

No more room for error: Spaces must be made for ergonomic and sustainable menstruation management at the work place.

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ABSTRACT

Girls and women menstruate. This requires a management system, both at home and when outside the home. Home based methods are personally managed; however, locations outside the home need suitable systems from an ergonomic and sustainable menstruation view point. If we were to examine work and study locations, one finds limited facilities for menstruation. If systems are in place they are designed for disposable sanitary napkins. It has been well established that the use of disposable products is unsustainable. Recognizing this, there is now a growing number of women showing preferences for earth friendly products and have migrated to sustainable reusable fabric options. However reusable options require different management methods. There are no facilities currently at “out of home” locations responding to this alternate scenario. The institutional washroom has not risen up to this new urgent requirement. The lack of facilities is potentially stopping many women from making the change to reusable products even if they want to. This study focuses on what facilities are currently available for girls and women and why ergonomic and sustainable menstruation has to be institutionally encouraged. We concluded that washroom spaces can incorporate simple changes within existing infrastructure to realign to changing needs.

Keywords – ergonomics; sustainability; menstruation; reusable; workplace

1. INTRODUCTION

The human body is composed of a range of systems the digestive, the reproductive, the respiratory and others. Each of these processes release products that the body no longer requires such as urine, feces or perspiration. The expelled product is managed through different methods – sweat is managed by using a handkerchief or switching on a ceiling fan. Washrooms are built for managing urine and feces. It is these types of human interactions with products and spaces that form the core of the science of ergonomics. [1]

Of the many human body expulsions, menstruation is one secretion, emerging from the reproductive system unique to the female of the human species. Women will bleed between 2 to 7 days every month. [2] This flow is involuntary and requires management. Through the ages, Indian women have devised ways to manage the discharges such as the use of coconut coir, leaves, ash, sand or cloth. [3] Disposable sanitary napkins, tampons and cups are the more modern devices. A menstrual product will typically be used for 3 to 6 hours depending on volume of discharge, after which the user will need to change and wear a fresh product. The nature of this management requires a

private space to change. Many women find these activities somewhat easier to manage when at home, in their own familiar environment.

As Indian society evolved, more girls and women were at schools, colleges, offices and other institutions, overall there was an increase in women in the workforce. [4] This meant that girls and women had to stay out of their homes for more than 6 hours at a stretch while they were menstruating and they had to manage menstruation in these spaces. The disposable sanitary napkin was thus seen by many users as a convenient product. However the nature of raw materials of the gel based napkins, made up of non bio degradable materials hazardous to health. [5]

Many researchers have made the connect between ergonomics and sustainability. [6][7][8] Further, ergonomics and sustainability are the core of menstruation management. In this light we observed that many spaces are not appropriate for menstruation. This study explores these links further and examines whether work and study locations, outside of a users home respond appropriately to women’s specific needs from both an ergonomic and sustainable lens.

2. OBJECTIVES

- To examine the menstruation management products and practices of women - when they are outside of their homes - through an ergonomic and sustainable lens
- To analyse these findings and confirm our initial observations and understanding

3. METHOD AND FINDINGS

We used three methods.

1. We defined and set the parameters for an ergonomic and sustainable lens for menstruation. This is detailed in section 3.1.
2. We identified women who leave home everyday for more than 6 hours at a stretch. We spoke to these women to understand what menstrual products they use, reasons why and facilities they have access to.
 - A focused group discussion was conducted with 8 women laborers on a MGNREGA site (Mahatma Gandhi National Rural Employment Guarantee Act – Government of India Welfare Programme) in December of 2013. Findings are in Section 3.2
 - We identified and spoke to 31 women. Findings are discussed in Section 3.3
3. We selected and visited locations to understand what facilities are typically provided for women's menstruation needs. Findings from this are discussed in section 3.4

3.1 Ergonomic and Sustainable Menstruation Framework

In India women use two types of menstrual products, reusable (such as plain fabric or fabric based stitched pads) and disposable (such as sanitary napkins).[5] From previous research work we established that reusable menstrual products are a good option for the following reasons:

- if a user were to use disposable pads alone, she would be discarding 120 to 150 pads at the end of the year. The volume of menstrual waste is enormous. [9]
- reusable products place a lesser burden on the environment, a user using reusable fabric options will typically discard 5 to 6 products at the end of one year or 12 to 14 menstrual cycles
- raw materials of a disposable product are primarily made of plastic and other non bio degradable petroleum derivatives which are harmful to the user, the environment and thus the larger community.[10][11][12]

Menstruation needs to be typically managed within a water and sanitation facility. There are two broad areas within this, a water closet area, where the user changes a menstrual product and a wash area for washing hands and washing the menstrual product. From an ergonomics point of view, we considered user interaction with the following elements within the system - handbag, door, hook, commode, latrine, menstrual product, wrapping paper, wash basin, water, towel and soap. From a sustainability point of view we considered the menstrual product.

For the purpose of ergonomics for menstruation management, we interpreted this as *“the design of interactions of a person with elements within a menstrual management system that optimizes human well-being”*. Further we defined menstruation sustainability as *“the practice of managing menstruation in order to maintain a balance between environmental, economic, social and health aspects, such that it causes no harm to both the user and larger community.”*

A typical sequence of managing menstruation was drawn up so that we could have a framework for examining existing system from both the ergonomics and sustainability perspective.

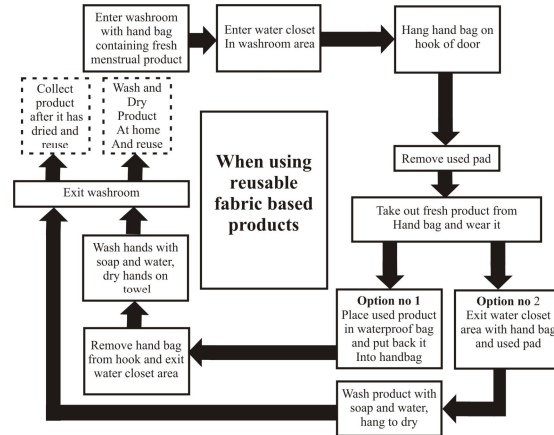


Fig no 1 shows a sequence of activities involved when changing a reusable menstrual fabric product and the interactions involved with different elements within a washroom space. The diagram combines both sustainable and ergonomic menstruation. Source: Author generated

We spoke to women and used this framework to develop a better understanding of ergonomic and sustainability issues.

3.2 Findings from focused group discussion

We spoke to women enrolled at the MGNREGA construction site. These women are away from

their homes on an average of 9 to 10 hours every day, includes both commute time and work hours on the site. At the time of the group discussion (December 2013), all were earning less than Rs 5,000 per month. All reported using reusable fabric. At the work site, there is no space or shelter to change, the work site is open, the nearest tree cover is 800 meters away. See figure no 2. Additionally there is no running or stored water or soap for washing hands or washing out the fabric. The same fabric is thus worn the whole day and a change is only possible when the user reaches home. Women also reported they lose daily wage, if they stay away from work during menstruation days.

We applied Fig no 1 to this work site. We found no facility supporting menstruation, no privacy, no soap and water to keep clean. From an ergonomic point of view there is no existing system, there is nothing the user interacts with. From the point of sustainability alone, it is partly sustainable as menstrual products are reused many times but health is compromised as there is no space to change. This work site appears to fail from both an ergonomic and sustainable perspective.



Fig no 2 - Women at the MGNREGA work site, Photo source: Author generated

3.3 Findings - speaking to 30 women

We spoke to 31 women between January to June 2013 - domestic workers, students and office goers.

No	Nature of work	Average monthly income / menstrual product used
2	Domestic workers	All women are earning under Rs 5,000 , use reusable fabric based products
1	Health assistant for elderly	
9	Working at district level NGO	
1	School Teacher high segment private school	Earning over Rs 20,000 – able to afford disposable products but prefers fabric
8	Students from high school and college, (under graduate,	Not earning – use disposable napkins - parents able to afford for

	post graduate)	them
1	Working at ordinary office*	Over Rs 20,000 – uses the menstrual cup**
1	Working at ordinary office	Over Rs 20,000 old cloth – able to afford disposable products but prefers fabric
8	Working at ordinary office	Over Rs 20,000 uses disposable napkins

Table no 1 Shows nature of work and product used.

*Ordinary office means - not a luxurious multinational office space

**Menstrual cup is a reusable silicone based product

Facilities at study/work location – all women have access to soap and water	Pad change routine
Domestic workers and the health assistants have no facility to wash or hang fabric	Wear same cloth whole time, do not like to bring cloth back in hand bag.
The women working at the NGO have a waste bin with lid near latrine.	Wear same cloth the whole time, or bring back used cloth in handbag
The school teacher has a comfortable clean washroom, hook with newspapers for disposing napkins, bin with lid, but no facility to wash or hang fabric	Wears the same cloth the whole time, does not like to carry used cloth in hand bag.
School and college bathrooms not always clean. Waste bin is provided. Some doors have hooks, others have broken hooks or no hooks	Able to change disposable product at location
Office washroom facility reasonably clean, bucket with lid available for disposing	One user is able to wash out the Menstrual Cup at location, others are able to change disposable pad at location

Table no 2 Shows facilities available at the work space and changing routine of users

In this group, all users have a private space – such as a water closet which they can use to change their menstrual product. We found 16 users using reusable options, none of the spaces they go to, had any facility for washing or hanging reusable fabric pads. As a result they too like women at the construction site mentioned in the earlier section, wear their pads the whole time, compromising their health. Carrying the used pad back home in a plastic bag is a viable option but this is not preferred. Stains get fixed to the fabric if not soaked in time and it becomes all the more hard to remove blood stains, so immediate washing is preferred by many. For the reusable pad user a part of the washroom system they should be interacting with – a separate wash basin, soap and water - is nonexistent. In the context of ergonomics it

partially fails. In the context of sustainability it is appropriate as the menstrual product causes no debris, however their health is compromised.

Next we drew up a sequence of activities that corresponds to disposable product use in a typical washroom space.

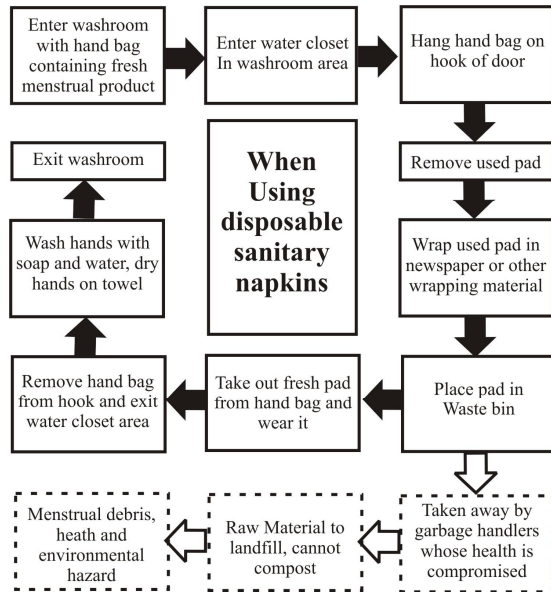


Fig No 3 Shows a typical sequence when users manage menstruation through napkins Source: Author generated

16 users interviewed found disposable convenient. However persons moving menstrual waste – the garbage handlers - are the most affected as they are exposed to infection and filth. Many studies have been done on the health and wellbeing of garbage handlers and the nature of products they touch. [13]. This adds to the unsustainability of the system. However of among the disposable users we spoke to, 6 users told us they would be ready to make the switch to reusable options if spaces at locations, were better designed for maintaining reusable.

3.4 Findings from visiting work and study locations

We selected the following locations in order to cover range of facilities available to women and girls for menstruation. These were two government girls' school at two different rural locations, one private school in a C class city (less 600,000 population), one government college for girls, one elite autonomous college, one corporate office and a retail store, located in two metros. As can be seen from Fig no 4, in one school, the latrine was blocked with garbage and the toilet was unusable. This space totally failed for menstruation management both from an ergonomic and sustainable perspective.



Fig no 4 Latrine, Government High School, Photo source: R. Singh

At another rural school location, see fig no 5, we found some that disposable pads are distributed by an NGO. A brick incinerator has been constructed by the same NGO to manage used pads. The water closet section has a chute which can be used to discard the used pad. The chute is connected to the brick incinerator on the outside. The used pad lands on a grill. When a considerable number of pads are collected, it is burned using dried coconut fronds. Neither the user nor the person burning the pads needs to touch anything, the fuel is locally available. In terms of ergonomics, the positioning of the chute and other interactions with elements within the system it has been very well thought out. However incineration is not advised from the point of view of the environment. [14][15] While the menstruation management and ergonomic system has catered to disposable pads – it has completely ignored sustainable reusable systems.



Fig no 5 Toilet, Government High School, arrow is shown to illustrate how the chute and incinerator are connected. Photo source: Author generated

A washroom in a private school city location 2, was very clean, it had adequate water and soap. Additionally there were pre cut sheets of newspaper for wrapping pads, see Figure 6. The authorities of the school were sensitive enough to realize that not all branded napkins come with its own wrapping material. The staff toilet of a retail store in metro location see figure no 7 had a dirty

piece soap placed on the sink, an overflowing dust bin, with both used pads and other waste material



Figure no 6



Fig no 7

Photo source: V. Joshi and author generated

We visited the toilet of a government girls college at a city location no 2, see Fig no 6. The toilet was not well kept but there was water and a bin for used pads. There was no hook at the back of the door, the window ledge was grimy and had cobwebs, so a fresh menstrual product could not be placed on the ledge. Users carry handbags on their shoulders as they squat.



Fig no 7 Toilet, Government College,
Photo source: G. Wandalkar

At a college in a metro, the toilet had a branded napkin disposable unit called *Sanipod*, made up of two cylinders one nesting inside the other. When the inner cylinder is pulled up, and opening is revealed where the used pad is dropped which reaches the bottom of the cylinder. The inner cylinder is then pushed down. The used pads are thus sealed off, causing no odour.



Fig no 8 Inside toilet of an elite autonomous college at a metro, pad disposal unit, *Sani Pod*,
Photo source: S. Agarwal

From the corporate office washroom in fig 9 we saw that by far that was most well kept with all

luxuries required for personal hygiene. There was toilet paper on one side, a water unit to wash genitals, a pedal operated waste bin, a hook to hang a handbag at the back of the door



Figure no 9 and Fig 10 A corporate office bathroom
Photo source : A Joshi

4. CONCLUSION

Our earlier understanding that study locations and work spaces do not appropriately respond to menstruation management from the ergonomics and sustainable point of view was confirmed. Either there is no system at all or it caters to disposable products

- For reusable options, there is a large gap between what the users require and what is available
- Two contrasting scenarios, the construction work site and the corporate office clearly demonstrated the two extremes currently available.
- In the case of one government school we saw complete neglect of facilities, in another we saw how an NGO and school partnership had resulted in good facilities
- Used pad disposal units within the water closet has solved the immediate disposal issue for the individual user, but the larger issue - the handling and final destination of garbage remains unresolved as landfills are choked.

It has been demonstrated that reusable napkins not only bring down the volume of menstrual waste, they are also bio degradable, causing no harm to both the user and to the environment. We have observed a growing interest in reusable options as more women are getting aware about environment and health factors.

We have identified two simple steps towards supporting reusable option at study and work locations. The first is the installation of a simple laboratory sink, see fig 11, wide enough for a user to wash and rinse the reusable pad or plain cloth. This sink must be separate from the basin used to wash hands and must be in a partially closed space so that the user can wash out the bloodied pad in private. The second is providing a clothes line and

pegs to hang the pads and cloth.



Fig 11 and figure 12 Laboratory Sink and clothes line. Photo Source Author Generated

There is a limitation to this current study. The researcher needs to work further, carry out more investigation – speak to more women and speak to many authorities in different work and study location. This will further consolidate the relationship between ergonomics and sustainability in the menstruation space and lead to larger contribution which can strengthen future action. We will be in a better position to lobby with institutions to push them toward innovation and implement solutions for reusable. What has been known so far is that very few institutions have worked toward supporting reusable and which can lead to significant contributions in bringing up indicators of health and well being, causing lesser negative health impact on environments.

ACKNOWLEDGEMENTS

The researcher gratefully acknowledges

- 1 Aniruddha Joshi, Industrial Design Centre, Indian Institute of Technology, Bombay
- 2 Schools, Institutions and NGOs and people who understood the seriousness of what the researcher was attempting and allowed dialogue and photography. To maintain anonymity names and locations have been withheld.

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