

Quantification of Menstrual Waste and Development of Appropriate Disposal and Management Strategy

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Abstract: *The literature on menstrual waste disposal methods is limited and therefore little is understood about women's management of menstruation and the waste generating from this in the country. This study reports the analysis of the menstrual waste in Delhi city employing the quantitative research methodology. The monthly average quantity of sanitary napkins for the month of February 2017 at four different locations in West zone of Delhi city were identified. They are Dwarka, Jankapuri (Higher class), and Najafgarh, Sagar pur (Middle class). It has been observed that the calculated sanitary napkins quantity are very high and being mixed in Municipal solid waste at these four locations in Delhi. This study also investigated how women and girls manage this stream of waste in the Delhi, in the light of potential environmental degradation. Personal interviews were conducted to determine the methods of menstrual waste disposal that are used in Delhi, higher and middle income groups. The outcomes of the study imply that sanitary napkins are widely used by the urban women and girls across religious, age, and caste groupings. Sanitation was determined as major factor of concern females in dealing with menstruation, and lack of facilities for appropriate menstrual disposal practices in the outdoors was reported. Majority of women reported that they experienced embarrassment while disposing their feminine hygiene products during outdoor activities. Most participants indicated that carrying home used products is the best method of menstrual waste disposal and they are also willing to install sanitary napkin disposal unit in homes.*

Keywords: Menstrual Waste, Sanitary Napkins, Menstrual Hygiene, Sanitary Waste, Menstrual Hygiene Products, Menstrual Waste Disposal.

1. Introduction

In India the menstrual waste have progressively increasing due to urbanization, industrial development, lack of awareness, poor management and handling of soiled sanitary napkins. Household waste is the major sources of disposable napkins in the Delhi environment. The 12% usage of sanitary napkins would generate up to 432 million soiled sanitary napkins in a month, weighing around 9,000 tonnes. (1) Extrapolating the usage at an average growth rate of 10%, this would mean nearly 525 million soiled sanitary pads a month weighing about 11,000 tonnes covering a landfill of nearly 30 hectares every month taking a minimum of:

- *500 – 800 years for a Disposable Sanitary Pad to decompose; and
- *500 – 600 years for a Disposable Diaper to decompose.(2)

So, there is need to evaluate the menstrual waste quantity in Delhi. Delhi is among the most polluted areas in India. Among the various pollutants from various sources, sanitary waste or more specifically menstrual waste is having a significant role in effecting the environment quality and thereby causing harm to human health. Hence this stream of waste was considered to determine or quantify for West Delhi. In this paper an attempt was made to quantify the menstrual waste status of West Delhi.

2. Research Methodology

The methodology of a quantitative research maintains the assumption of an empiricist paradigm (3). The research itself is independent of the researcher. As a result, data is used to objectively measure reality. Quantitative research creates meaning through objectivity uncovered in the collected data. Quantitative research can be used in response to relational questions of variables within the research.

“Quantitative researchers seek explanations and predictions that will generate to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory” (4). Quantitative research begins with a problem statement and involves the formation of a hypothesis, a literature review, and a quantitative data analysis.

The scientific design of the study ensured:

- Participants of diverse religion and socio economic status in Delhi.
- Women aged between 15-45

S. No.	Area	No. of participants
1	Dwarka	75
2	Janakpuri	75
3	Najafgarh	75
4	Sagarpur	75

Interviews:

In depth personal interviews with 300 women and girls were analyzed. Characteristics sought in interviewees were that they be female with experience of menstruation (current). Questionnaire was prepared in order to collect the data from the participants.

3. Results & Discussions

The monthly average consumption of the sanitary napkins was collected from the respondents. The corresponding graphs for key questions of the survey were also plotted.

How many sanitary napkins do you use per month, on average?

- Nearly 33% respondents use 4-5 sanitary pads in a month on an average. While 31% respondents use 6-7 pads as their monthly menstrual hygiene requirement. 17% of the respondents consume more than 8 numbers of pads in a month.

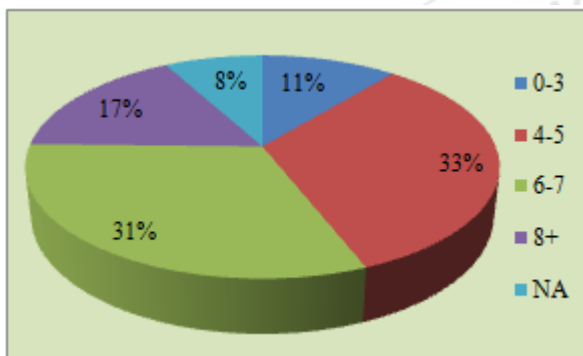


Figure 1: Monthly consumption of Sanitary napkins

We have taken a sample size of 300 (women and girls) between 15-54 (average menstruating age) in and near West Delhi. The total consumption of sanitary pads in this sample size is 1724. According to this, the quantity of menstrual waste produced in tonnes per year for 300 sample size is 3.1032.

How much do you spend per month on sanitary napkins?

- Seventy nine percent of interviewees indicated that they use sanitary pads, sixteen percent used combination of cloth and pads and 5 percent (approx.) used cloth.

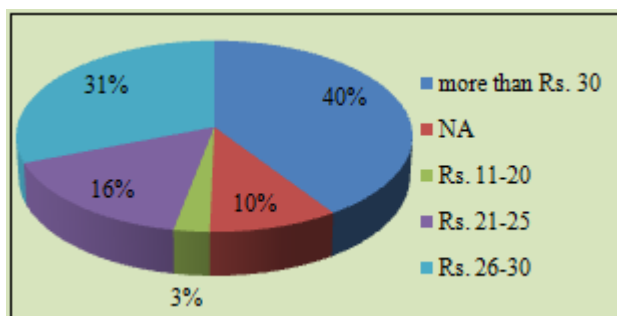


Figure 2: Monthly expense on Sanitary napkins

- Out of that 79%, 40% of the women reported that they spend more than Rs. 30 per month on sanitary napkins. 31% of the respondents spend Rs. 26-30, that is also near

to Rs. 30. 10% could not always be sure how much they spend monthly to manage their menstruation.

How do you dispose of your sanitary napkin after use?

- Menstrual products are disposed of by the majority of users in the easiest and most convenient way. Twenty eight (28%) percent of users indicated that they wrap the used sanitary pads and then throw it in dustbin while sixty seven (67%) percent respondents throw it away with other household waste. When asked what they will do if the sanitary bin of their cubicle is overflowing and they need to dispose of their napkin:

- Only two percent of users answered that they flush off the used napkin
- 31% will look for another bin
- 12% of the users will inform the person taking care of the bins.
- 22% will throw over it
- While 20% of the respondents answered that they will put the used napkin in the envelope and dispose it of later.

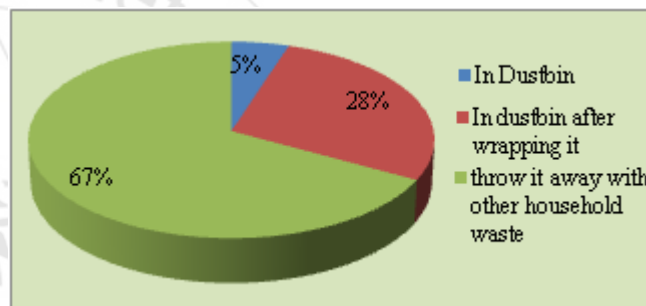


Figure 3: Disposal method after use

- Soiled pads tended to be covered in toilet paper and placed in sanitary bins (23%) and hiding under other waste. Respondents who disposed of pads by flushing it in the toilet did so because it is effortless, suitable, habitual, and rids them of the waste quickly. Few respondents believe that the sewage system can cope with menstrual waste material.

Rate the cleanliness of sanitary bins provided in public places?

- Nearly 45% of the total respondents scored the contribution of the facility in maintaining the cleanliness as good or average. While the rest 55% rated the cleanliness of sanitary bins in public toilets as poor or bad.

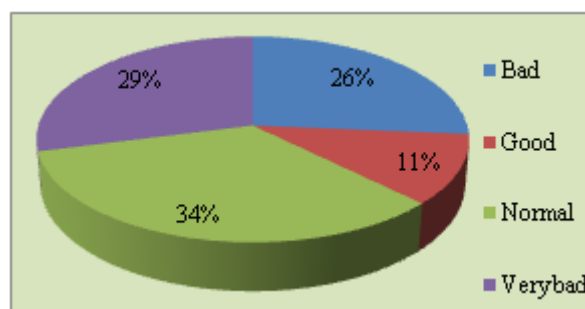


Figure 4: Public Sanitary bins Cleanliness rating

- It could seem appropriate to state that people are less likely to be satisfied with the hygienic conditions of the sanitary bins provided in the public places to dispose of the menstrual waste. While collecting the ratings, people listed their failure to throw their waste in designated places as one of the main causes. Other factors they mentioned were an insufficient number of bins. They also noted an irregular distribution of bins around the city.

4. Conclusions

- 1) It is already clear that the city is much more informed about the level of cleanliness in the city and the nature and location of the worst problems.
- 2) Disposal of menstrual waste outside leaves non biodegradable material at the site, potentially causing environmental pollution.
- 3) Initially, the menstrual waste wastend to buried in India recreation participants.
- 4) Insufficient information is available to women are not aware about the negative impacts of menstrual waste on the environment and about the substitute conducts which reduce the impact.
- 5) Optimal disposal methods for each of the three terrain conditions considered are similar. Carrying out was considered the ideal for all waste in Urban areas. Burning of paper and cotton-based products was also considered to be acceptable, though often difficult. Burying the menstrual waste is indicated in the areas away from water bodies where the structure of soil is adequate to allow its decomposition.

5. Recommendations:

Recommended Menstrual Waste disposal cycle:

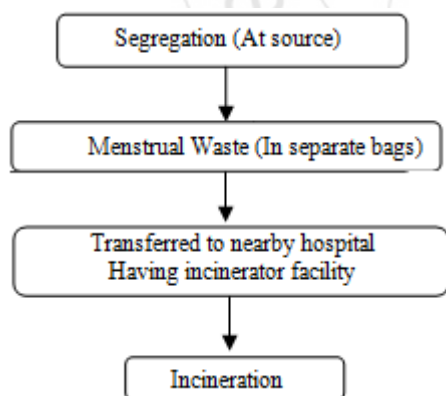


Figure 5: Menstrual waste disposal cycle

Storage and disposal recommendations

- 1) Used napkins should be wrapped in newspaper preferably in disposal bag for ease in segregation.
- 2) Menstrual waste should be stored by waste collector as per Bio medical waste provisions.
- 3) There should be authorized disposers for incineration, as notified by Pollution control board.
- 4) Ashudhinashak device can be installed in homes as it is small and not expensive.

- 5) Sanitary napkin brands should provide disposal bags under Extended Producer's Responsibility which will help in segregation.
- 6) Sanitary waste disposal should be governed by some legislations in order to bring these implementation.

Recycling

- 1) Plastics and fibres can be recycled from absorbent hygiene products.
- 2) Eco labeling procedure should be stringent. There should be independent third party verification in order to declare a product as environment friendly.

General

- 1) We have to take initiative to promote menstrual sanitation and proper disposal of menstrual waste.
- 2) To create awareness, encouraging every woman to use eco-friendly incinerators and promoting research to find a biodegradable alternative to plastic sanitary pads.
- 3) The steps must be taken to solve the problems that improper disposal of sanitary napkins causes to the environment and to public health.
- 4) There is a requirement of accurate and adequate information from the females about menstruation and its appropriate management.
- 5) In view of the vital role of the mothers, it is very important that the mother be armed with the correct and appropriate information on reproductive health, so that she can give this knowledge to her growing girl child. It is also necessary for the teachers, who may not have the necessary skills to impart reproductive health education, including menstrual hygiene to their students. They have to be given requisite skills – usually through training or workshops. Much more steps are needed to curb the mis beliefs and taboos among the adolescent school girls.
- 6) Maintaining hygiene is essential for a person to live with dignity.
- 7) Menstrual hygiene is not an issue of only hygiene; it has strong linkage with social issue like patriarchy.
- 8) Managing menstruation is not only managing hygiene, it is managing other aspects like psychological and biological aspects.
- 9) Managing menstrual hygiene processes should be environment friendly.
- 10) Menstrual Hygiene is not an issue of women; it is an issue of the society.
- 11) Research should be conducted on potential health problems arising from a policy of carrying home waste from India.
- 12) People should be encouraged and make aware to carry home waste (including used toilet paper, menstrual products and infant diapers) may result in health problems arising from the dumping of faecal matter and blood in either road-end rubbish receptacles or urban refuse tips.
- 13) Need of Information Education & Communication activities for Menstrual Hygiene.
- 14) Using plant fibre as the absorbent layer is the most promising alternative model for production of bio-degradable napkins.

- 15) A multidimensional approach should be targeted in finding sustainable social and scientific solutions to the address the various complexities in the menstrual hygiene management area.
- 16) While the authors feel that a complete switch to eco-friendly alternatives like cloth pads and cups are required to realize the larger vision of a zero-waste society, taking into account the sensitive socio-economic barriers and gender imbalance in our country, a shift from conventional disposable sanitary napkins to biodegradable napkins can be the first step towards it.
- 17) Social perception of menstruation and menstrual cycle as the sole responsibility of women needs to transform into a collective responsibility of society at large to ensure that the health and well-being of the individual and environment are not adversely affected due to ill informed choices.

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