standard plastic pads.

VII. CONCLUSION

The study uncovers a profound "Knowledge-Practice Disconnect" among the female students at Periyar University. While these young women possess the higher education and ecological literacy necessary to champion sustainable menstrual practices, their transition is severely bottlenecked by structural and socio-cultural realities. The desire to adopt green periods is frequently thwarted by a lack of local market availability, the high premium cost of organic products, and inadequate waste management infrastructure. Furthermore, the progressive attitudes nurtured in a university setting clash with deep-seated traditional taboos and household purchasing hierarchies in their home communities. Ultimately, economic necessity and supply-chain failures—rather than a lack of environmental education—play the dominant roles in dictating their current menstrual hygiene choices.

VIII. SUGGESTIONS

- Fix the Supply Chain and Achieve Price Parity:

Health interventions and market strategies must pivot away from merely "raising awareness" toward actively improving the local availability of eco-friendly products in rural and semi-urban spaces. Subsidizing these products or manufacturing them locally through Self-Help Groups (SHGs) can help overcome the massive affordability barrier faced by lower-income households.

- Establish Safe Disposal Infrastructure:

Immediate infrastructural investments are required to provide formal, safe waste management systems in rural communities and university hostels. This will provide students with a viable alternative to the highly polluting practices of burning or burying plastic-laden sanitary waste.

- Dismantle Cultural Taboos and Engage Decision-Makers:

Institutional awareness programs must expand beyond the classroom to dismantle the deep-rooted cultural taboos that restrict bodily autonomy. Because mothers and family elders often control household purchasing power and enforce social restrictions, educational efforts should be designed to bridge the gap between students and their families, fostering open, stigma-free dialogue at home.

REFERENCES

[1] S. Agarwal and P. Singh, “Adoption of sustainable menstrual products among urban women in India: A mixed-method study,” *International Journal of Sustainable Health Practices*, vol. 12, no. 2, pp. 45–60, 2023.

[2] A. Bansal and S. Mehta, “Consumer perceptions and acceptance of menstrual cups in India,” International Journal of Public Health Research, vol. 10, no. 3, pp. 15–25, 2022.

[3] P. Das and R. Kumar, “Role of NGOs in promoting sustainable menstrual hygiene in rural India,” Indian Journal of Community Health, vol. 33, no. 2, pp. 55–68, 2021.

[4] S. Garg and T. Anand, “Barriers and facilitators for adoption of eco-friendly menstrual products among Indian women,” Journal of Community Health & Sustainability, vol. 10, no. 1, pp. 12–28, 2022.

[5] U. Hani and R. Nilaya, “Awareness of menstrual cups among postgraduate students at the University of Mysore,” Nolegein: Journal of Human Resource Management & Development, 2025.

[6] R. Jain and P. Choudhary, “Sustainability and adoption of eco-friendly menstrual products in India: A stakeholder perspective,” Journal of Sustainable Health Practices, vol. 11, no. 2, pp. 40–55, 2023.

[7] A. Kapoor and P. Menon, “Eco-friendly menstrual products: Adoption, awareness, and challenges in urban India,” Journal of Sustainable Health Practices, vol. 11, no. 3, pp. 35–50, 2022.

[8] N. Kapoor and A. Verma, “Menstrual hygiene practices and adoption of reusable menstrual products among college students in Delhi,”

Journal of Public Health Research and Policy, vol. 9, no. 3, pp. 30–45, 2022.

[9] S. Kaur and P. Bedi, "Barriers to adoption of eco-friendly menstrual products among adolescent girls in Northern India," Journal of Adolescent Health and Hygiene, vol. 9, no. 2, pp. 25–38, 2022.

[10] A. Kulkarni and P. Deshpande, "Awareness and use of eco-friendly menstrual products among young women in Pune," Indian Journal of Women's Health Studies, vol. 8, no. 2, pp. 25–38, 2022.

[11] A. Mehta and S. Raghavan, "Multi-stakeholder approaches to promoting sustainable menstrual hygiene in India," Journal of Sustainable Health and Policy, vol. 13, no. 2, pp. 45–60, 2022.

[12] P. Nair and L. Thomas, "Sustainable menstrual products and women's health: A study in urban Kerala," Journal of Health Promotion and Education, vol. 15, no. 2, pp. 40–55, 2022.

[13] P. Nikhil and R. Sharma, "Barriers to adoption of reusable menstrual products in rural and semi-urban India," Journal of Sustainable Health Practices, vol. 10, no. 3, pp. 35–50, 2022.

[14] R. Patel and N. Singh, "Adoption of menstrual cups and reusable pads in Indian cities: A behavioral study," Indian Journal of Public Health Research & Development, vol. 14, no. 3, pp. 50–65, 2023.

[15] A. Rani and S. Gupta, "Awareness and adoption of menstrual cups among college students in Northern India," Indian Journal of Public Health Research & Development, vol. 14, no. 2, pp. 45–60, 2023.

[16] S. Reddy and M. Patil, "Impact of awareness programs on the use of menstrual cups in rural Karnataka," Indian Journal of Community Health Education, vol. 12, no. 1, pp. 25–38, 2021.

[17] M. Sharma and S. Rawat, "The effect of menstrual cups on sustainable hygiene management: Revolutionizing menstrual health," Journal of Advances in Zoology, 2024.

[18] P. Sharma and R. Joshi, "Menstrual hygiene management and sustainable products: A study of college students in India," Journal of Sustainable Health Practices, vol. 12, no. 2, pp. 40–55, 2023.

[19] V. Sharma and R. Iyer, "Exploring barriers to adoption of menstrual cups in Indian rural communities," Journal of Community Health Studies, vol. 14, no. 1, pp. 30–44, 2023.

[20] P. Singh and A. Chatterjee, "Adoption of reusable menstrual products among young women in India: Challenges and opportunities," Journal of Sustainable Health Practices, vol. 11, no. 4, pp. 40–55, 2022.

[21] R. Singh and M. Chawla, "Menstrual hygiene and green products: Barriers to adoption in semi-urban India," Journal of Community Health & Sustainability, vol. 12, no. 1, pp. 40–55, 2023.

[22] L. Thomas and P. Nair, "Multi-stakeholder perspectives on promoting eco-friendly menstrual products in India," Journal of Sustainable Health and Policy, vol. 13, no. 3, pp. 45–60, 2023.

[23] A. M. Van Eijk, G. Zulaika, M. Lenchner, L. Mason, M. Sivakami, E. Nyothach, H. Unger, K. F. Laserson, and P. A. Phillips-Howard, "Menstrual cup use, leakage, acceptability, safety, and availability: A systematic review and meta-analysis," The Lancet Public Health, vol. 4, no. 8, pp. e376–e393, 2019, doi: 10.1016/S2468-2667(19)30111-2.

[24] S. Verma and K. Rao, "Role of health educators in promoting sustainable menstrual practices in India," Journal *of Community Health Promotion*, vol. 11, no. 1, pp. 50–65, 2023.