

Assessment of Knowledge Regarding Management and Disposal of Sanitary Napkins in Udaipur City, India

Bhawna Panwar¹, Prerna Shekhawat¹, Anjali Juyal² and Hemu Rathore³

¹Department of Food Science and Nutrition, CCAS, MPUAT, Udaipur, Rajasthan, India

^{2,3}Department of Resource Management and Consumer Science, CCAS, MPUAT, Udaipur, Rajasthan, India

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ABSTRACT

For women's health and personal hygiene, it's critical to manage periods in a hygienic way with the help of sanitary napkins. But over a period of time, the problem of disposing of sanitary waste has gotten worse in India. Since the presence of plastic in disposable sanitary napkins is non-biodegradable, there are risks to human health and the environment. This brief study investigates the sanitary napkin usage and menstrual waste management practices of women in Udaipur city. Because there aren't enough places to properly dispose of sanitary trash, it sometimes creates poisonous and unsanitary waste that has to be managed carefully. The administration should take the problem of inappropriate sanitary napkin waste management seriously and start exploring alternatives. The creation of creative approaches to manage these wastes is equally essential for a sustainable ecosystem. Thus, the focal point of this study will be on providing the suggestions to effectively manage sanitary waste alongside recommendations for disposing of used sanitary napkins.

Key words : Sanitary Napkins, Udaipur, Waste management

Introduction

Sanitary pads have undoubtedly transformed the lives of countless women, providing essential comfort and hygiene during menstruation. Between 2019 and 2024, the market for feminine hygiene products in India is expected to develop at a compound annual growth rate (CAGR) of 14.92%, from its 2018 value of INR 25.02 billion to INR 58.62 billion. This sector of the economy is significantly changing. Sanitary napkins are described as a type of disposable absorbent pad used to contain menstrual blood flow. Menstruation wastes are the wastes produced by a female during her reproduc-

tive years. Over the course of their menstruation days, 77.6% of Indian women on average would safeguard themselves via a sanitary method. While 15% of women still like using inexpensive local napkins, 64.4% of women prefer to use sanitary pads (The Economic Times, 2022). According to the NFHS-5, Indian women are not better at ease using anything but pads and cloth. The overall share of women using hygienic menstrual products exceeds 90% in 16 states and union territories.

These disposable products have become an integral part of many women's lives, but their environmental impact cannot be ignored which often go unnoticed amid their convenience. Sanitary waste

(¹M.Sc. Scholar, ²Guest Faculty, ³Prof. and Head)

disposal is an emerging issue in India since the plastic used in disposable sanitary napkins is not biodegradable and causes concerns to human health and the environment. Due to inefficient village and urban collection, disposal, and transportation networks and disorganised municipal solid waste management practises, the environmental impact is larger. A recent research found that the yearly production load of disposable sanitary napkins is 44,254 cm³ per female/year, significantly more than that of any other hygiene product. In India, it is estimated that 121 million women and teenage girls use eight sanitary napkins on average each month, amounting to 113,000 tonnes of menstrual waste yearly (India Science, Technology and Innovation, 2023). The waste management industry is under pressure due to the enormous volume of sanitary pad waste generated, and proper disposal is a concern. The land, aquatic bodies, and public health are all seriously endangered by the handling of sanitary waste using conventional tools and methods. Sanitary pads, while providing crucial menstrual hygiene management for millions of women, unfortunately, contribute to several environmental harms. One of the primary concerns is the non-biodegradability of most conventional sanitary pads, which are made from a combination of plastic and synthetic materials. When disposed of improperly, these pads accumulate in landfills, taking hundreds of years to decompose, releasing harmful microplastics and adding to the already escalating waste crisis. Additionally, the production process for these pads involves significant energy consumption and emits greenhouse gases, contributing to climate change. Moreover, the bleaching agents used in some pads can release dioxins into the environment, posing health risks for both wildlife and humans (Kara, 2021; Paul, 2020; Central Pollution Control Board, 2016).

The production of sanitary napkins requires significant resources, including water and energy. The process of manufacturing, packaging, and transporting these products has a carbon footprint that contributes to climate change (ASAN, 2023; Centre for Science and Environment, 2022; Fourcassier *et al.* 2022). The bleaching and chemical treatments like Phthalates and VOCs used in the production of sanitary napkins can lead to the release of harmful chemicals into the environment. Pthalate exposure has been associated with a number of health issues, including endocrine disruption, effects on the heart and reproductive systems, diabetes, certain malig-

nancies, and birth abnormalities. The chance of developing malignancies, impairments, asthma, brain damage, and issues with the reproductive system rises with exposure to VOCs (TOI, 2022; Upson *et al.*, 2022 and Bae *et al.*, 2018). These chemicals may not only harm the ecosystem but also pose health risks for the workers involved in the manufacturing process. Disposing of used sanitary napkins is a challenge in itself. The lack of proper waste management infrastructure in many regions means that these products often end up in open spaces, clogging drains, and causing sanitation issues. This not only degrades the environment but also poses health risks to communities.

Methodology

A survey was undertaken in this study to better understand the menstrual practises of the participants. Present study was conducted on 70 females in Udaipur city by convenience sampling method. The survey for this study came to a conclusion when there were 70 female participants overall in Udaipur district. A questionnaire was developed by the researcher for the data collection. All the facilities available at College of Community and Applied Sciences, Maharana Pratap University of Agriculture and Technology, Udaipur were used for conducting the proposed investigation.

Results and Discussion

According to the Table 1, Majority (81.42%) of the respondents were students (80%) belonging to the 18-25 age group and had education level up to graduation (50%).

The majority of respondents (95.7%) in Table 2 stated that they use sanitary pads to contain the menstrual flow. In contrast, 18.6% of respondents reported of using cotton pads during menstruation, which is a more environmentally friendly choice than the 95.7% of respondents who were only using regular sanitary napkins. A few of them were also using tampons (1.4%) and menstrual cups (7.1%). Data also indicates that 61.4 per cent respondents had 5 days menstrual cycle and 22.9 per cent had respondents had 7 days menstrual cycle. 58.6 per cent respondents were changing sanitary napkins within 5 hours and 21.4 per cent respondents were changing pads within 8 hours. 41.4 per cent respondents were using 3 pads per day while 31.4 per cent

respondents were changing 2 pads per day. To prevent bacterial development and odour, the American College of Obstetricians and Gynaecologists (ACOG) advises replacing to change sanitary napkin at least every 4 to 8 hours (ACOG, 2022). This leads to generation of a huge amount of sanitary napkin waste. At the moment, simply in India, where 1 in 6 women use pads, over 150,000 tons of pad waste is produced annually. If all 355 million women in India begin using pads, there will be nearly 1,000,000 tons of pad trash produced annually (ITS, 2022).

Table 3 indicates that 97.1 per cent respondents were unaware about the sanitary napkins they are using were biodegradable or not. 61.4 per cent respondents do not have a sanitary napkin incinerator for pad disposal. All respondents were disposing sanitary napkins in dustbins. Only 20 per cent respondents were against burning the sanitary napkins in open while 80 per cent thought that sanitary napkin can be burnt in the open. 88.6% respondents concealed the pad when they throw it in dustbin. Various researches reveal that burning sanitary pads in open releases harmful pollutants, including

Table 1. Distribution of respondents according to their demographic profile

S. No.	Particulars		f	%	
1.	Age	i.	Below 18 yrs	7	10
		ii.	18 -25 yrs	57	81.42
		iii.	26 - 30 yrs	3	4.28
		iv.	Above 30 yrs	3	4.28
2.	Educational Qualification	i.	Secondary	1	1.4
		ii.	Senior Secondary	10	14.3
		iii.	Graduate	35	50
		iv.	Postgraduate	19	27.1
		v.	Doctorate	5	7.1
3.	Occupation	i.	Student	56	80
		ii.	Self-employed	9	12.9
		iii.	Government	1	1.4
		iv.	Other	4	5.7

Table 2. Distribution of respondents according to the usage, duration, frequency of usage and quantity of used sanitary pads per cycle

S. No.	Statements		f	%	
1.	Do you use sanitary napkin?	i.	Yes	67	95.7
		ii.	No	3	4.3
2.	Do you use any other sanitary method of menstrual hygiene?	i.	Only Regular Pads	51	72.9
		ii.	Tampons	1	1.4
		iii.	Menstrual cup	5	7.1
		iv.	Cotton pads	13	18.6
3.	How many days your menstrual cycle last for?	i.	3 days	10	14.3
		ii.	5 days	43	61.4
		iii.	7 days	16	22.9
		iv.	Other	1	1.4
4.	How frequently you change the sanitary pad?	i.	Within 2 hours	6	8.6
		ii.	Within 5 hours	41	58.6
		iii.	Within 8 hours	15	21.4
		iv.	Within 10 hours	7	10
		v.	More than 10 hours	1	1.4
5.	No. of sanitary napkins/pads per day?	i.	2	22	31.4
		ii.	3	29	41.4
		iii.	4	14	20
		iv.	>5	5	7.8

dioxins and furans, posing health risks. They also contribute to the global waste crisis as they are non-biodegradable. Only proper disposal methods, eco-friendly alternatives, and proper disposal methods can minimize environmental and health impacts (Muthukumar, 2023; Lekhi, 2016; CPCB, 2016).

According to the table only 10 per cent respondents knew about MHM guidelines for sanitation. Menstrual hygiene management (MHM) includes the more extensive systemic variables that connect menstruation with health, happiness, gender equality, education, equity, empowerment, and rights (UNICEF, 2019). Only 38.6 per cent respondents agreed that using regular sanitary napkins and disposing them is not environment friendly. 72.8 per cent disagree on harmful impacts of regular sanitary napkins on women's health. 82.9 per cent respondents reported that sanitary napkins waste cannot cause harmful disease. 85.7 per cent respondents are

disagreed that waste management help in environment protection. 75.7% respondents revealed that they are not following the regular sanitary napkins disposable methods made by government for safe environment.

Conclusion

In the modern world, conversations surrounding environmental sustainability have become increasingly urgent. One area often overlooked in these discussions is the harmful impact of feminine hygiene products, specifically sanitary napkins, on the environment. While they are undoubtedly essential for maintaining women's health and well-being, the production, use, and disposal of sanitary napkins contribute significantly to environmental degradation.

It's essential to consider more sustainable options

Table 3. Distribution of respondents according to their knowledge regarding their sanitary napkin disposal

S. No.	Statement		f	%
1.	Do you know the sanitary napkins which you are using are biodegradable or non biodegradable?	Yes	2	2.85
		No	68	97.1
2.	Is there sanitary napkin incinerator for pad disposal?	Yes	27	38.6
		No	43	61.4
3.	Where do you dispose sanitary napkins?	Dustbin	70	100
		Flushed down in commode	0	0
		Machine incineration	0	0
		Open disposal	0	0
4.	Can we burn the sanitary napkin in open?	Yes	56	80
		No	14	20
5.	Do you conceal the pad when you throw it in dustbin?	Yes	62	88.6
		No	8	11.4

Table 4. Distribution of respondents according to their knowledge regarding the environmental impact of sanitary napkin disposal

S. No.	Statement		Frequency	Percentage
1.	Do you know about MHM (Menstrual Hygiene Management) guidelines for sanitation?	Yes	7	10
		No	63	90
2.	Do you think using regular sanitary napkins and disposing them openly is environment friendly?	Yes	43	61.4
		No	27	38.6
3.	Are there any harmful impacts of regular sanitary napkins on women's health?	Yes	19	27.1
		No	51	72.8
4.	Do you know that sanitary napkin waste can cause harmful disease?	Yes	12	17.1
		No	58	82.9
5.	Can sanitary napkin waste management help in environment protection?	Yes	10	14.3
		No	60	85.7
6.	Do you follow the regular sanitary napkins disposal methods made by government for safe environment?	Yes	17	24.3
		No	53	75.7

to non-biodegradable sanitary pads. Reusable cloth pads and menstrual cups are gaining popularity as eco-friendly alternatives. Cloth pads are washable and can be used for an extended period, reducing the need for constant disposal. Menstrual cups, made from medical-grade silicone or latex, have a longer lifespan and produce significantly less waste. Raising awareness about the environmental impact of disposable sanitary napkins is also crucial. Encouraging women to make informed choices about their menstrual products can lead to a significant reduction in waste. Additionally, advocating for improved waste management systems and supporting initiatives that provide access to eco-friendly options in underserved communities is essential. The companies producing menstrual products have a role to play in reducing their environmental impact. Research into more sustainable materials, improved recycling processes, and reduced packaging can make a substantial difference.

In conclusion, while sanitary napkins have undoubtedly improved women's health and hygiene, their environmental impact cannot be ignored. By choosing eco-friendly alternatives, promoting responsible waste management, and encouraging industry innovation, we can mitigate the harm caused by these essential products and work towards a more sustainable future.

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