iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** XII **Month of publication:** December 2025

DOI: https://doi.org/10.22214/ijraset.2025.76423

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue XII Dec 2025- Available at www.ijraset.com

Sustainable Consumerism: Market Demand for Eco-Friendly Subscription-Based Sanitary Products

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Abstract: ***Eco-friendly menstrual hygiene products are becoming more popular due to growing awareness of sustainable consumerism, especially when they are available through subscription-based delivery models. This study looks at consumer demand for environmentally friendly sanitary products and assesses the impact of subscription services on long-term loyalty and adoption. A mixed-methods approach was used to gather data from 150 female consumers between the ages of 18 and 45, as well as interviews with 20 industry experts and secondary market sources. Strong willingness to subscribe is revealed by quantitative analysis and thematic interpretation, motivated by cost effectiveness, convenience, and environmental concern. Higher initial costs and fewer product options, however, continue to be major obstacles. Results show that subscription models greatly improve customer retention, underscoring their potential to increase the adoption of sustainable menstrual hygiene. The study concludes that affordability, awareness, and transparent supply chains are essential for scaling eco-friendly sanitary products and supporting sustainable market growth.***

Keywords: Sustainable Consumerism; Menstrual Hygiene; Eco-Friendly Products; Subscription Services; Consumer Behavior; Green Marketing.

I. INTRODUCTION

Menstrual hygiene products are crucial for women's health, but because of the widespread disposal of plastic-based sanitary waste, they present serious environmental problems. Even though eco-friendly substitutes like organic tampons, biodegradable pads, and reusable menstruation products have become more well-known due to increased environmental consciousness, their uptake is still quite low. The shift to sustainable menstrual hygiene is still being slowed by ingrained reliance on conventional products, uneven availability, and low awareness.

Because subscription-based business models combine sustainability, regular access, and convenience, they have become a promising solution. These models promote environmentally responsible consumption, discourage last-minute purchases of disposable alternatives, and promote consistent usage through regular deliveries of eco-friendly sanitary products. The market for feminine hygiene is growing steadily on a global scale, with the eco-friendly category growing quickly as consumers place a higher priority on sustainability.Subscription services, in particular, have shown strong potential to enhance customer retention and build long-term loyalty.

Even with this expansion, the market share of environmentally friendly sanitary products is still low, particularly in developing nations. Higher upfront costs, a smaller selection of products, supply chain interruptions, regulatory uncertainty regarding environmental claims, and cultural stigma are some of the main obstacles. Subscription models increase access and awareness, but their success depends on affordability, trust, dependable logistics, and localized strategies, as demonstrated by case studies from both developed and emerging markets.

II. LITERATURE REVIEW

A. Overview

The literature currently in publication emphasizes the increasing convergence of menstrual health innovation, subscription-based business models, and sustainable consumerism. Recurring delivery models can normalize sustainable consumption by incorporating eco-friendly decisions into daily routines, according to research in subscription economics and green marketing. However, there is still little empirical data on eco-friendly sanitary product subscriptions, especially when it comes to post-adoption behavior and demand formation.

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B. Subscription models and sustainable consumerism

Environmental values, health consciousness, and eco-certifications have a major impact on purchase intentions in personal care markets, according to studies on sustainable consumer behavior. Despite the fact that eco-friendly menstruation products are linked to lower chemical exposure and environmental impact, their market share is still relatively small because of issues with effectiveness, price sensitivity, and habit persistence. Subscription models have been shown to enhance customer loyalty through personalization, convenience, and predictable replenishment. Prior research in beauty and personal care sectors indicates that recurring services improve retention and reduce waste by encouraging planned consumption. When applied to eco-friendly products, subscriptions align closely with circular economy principles by minimizing overuse and promoting reuse.

C. Demand Drivers and Barriers

Environmental awareness consistently emerges as the strongest driver of demand, particularly among younger consumers who demonstrate a willingness to pay modest price premiums for sustainable alternatives. Digital influence—especially through social media and peer endorsements—has further noticeable effects on awareness and trial adoption.

Despite these drivers, adoption is constrained by several barriers. Higher costs, limited accessibility, cultural stigma surrounding menstruation, and skepticism toward environmental claims continue to impede market expansion. Research also highlights regional disparities, with regulatory support and infrastructure playing a critical role in determining adoption levels.

D. Digital Integration and Emerging Trends

Recent studies underscore the growing importance of digital platforms in scaling sustainable subscription models. AI-driven personalization improves product–user fit and enhances renewal rates, while digital education tools increase awareness of product life cycles and environmental impact. Blockchain-based transparency initiatives have also been explored to counter greenwashing and strengthen consumer trust. However, the literature notes persistent challenges related to digital exclusion, privacy concerns, and unequal access to subscription infrastructure—particularly in developing regions—limiting the universal scalability of digital-first models.

E. Contribution of the Present Study

Unlike prior research, the current study adopts a holistic approach by jointly analyzing demand, retention, and digital engagement in eco-friendly sanitary product subscriptions. It extends existing theories through empirical validation, incorporates global and intersectional perspectives, and offers practical insights for brands and policymakers seeking to advance sustainable consumerism in menstrual health.

III. METHODS AND MATERIAL

A. Research Design

The study adopted a descriptive–exploratory mixed-methods design to examine market demand for eco-friendly sanitary products offered through subscription models. Quantitative surveys were used to identify demand patterns and influencing factors, while qualitative interviews provided deeper insights into consumer perceptions, barriers, and loyalty behavior. This approach ensured both breadth and contextual depth.

B. Population and Sampling

The target population comprised female sanitary product users aged 18–45 and industry professionals involved in sustainable menstrual care. Data were collected from 150 consumers through structured questionnaires and 20 industry experts via semi-structured interviews. Purposive sampling was employed to ensure diversity in experience and expertise relevant to eco-friendly subscription services.

C. Data Collection

- Primary data were gathered using:
- Structured questionnaires featuring Likert-scale and closed-ended items measuring awareness, affordability, convenience, and adoption intent.
- Semi-structured interviews focusing on subscription benefits, challenges, and retention dynamics.

Secondary data supplemented the analysis through industry reports, academic literature, and publicly available platform analytics related to sustainable sanitary products.

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D. Research Instruments and Quality Assurance

The questionnaire and interview guide were pilot tested to ensure clarity and consistency. Reliability analysis using Cronbach's alpha demonstrated strong internal consistency across key constructs. Content and construct validity were confirmed through expert review and exploratory factor analysis, identifying core demand dimensions. For qualitative data, inter-coder reliability checks ensured consistency in thematic interpretation.

E. Data Analysis Techniques

Quantitative data were analyzed using SPSS, applying descriptive statistics, correlation, regression, and factor analysis to identify key predictors of demand. Qualitative interview data were examined using thematic analysis with NVivo, enabling triangulation of findings across methods.

F. Ethical Considerations

The study followed institutional ethical guidelines, ensuring informed consent, confidentiality, voluntary participation, and data anonymity. Sensitive topics related to menstrual health were addressed using respectful and participant-centered approaches. Data were securely stored, and no conflicts of interest were reported.

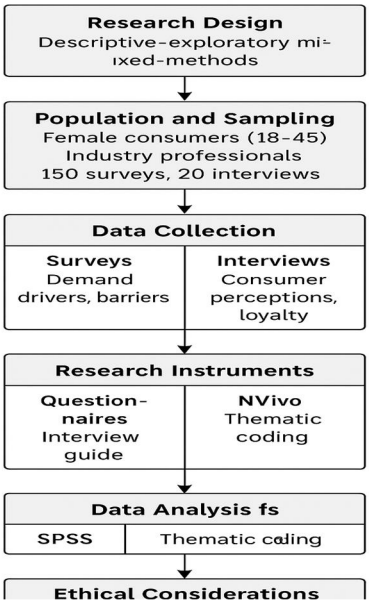


Fig : Eco - friendly sanitary product research flowchart

Aspect	Description
Research Design	Descriptive–exploratory study using a mixed-methods approach
Study Area / Context	Sustainable consumerism in eco-friendly sanitary product subscriptions
Target Population	Female sanitary product users (18–45 years) and industry experts
Sample Size	150 consumers (survey) and 20 professionals (interviews)
Sampling Technique	Purposive sampling based on relevance and experience
Primary Data	Structured questionnaires and semi-structured interviews
Secondary Data	Market reports, academic journals, and platform analytics
Research Instruments	Likert-scale questionnaire and interview guide
Pilot Testing	Conducted to ensure clarity, reliability, and validity

Aspect	Description
Quantitative Tools	SPSS (descriptive statistics, correlation, regression, factor analysis)
Qualitative Tools	NVivo (thematic coding and interpretation)
Key Variables	Awareness, affordability, convenience, trust, adoption, loyalty
Ethical Considerations	Informed consent, anonymity, confidentiality, secure data storage

Table : Table: Methods and Materials Summary

IV. CONCLUSION

This study examined market demand for eco-friendly sanitary products offered through subscription-based models within the broader framework of sustainable consumerism. The findings confirm a growing consumer inclination toward environmentally responsible menstrual hygiene solutions, driven primarily by environmental awareness, convenience, and trust in product quality. Subscription models emerge as a significant catalyst in translating sustainable intentions into consistent purchasing behavior by ensuring regular access, reducing reliance on conventional disposable products, and fostering habitual use.

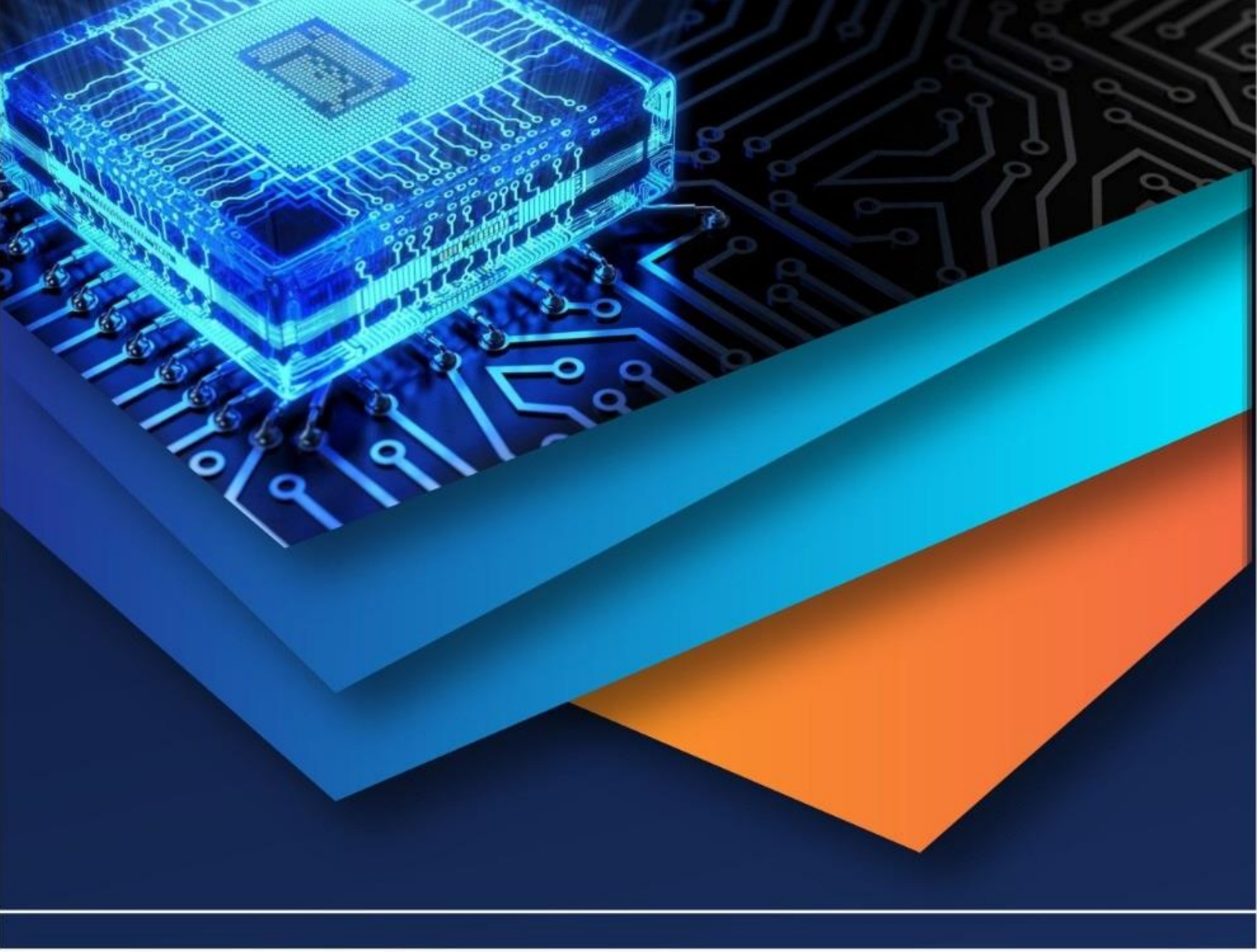
Despite strong demand potential, adoption remains constrained by affordability concerns, limited product variety, logistical inconsistencies, and skepticism toward sustainability claims. These barriers are particularly pronounced in price-sensitive and digitally underserved segments, highlighting the need for inclusive and region-specific strategies. The study further demonstrates that digital platforms—through personalization, education, and transparency—play a crucial role in enhancing consumer confidence and long-term loyalty.

Overall, the research establishes that subscription-based eco-friendly sanitary products represent a viable and scalable pathway toward sustainable consumption in personal care markets. By integrating affordability, transparent supply chains, and consumer education, brands and policymakers can accelerate adoption and retention while contributing to environmental sustainability and menstrual health equity. The study contributes empirically to the limited literature on subscription-driven sustainability and offers actionable insights to support the transition toward circular and responsible consumption models.

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