

AN ANALYTICAL STUDY ON PERSPECTIVE OF WOMEN TOWARDS BIODEGRADABLE SANITARY NAPKINS: AN OVERVIEW

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ABSTRACT

This study was conducted to understand the level of awareness, drivers and barriers to purchase and use of biodegradable sanitary napkins among women and analysed the satisfaction level of women using biodegradable sanitary napkins and made suggestions to improve its acceptance. The most popular types of products at the moment are also the most harmful to the natural environment, especially due to the amount of plastic hidden in disposable items. Feminine hygiene products that are non-biodegradable raw materials are becoming a serious environmental problem. Most of the sanitary pads are manufactured using raw materials like wood pulp, polythene etc. which contain carbon traces which are toxic compounds. Some firms use alternative absorbent fibers such as bamboo, jute, banana fibers which have lower carbon footprint levels. The findings of the paper are based on a secondary comparative study of firms that produce eco-friendly sanitary napkins with firms that use non-biodegradable raw materials. It is found that firms using environmentally friendly raw materials lead to positive externalities, while the latter lead to negative externalities. The study concluded that easy availability and affordability can lead to positive changes in the acceptance of biodegradable sanitary napkins among women and that shifting to biodegradable sanitary napkins can reduce non-biodegradable waste and runoff from landfills. The burden of managing fills can be reduced due to the huge amount of synthetic sanitation.

Keywords: Biodegradable Sanitary Napkins, Menstrual Health, Eco-friendly, Menstrual Hygiene.

Introduction

Environmental degradation is any change or intervention in the environment that is considered undesirable. The environment is deteriorating due to water scarcity, poor air quality, extensive exploitation of resources, loss of wildlife and pollution. The increase in population, per capita wealth and technologies pollution has a direct impact on the environment. In an economy with population expansion, the demand for goods increases which leads to exploitation of resources through industrialization and the use of resource-intensive technologies. In the manufacturing process, industries emit harmful toxic gases like carbon monoxide, hydrogen sulphide, solvents and other wastes such as by-products reaching the sink potential of the environment.

Today is the "Age of Plastics" which is ubiquitous in the industrial sector. Unfortunately, plastics lead to environmental degradation as various toxic chemicals such as carcinogenic, neurotoxic and hormone-disrupting chemicals are released during the manufacture of plastic, which find their way into the environment through land, water and air pollution. Looking for Many industries use plastic as a raw material in the manufacture of goods, the feminine hygiene product industry being one of them. Sanitary napkins consist of multi-layered structures made of non-biodegradable materials such as polyethylene, polymeric films, wood pulp that degrade the environment every day, which is a major concern of the economy. The top sheet of the sanitary napkin is composed of thermoplastic fiber and hydrophilic absorbent fiber, the absorbent core is made of wood pulp and polyethylene, and the polymeric film used as a barrier sheet is non-degradable by bacteria and poisons in the environment.

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Whereas biodegradable sanitary napkins are made from natural fibers like bamboo and banana fibers and decompose without harming the environment and health. The Indian market for biodegradable sanitary napkins is currently showing healthy growth. There are several non-governmental organizations (NGOs) and self-help groups that are producing biodegradable sanitary napkins but the production scale is low. However, manufacturers of biodegradable sanitary napkins are now looking at specific marketing methods and adding value to modify their products to expand their customer base. The market is segmented into bamboo, banana fiber, cotton and others. Taking the largest share, bamboo is currently ruling the Indian market.

Objective of the Study

- To study the Sanitary Napkin Waste generation in India.
- To study the assess level of awareness among women about biodegradable sanitary napkins.
- To study the Sanitary napkin disposal methods today.
- To Study the Indian government's guidelines for disposal of sanitary napkins.

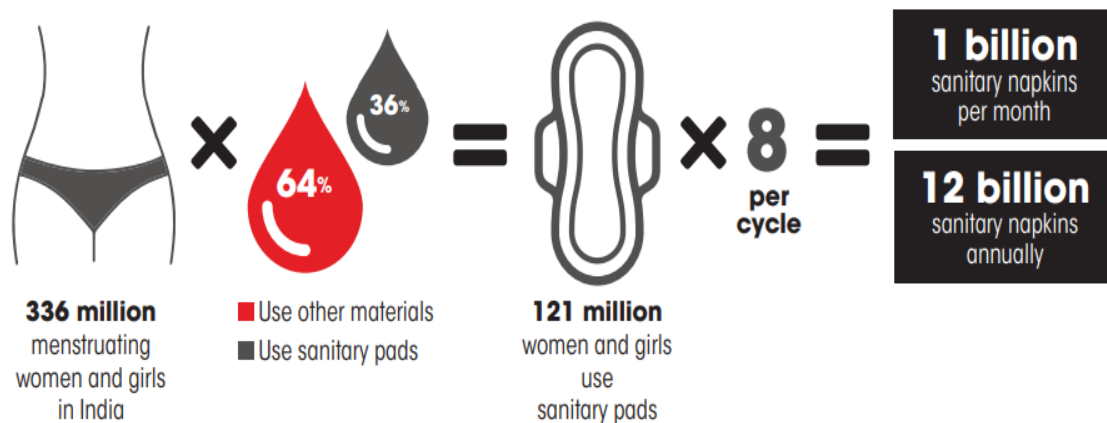
Research Methodology

This is analytical research which is based on the secondary data sourced from journals, online published data, articles, previous research paper which focused on the various aspects of easy availability and affordability lead to positive changes in the acceptance of biodegradable sanitary napkins among women. According to the requirements of the objectives of the study, the accessible secondary data have been collecting from Menstrual Hygiene Alliance of India (MHA) and numerous non-governmental organizations (NGOs) and self-help groups that are manufacturing biodegradable sanitary napkins.

Sanitary Napkin Waste Generation in India

While the importance of creating awareness about menstrual health and hygiene is undeniable, there is always a counter-argument to address the issue of waste generated due to improper disposal of sanitary napkins. Both of these issues are on our priority list and cannot be side-lined. This calls for a holistic solution as the current sanitary napkin disposal practices in India are bound to worsen the waste situation in the future.

Figure 1: Estimated Usage of Sanitary Napkins in India



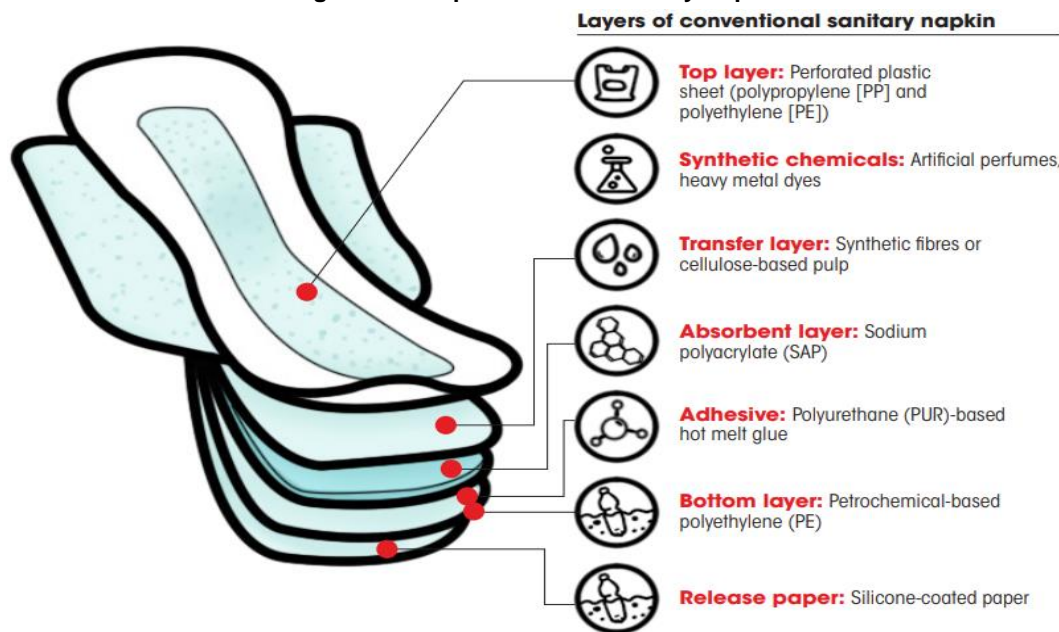
Source: MHA; Graphic prepared by CSE

For a population of 350 million menstruating women in India, assuming that 35% of women use sanitary napkins on an average of 8 pads per month, about 200 tons of sanitary napkin waste will be generated per day. Although disposal of sanitary napkins accounts for less than 1% of the total plastic waste generated, it is not less than 25,000 tons per day, which, due to its magnitude, cannot be considered in any case. It is no wonder that we are in dire need of a sustainable alternative to sanitary napkin disposal in India. The menstrual hygiene industry is growing rapidly through sustained efforts at many levels, but this is having a negative impact on the waste management sector, where 85% of waste is unprocessed due to insufficient efforts by the public health department.

Sanitary Napkin Disposal Methods Today

This requires a detailed analysis of sanitary napkin disposal methods. A pattern can be observed in the procedure which is according to the area of residence of the person. Most of the women living in urban areas throw sanitary napkins in the trash which eventually end up in landfills, while women in rural areas prefer to wash the napkins and bury them in pits. It also depends a lot on whether it is being disposed of at home or at work/school. In public washrooms, often due to poor infrastructure, sanitary napkins are flushed or left in corners or other open spaces. Very few women actually burn soiled sanitary napkins. This image clearly suggests a step towards educating people on how to dispose of sanitary pads at home.

Figure 2: Components of a Sanitary Napkin



Source: Ingredients Used in Conventional Sanitary Pads, Sparkleuser, 2020

Indian Government's Guidelines for Disposal of Sanitary Napkins

The Central Pollution Control Board (CPCB) of the Government of India has laid down guidelines for disposal of sanitary waste and has defined the role of all stakeholders in the disposal of products. The sanitary napkin disposal methods listed below are recommended to be followed:

- Low-cost incinerator Rural setup Sanitary napkins preferably without SAP.
- Electric incinerator Rural/Urban setup
- High temperature incinerator for bio-waste Urban setup with central collection and disposal with other bio waste.
- Deep burial Rural setup Compostable materials only
- Composting Compost site Compostable materials only
- Pit burning Rural area

According to the guidelines, waste can be either incinerated (central incineration units for urban or low-cost incineration units for rural) or disposed of in landfills. Both these methods are easily practicable but need to be systematically and effectively implemented at all levels. The required infrastructure and facilities should be made more accessible especially on rural fronts.

Although these methods seem ideal, they also have their disadvantages. Generally speaking, burning is not an ideal method because the carbon trapped in fossil fuels is released into the atmosphere along with other gases, while landfilling is a major source of pollution and plastic does not degrade for many years. Therefore, we need to find better ways to handle our sanitary napkin waste by recycling or using eco-friendly products.

Solid Waste Management Rules (SWM), 2016

Sanitary waste includes used sanitary napkins, diapers, condoms, tampons, incontinence pads and other similar waste. Sanitary napkins and diapers are also included in the definition of dry waste in SWM Rules, 2016.

Every waste generator must collect and separate all waste into three categories: biodegradable, non-biodegradable and household hazardous waste. In the case of sanitary waste, the waste generator should wrap the used product in the manufacturer's pouches or other suitable wrapping material as directed by local authorities and dispose of it with other non-biodegradable waste.

Sanitary waste manufacturers should consider using reusable materials or provide covers, wrappers or bags for disposal after use. They should also increase public awareness on proper collection and disposal of sanitary waste.

Local authorities should use information, education, and communication measures to raise awareness of the various provisions under the SWM rules, including handling and disposal of sanitary waste.

How can an Individual Dispose the Sanitary Napkin with a Responsibility?

Although there are alternatives like recycling and composting (covered in future articles), disposal of used sanitary napkins remains a challenge across India as the practice is not yet widely adopted. Nevertheless, there are steps an individual can take to help the cause.

- If one is living in an urban community, the ideal way to dispose of sanitary napkins is to burn them in a central incinerator such as those used by hospitals to dispose of sanitary and bio-waste. One has to search and find the nearest central combustion unit in their area. For this approach to be effective, it would require segregation of sanitary waste at the individual level, collection at the community level and incineration in centralized incineration units.
- If one is disposing in the trash with other waste, wrap the used sanitary napkin in a disposable wrapper provided by most pad manufacturers. This is important for the hygiene and safety of waste pickers.
- In rural areas where segregation is lacking, incineration would be the best option as suggested by CPCB. Low-cost manual incinerators or electric incinerators can be used for this purpose.

This, as we should all bear in mind, will not eliminate the problem but only deal with it better. There is room for a lot of innovation in the future. Organic sanitary pad manufacturers in India should be encouraged. As consumers are more aware of environmental impact and want to make conscious purchasing decisions, a few brands have taken advantage of the situation by either falsely claiming that their products are eco-friendly or misleading consumers with such terms. So, those who claim to be organic sanitary pad manufacturers need to cross-check.

Having discussed the pros and cons of compostable materials, let us look at commercial alternatives available for each of the raw materials used in making a sanitary napkin:

Perforated Polyethylene or Non-woven Polypropylene as top sheet. Top sheet properties of a sanitary napkin such as its softness, dryness or appearance are very important to a consumer. Technical parameters like rewetting, strike through etc. determine the performance of the material in keeping the top layer dry. Nonwovens made from polypropylene, often confused as cotton due to its texture, are not compostable. Nonwoven PLA (polylactic acid) and other starch-based nonwoven plastics are by far the most commercially available, industrially compostable option to replace polyethylene and polypropylene top sheets. Work is being done to make the performance of these products match the performance of standard products.

Polyethylene back sheet that acts as a barrier sheet can be replaced with PLA sheet as well. The top and back sheets together make up about 30 percent of the sanitary napkin's weight. Wood pulp fluff or compressed wood pulp is made from pine wood. These bio-based products are also known as compostable. Some binders or other additives may be added to improve performance and may be non-biodegradable.

Super absorbent polymers - sodium/potassium polyacrylates. These polymers play a key role in the absorption and retention properties of sanitary napkins. These polymers are derived from petroleum products and are not biodegradable. Bio SAP and alternatives to biodegradable hydrogels have been developed, but they do not yet meet the performance criteria set by commercial SAP.

Hot melt adhesive is another petroleum-based product used in sanitary napkins. There are not many commercial adhesives available that are compostable. The release liner is made of paper coated with silicone and is a proven compostable material. Packaging pouches that are often made of polyethylene can be replaced with PLA again.

To sum it up, some major plastic materials such as top sheet, back sheet and packaging pouches can be replaced with alternative materials such as PLA or other starch-based products. More efforts are needed by industry and institutions to develop adhesives and SAPs that are compostable and have competitive performance. Some materials such as cellulose/wood pulp are already compostable and do not need to be converted. With the above alternatives, it would be possible to design sanitary napkins that are 90 percent compostable by weight.

Conclusion

As far as the sale of biodegradable sanitary napkins is concerned it is very important to know the perspective of women as they are the end users. Also, to increase the usage of these napkins manufacturers should know about their drivers and constraints from consumer perspective. The study concluded that awareness about the availability of biodegradable sanitary napkins can be improved through social media platforms and workshops in schools, colleges and offices. Brands should focus on affordability by coming up with annual plans and discounts. To protect the environment, disposable biodegradable sanitary napkins should be made available locally at reasonable rates in government hospitals and other parts of India where menstrual hygiene is still a major concern. Also, brands selling sanitary napkins and the government should organize workshops in schools and colleges regarding disposal of used napkins as improper disposal can pose a threat to the environment and human health. Furthermore, from the government side, new techniques of producing organic sanitary pads which are biodegradable. should be supported and there should be some restriction on the use of synthetic sanitary pads. Secondly, the government should separate menstrual waste from household waste and decompose it using different techniques and methods instead of dumping it in landfills.

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