

Moving Towards Menstrual Hygiene: Awareness and Acceptance of Sanitary Napkins at Bottom of the Pyramid

Tavishi Tewary

Jaipuria Institute of Management, Noida, Uttar Pradesh, India

Vranda Jain^{1*}

Jaipuria Institute of Management, Noida, Uttar Pradesh, India

Nandini Agarwal

Uttam School for Girls, Ghaziabad, Uttar Pradesh, India

Abstract

India has a large population of women in the reproductive age group of 10-50 years. Since menstruation is linked with the child-bearing capability of women, maintaining proper menstrual hygiene-practices is of vital importance. This research paper has explored the menstrual-related hygiene practices of women in the lower-income bracket, with particular reference to the usage of disposable sanitary napkins during menstruation in the Indian context. The study uses Smart PLS to analyze inter-linkages among educational awareness, healthcare facilities, and usage of sanitary napkins. Both the variables were found to have a significant impact on the usage of sanitary products during menstruation. The findings of this study suggest that improved educational awareness and better healthcare facilities can enhance the usage of sanitary napkins. It will pave the way for policy guidelines needed to improve the health conditions of women in lower segments of society.

Key words: Menstruation, Woman Hygiene, India, Awareness, Bottom of Pyramid

JEL classifications: I31, H51, H52, O21

1. Introduction

“You can tell the condition of a nation by looking at the status of its women”.

-Jawaharlal Nehru (India’s first Prime Minister and Leader of India’s Independence Movement)

Menstruation, a “periodic discharge of blood from the uterus occurring more or less at regular monthly intervals throughout the active reproductive life of a female”(Fingerson, 2012) is a natural event in female life. It brings along physical,

* Corresponding author.

mental, physiological, and social changes which are critical to female wellbeing (Hennegan and Sol, 2019). Menarche, the commencement of puberty, marks the transition of young girls from adolescence to womanhood (Kirk and Sommer, 2005). Although it indicates a women's capability for procreation, it is often accompanied by shame, suffering, annoyance, and embarrassment for a few girls and women (Fahs, 2020). This is an outcome of the prevalence of age-old practices and taboos and results in social dishonor of females. Various theoretical and empirical studies have established that healthy girls and women are pillars of a healthy society and menstrual hygiene is of utmost importance for female well-being (Stothard *et al.*, 2020). This hygiene is maintained by making use of disposable sanitary pads, panty liners, and tampons during mensuration. While the usage of such hygiene products is common in western countries, studies have found poverty and low social class as impediments in the usage of sanitary pads in the less developed countries (Joshi *et al.*, 2015). In a study on sanitary pad usage among Nigerian adolescent girls, Adinma and Adinma (2008) reported that the effective modification of perception on menstruation is a major prerequisite towards effecting the necessary behavioral change on menstrual behavior for the use of sanitary pads during menstruation. Apart from the physical changes, menstruation may also be accompanied by mood swings and a feeling of frustration, resulting in absenteeism from school and workplaces (Benshaul-Tolonen *et al.*, 2019). Extant studies (McCaleb and Cull, 2000) have also reported that poor menstrual sanitation practices lead to health complications among females. Despite being one of the most important and basic aspects of feminine health, menstrual hygiene management faces negligence in low-income countries (Kaur *et al.*, 2018).

With equal opportunities and rights to women, Indian society is dominated largely by males with women typically treated as their subordinates and inferior (Thelwall *et al.*, 2019). As cultures, religions, and traditions differ across states, there is a variation in the degree of gender biases being practices in India (Guilmoto *et al.*, 2018). As men are considered to be capable of earning, taking care of ageing parents, pursue the family line, bring a wife (capable domestic worker) in the family, play a key role in performing death rituals, etc., they are regarded as an asset for the family. Women are generally perceived as unable to contribute to family earnings and would seek support in economic and emotional aspects from men. Also getting a woman married puts a strain on financial position due to the continuance of the dowry system. Hence women are treated as a liability (Radha, 2019). This is in contrast to the views of Clark (2012)- "Any serious shift towards more sustainable society has to include gender equality". Also, it is relevant to note that around four decades back, the UN general assembly had adopted a convention for eliminating women's discrimination, in any form. Also, United Nations Agenda for Sustainable Development-Agenda 2030 (UNDP, 2017) accords high priority to gender equality and women empowerment. It aims to eradicate any type of violence or discrimination against women across the world. It has therefore become increasingly important to give women equal opportunity to take part in social, political, and development aspects of the country. This increased participation of women would be possible only by promoting the healthy lives and well-being of females.

1.1 Need for Study

It is an irony that while pregnancy is a much-celebrated event, menstruation, which is a reflection of a female's reproductive health, is misconstrued as adulterated and impure in few societies (Seymour, 2008). Different dimensions of this issue including the aspects of menstrual practices have been investigated in past studies (Chothe *et al.* 2014). While few studies have assessed the level of awareness about menstrual hygiene (Sinha and Paul, 2018), some researchers have studied the challenges faced including absenteeism at school and workplaces (Krenz and Strulik, 2019). Miiro *et al.* (2018) have studied the relationship between menstrual onset and schooling in Uganda. Another study by Haque *et al.* (2014) has studied menstrual education programs in schools and explored their influence on knowledge, beliefs, and menstrual hygiene-related practices. In their study primarily in low and middle-income countries, Hennegan and Montgomery (2016) have analyzed the effectiveness of menstrual management interventions towards female education, work, and psychosocial wellbeing. Few papers have also focused on the socio, cultural and physical implications of menarche (Lahme *et al.* 2018). However, no work in existing literature has studied the factors affecting the usage of sanitary pads. Moreover, there is inadequate research and poor dissemination of information on the subject matter in the developing world (Chandra-Mouli and Patel, 2017; Coast *et al.*, 2019). While research has proven that cleanliness of the genital area and access to safe menstrual products reduces the risk of reproductive infections (Janoowalla *et al.*, 2020); proper use of sanitary napkins during mensuration can significantly reduce infections associated with periods (Sychareun *et al.*, 2020). Further, with 48 percent of the total Indian population being females (Census of India, 2011) and the Indian economy projected to grow by 6.9 percent in 2020-21 (World Bank, 2019a), it becomes imperative to have greater participation of women in economic activities. Even though a whopping 355 million women menstruate in India, women are still treated differently owing to this issue. It is striking to note that nearly 23 million girls drop out of schools annually owing to the absence of menstrual hygiene facilities (Dasra, 2015). A further examination reveals that lack of awareness about menstruation and unavailability of sanitary napkins are the key factors responsible for this massive number of school dropouts. The novelty of this paper lies in understanding the impact of factors like educational awareness and availability of health care facilities towards the usage of sanitary napkins in the Delhi/ NCR region of India. This issue is important as effective menstrual hygiene management would enable females to work as per their abilities and contribute to societal and national betterment (World Bank, 2018).

2. Literature Review

"Hygiene is referred to as conditions and practices that help in maintaining health and preventing the spread of diseases" (WHO, 2017). Considered as an important and fundamental element to prevent diseases, particularly contagious ones, personal hygiene takes into account an individual's self-care precautions to protect oneself from surroundings and maintain good health. Personal hygiene care includes regular

bathing, washing hands before and after meals, using one's towel, using soap and running water for cleaning purposes, hair care, etc. Studies (Bhattacharya *et al.*, 2019) have shown that owing to the continuous interaction with the external environment and its pollutants, maintaining hygiene is an indispensable part of living in modern society. Further, hygiene practices vary across cultures- what is acceptable in one culture may not be acceptable in the other and vice-versa. (Nath, 2003). Menstruation, a unique experience to women (Brantelid *et al.*, 2014), is fundamental to human life as it defines human existence. Extant studies (House *et al.*, 2013) have supported that maintaining good menstrual hygiene is of utmost importance for the wellbeing of females. Few studies have also established that menstrual hygiene practices adopted during adolescence are crucial as apart from determining a teenager's health, they also reflect the practices that would be followed in the adulthood stage (Belayneh and Mekuriaw, 2019).

With women comprising 49 percent of the total population (World Bank, 2019b), India is still considered as a male-dominated society where age-old customs and traditions influence the way women live (Chaudhuri *et al.*, 2018). In some parts of India, menstruation is not considered a healthy and normal process and is often associated with negative cultural attitudes, with menstruating females being treated as contaminated, dirty, and impure (MacLean *et al.*, 2020). These societies largely view menstrual blood as impure and menstruation as something different from the normal human physiological phenomenon (Tan *et al.*, 2017). Several restrictions are being imposed by family members of menstruating girls which develop a negative attitude towards this condition in an adolescent mind (Wall *et al.*, 2018). In their study, Garg and Anand (2015) have shown that Indian girls are restricted from participating in household and other socio-religious activities when they are going through their menses. These restrictions are even extended to consuming certain food items (Drakshayani and Venkata, 1994). In such a scenario, women and young girls do not have a choice but to adapt to the socio-cultural environment and face incidences pertaining to menstrual stigma. Such taboos and social-cultural restrictions prevent adolescent girls not only to gain awareness about scientific facts pertaining to female physiology but also about menstrual hygiene health practices which are vital for maintaining positive reproductive health (Rajaretnam and Hallad, 2010).

Another study (Sychareun *et al.*, 2020) has concluded that there is no prior information and education to young girls on the topic of menstruation before having their personal experience. Lack of understanding about reproductive biology, inadequate information about the modern methods of maintaining hygiene and their usage often leads to confusion and generate doubts about the authenticity of the information received from various corners (Wall *et al.*, 2018; Sychareun, *et al.*, 2020; Shah *et al.*, 2019). The absence of information and education on menstrual preparedness and its management is common amongst young girls and has been reported in past studies (Ali and Rizvi, 2010). In a sanitary pad awareness program, one of the slum participants shared apprehension in using a sanitary pad properly (Garikipati and Boudot, 2017). This is further aggravated by the awkwardness, discomfort, and hesitance experienced by women during mensuration-related

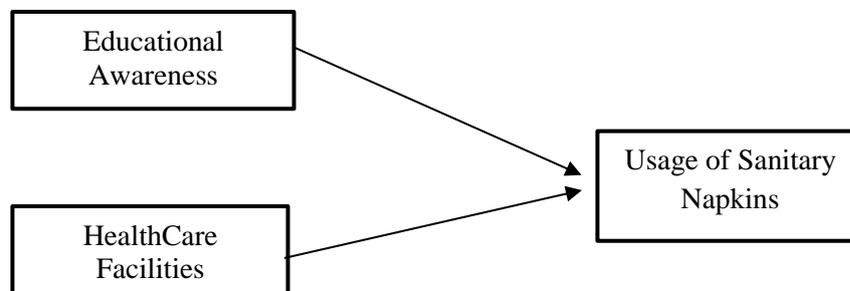
discussions. The provision of healthcare facilities also plays a significant role in influencing the awareness and choice of using sanitary napkins (Garikipati & Boudot, 2017). Growing at a fast pace, the Indian healthcare industry has emerged as one of the largest sectors in revenue and employment generation. With a CAGR of 16.5 percent during 2008-20, the healthcare industry is expected to reach USD 280 billion by 2020 (Sangwan, 2016). In its attempt to increase menstrual hygiene awareness, improved access to good quality sanitary pads, and ensure safe disposal of sanitary pads, the government has launched few schemes as part of the Adolescent Reproductive and Sexual Health (ARSH) component under RCH II (National Health Mission, 2006). Under the scheme, the supply of sanitary pads would be either through the central supply mode by the government or through the Self Help Group (SHG). The Accredited Social Health Activists (ASHA) then ensure the provision of these pads.

Another way to enhance educational awareness and reach out to the masses is through product advertising. Advertising has been defined as structured, non-personal, paid, and persuasive communication adopted by marketers using different means (Arens *et al.*, 2013; Shareef *et al.*, 2019) and is believed to be capable of influencing social construction (Merskin, 1999; Alalwan, 2018). Extant literature has studied the nature of advertisements across different mediums. Few studies have focused on the different advertisements of menstrual hygiene products and found them to enthruse a feeling of independence and comfort to females while doing away with a feeling of embarrassment (Houppert, 1999; Simes and Berg, 2001). While magazine advertisements were found to focus on hygiene, physical comfort, and breaking the age-old taboos (Merskin, 1999), advertising via educational booklets explained the biological process, description of the menstrual cycle (Whisnant, Brett, and Zegans, 1975). Educational films and presentations used animated drawings to portray physiology (Havens and Swenson, 1989).

3. Proposed Model and Hypotheses Development

In this section, we present the hypothesized relationship between constructs employed in the study. The theoretical framework has been presented in Figure 1.

Figure 1. Theoretical Framework



Source: Authors'

3.1 Educational Awareness and Usage of Sanitary Napkins

Education is a tool that provides people with appropriate knowledge, skills, and information. It contributes to developing a broader vision, instills healthy competition, and infuses the capability to fight against challenges like ignorance and injustice which impede national growth (Heckman *et al.*, 2018). Education can thus be considered as a means to stir the consciousness of the people. Since educated people realize their duties towards family, society, and the environment, studies (Osher *et al.*, 2020) have proven that they are in a better position to drive positive change at the family and community level. Further, advertisements are regarded as capable of carrying messages to a distant audience (Lau *et al.*, 2018). By persuading consumers to think and behave in a particular way, marketers attempt to enhance their sales (Jung and Heo, 2019). Researchers (Ahmetoglu *et al.*, 2010) in past have shown that as a motivating tool, advertisements entice people in making choices and thus influence the shaping of society. These also act as a powerful tool for creating awareness on certain social issues (Kumar and Gupta, 2016; Eisenberg *et al.*, 2012). However, no study has explored the relationship between educational awareness via advertisements and the usage of sanitary napkins during menstruation. Thus we posit:

H1. There is a positive relationship between educational awareness and the usage of sanitary napkins.

3.2 Healthcare Facilities and Usage of Sanitary Napkins

Healthcare, provided by health care professionals refers to adapting preventive medical procedures to improve an individual's health. Health care is considered an important determinant in promoting the well-being of people around the world (World Health Statistics, 2010). Extant studies have shown that health care initiatives are capable of improving health outcomes (Wagner *et al.*, 2018; Rowe *et al.*, 2018). Also, in a recent study, Sharma and Gupta (2020) have shown that usage of sanitary napkins promotes women's health in long run. Poor hygiene and unsafe sanitary conditions lead to gynecological problems (Bhatia and Cleland, 1995). Since no study in existing literature has explored the relationship between healthcare facilities and usage of sanitary napkins, we posit:

H2. There is a positive relationship between the availability of healthcare facilities and the usage of sanitary napkins.

4. Methodology and Analysis

4.1 Measures and Sample

The research is descriptive and explored the relationship between educational awareness and healthcare facilities on the usage of sanitary napkins. The target population for this study was women and their daughters belonging to the lower segment in terms of income (< Rs10,000 per month) working with various educational institutions in the Delhi-NCR region. The research tried to measure the perception of these women employees towards the usage of sanitary napkins. For conducting the

survey, prior permission from management of these educational institutions was taken. The data for this cross-sectional study were collected from women aged 16-40 years over 3 months (December 2019 - February 2020) with the help of a questionnaire. Convenience sampling was the most suitable sampling method as menstruation is a very sensitive issue in India and women still refrain from participating in open discussions. Convenience sampling facilitated the collection of data within the stipulated time frame at minimal cost (Suen *et al.*, 2014). More than 200 women were approached for seeking the responses; however, only 112 showed a willingness to participate in the survey.

The principal investigator of the research visited 15 educational institutions for formal discussions towards making the prospective participants aware of the research objectives and orientation of the work before starting with the data collection process. Out of 15, only 09 institutions showed their willingness for conducting the survey within their premises and extended their permission to conduct the survey. Pre-tested instruments were not available to assess the problems faced by women belonging to the marginalized segment of Indian society, a questionnaire was framed with inputs from experts across varied domains like health workers working with NGOs, international funding agencies, academicians, and government officials. This was done to meet the validity requirement (Taherdoost, 2016). Further, these questions were framed taking into consideration the contemporary problems associated with menstruation faced by Indian women hailing from the bottom of the pyramid in North India. The questionnaire was drafted in English language and was subsequently translated into regional language. Initially, a pilot test was conducted on a sample of 20 women respondents across 9 participant institutions on 15 identified items from the literature. An oral questionnaire survey was conducted and responses were recorded in the structured format, as a majority of the female workers showed their inability towards basic literacy.

Based on the feedback received from the corresponding respondents, necessary revisions were made in the questionnaire. The number of the items was reduced to make the survey more effective and less time-consuming. In order to understand the socio-economic condition of the participant, the relevant information was also captured.

A minimum sample size of a model having 5 or fewer constructs must have 100 responses (Hair *et al.* 2014). The sample size of this study is consistent with the past literature and suitable for data analysis using partial least squares-based structural equation modeling (PLS-SEM). This technique has been chosen as it works well with a small sample size and can be used for theory building (Hair *et al.*, 2014, Urbach and Ahlemann, 2010). A questionnaire was divided into two parts- part one collected data on socio-economic variables. In the second part, five-point interval scale statements were framed to measure the two constructs namely educational awareness and health care facilities, where 1 represented strongly disagree and 5 strongly agree.

The common method bias was eliminated by using statistical and procedural methods at the questionnaire designing stage (Podsakoff *et al.*, 2003). Strict confidentiality and unanimity were maintained while collecting the responses. A five-

point Likert scale was used to account for social desirability using a balanced response method (Nederhof, 1985). The survey was conducted beyond working hours in order to eliminate the response bias. The respondents were also briefed about the objective of the research and its ramifications. The questionnaire was carefully framed and appropriate words were used so that extreme response bias can be avoided.

4.2 Data Analysis

This section is broadly divided into two parts. The first part deals with the socioeconomic analysis. The proposed model was tested in part II of this section.

4.2.1 Socio-economic Analysis

Table 1. Demographics

Age (years)	Number of participants	Percentage (%)
16-20	41	36.6
21-28	29	25.8
29-35	31	27.6
36-40	11	9.8

Source: Authors'

As seen from Table 1, maximum participation came from young females in the age bracket of 16-20 years. These girls either assisted their mothers in their work or stayed back with them due to the absence of a safe and secure environment in the locality of their stay. These young girls were relatively more open to this discussion as they have been sensitized to this issue through awareness campaigns run by schools and NGOs. The majority of women participants (78 percent) shared that menstruation is considered taboo and they are not encouraged to carry discussions with other females in the household. The average family size of participants was 6 members.

One-way ANOVA was employed to determine the usage of sanitary napkins among females in different age brackets. [One-way ANOVA ($F(3,108) = 5.346$, $p=0.005$)]. The findings of this paper reveal that females falling in two age brackets of 16-20 and 21-28 years are relatively more aware of the benefits of using these hygiene products and reported using them at the workplace.

Table 2. Output of PLS

Variables	Composite Reliability	Cronbach's Alpha	AVE
Educational Awareness	0.93	0.97	0.91
Health Facilities	0.94	0.98	0.96
Usage of Sanitary Napkins	0.91	0.95	0.87

Source: Authors'

Notes: AVE-Average Variance Extracted

The validity and reliability of the reflective measurement models were tested using Smart PLS software. The items loading was found to be higher than the

specified requirements of 0.0708 (refer to figure 2). Table 2 shows composite reliability, Cronbach’s Alpha, and AVE of the model. Fornell and Larcker’s criterion (1981) depicted that the square root of AVE values of all the constructs taken for analysis was higher than inter construct correlation. This is a clear indication of discriminant validity.

Table 3. Fornell and Larcker’s Criterion for Discriminant Validity

	Educational Awareness	Healthcare Facilities	Usage
Educational Awareness	0.95		
Healthcare Facilities	0.58	0.98	
Usage	0.41	0.48	0.93

Source: Authors'

Table 4. Path Coefficients

Educational Awareness	→	Usage	0.223
Healthcare Facilities	→	Usge	0.328

Source: Authors'

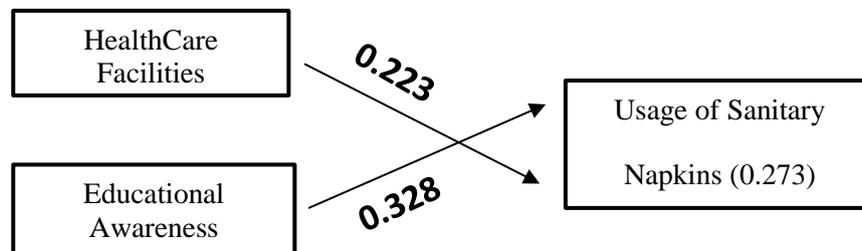
Table 5. Hypothesis Testing

Hypothesis	Path	Original Sample (O)	P-Value	Accepted
H1	Educational Awareness → Usage	0.223***	0.01	Yes
H2	Healthcare Facilities → Usage	0.328***	0.00	Yes

Source: Authors'

***Significant at 99 percent

Figure 2. Results of Structural Model



Source: PLS output: Authors' calculation

Table 6. Factor Loadings

S. No.	INDICATORS	Variables	LOADING
1	HI1	Healthcare Facilities	0.954
2	HI2		0.980
3	HI3		0.899
4	EA1	Educational Awareness	0.903
5	EA2		0.978
6	EA3		0.979
7	US1	Usage of Sanitary Napkins	0.866
8	US2		0.929
9	US3		0.905

Source: PLS output: Authors' calculation

4.3 Model Assessment

Table 3 presents the path coefficients after applying bootstrapping (Vinzi *et al.*, 2010). The coefficient of educational awareness towards usage is 0.223 and the coefficient of healthcare facilities towards the usage of sanitary napkins is 0.328. Both the paths were found to be significant, as the p values of both the constructs are less than 0.05. This indicates support for both the hypothesis taken into consideration. Educational awareness and healthcare facilities positively impact the usage of sanitary napkins among females from lower strata in Delhi-NCR. The impact of healthcare facilities is higher than educational awareness, as can be seen from their coefficients. Together they explain 27.3% variation in the use of the sanitary napkin, which becomes significant with respect to their frequency and pattern of usage.

5. Discussions and Implications

Despite extensive literature in the domain of women's health, empirical studies investigating the factors influencing the usage of sanitary pads are not available. This is an important issue as close to 52 percent of the female population belong to the reproductive age bracket and therefore undergo menstruation each month. A proper

hygiene practice during menstruation exercised by the usage of disposable sanitary pads/ panty liners/ tampons reduces the predisposition of young girls and women to the risk of reproductive tract infection, enhances their mobility, instills confidence to participate in various activities during the menstrual phase, reduces absenteeism from school and workplace, improves self-assurance and paves the way to a healthy and happy life. This would be beneficial both from the perspective of public health and gender equity.

This study indicates that due to the prevailing socio-cultural restrictions and continuance of age-old beliefs and customs, adolescent girls, particularly in low and middle-income countries remain unaware of the hygienic menstrual practices, affecting their health outcomes adversely. Further, the majority of the young girls surveyed in our study shared that even though the primary and first-hand information about mensuration came either from mothers or by female relatives; the information was given only after the occurrence of the event. This did not prepare them adequately for this life event and created uncertainty, fear, anxiety, and trauma associated with menarche in young minds. Our study stresses the role of mothers in breaking the inhibition and initiating healthy, positive, and timely discussions with daughters, before the age of menarche. The findings of this study advocate that educating daughters about the significance and hygienic practices to be adopted during menstruation would help develop a healthy and positive attitude towards menstruation. It is important to note that this approach must be adopted, irrespective of the socio-economic status and educational background of mothers and elderly female guardians. In this context, an important role can be played by health care professionals who apart from disseminating about the healthcare facilities, can also suitably assess mothers' knowledge on menstruation and related aspects. This would ensure the sharing of the right information at an appropriate time. In the long run, this would enable young females and girls to lead a hygienic reproductive life and pass on healthy living to their female offspring.

The findings of this study show that improved educational awareness through advertising can play a crucial role in influencing the usage of sanitary napkins. This validates the findings of the study by McDermott (2000). Sewak & Singh (2012) have also emphasized the robustness of social marketing programs in similar social causes. This study also emphasizes that by creating correct perceptions and underlining the importance of proper menstrual hygiene, girls and women, to a greater extent, can be prevented to face suffering arising from this incidence. The starting point of this can be in the form of disseminating information about female organs and creating a proper understanding of pubertal changes. Our study strongly supports that girls should be made aware of various menstruation facts including the significance of menstruation, development of secondary sexual characteristics, and the associated physiological changes without hesitation. Menstrual hygiene discussions should also be intended towards clearing various misconceptions and myths and emphasis should be given to the usage of clean and comfortable absorbent sanitary napkins during menstruation. The findings of this study recommend delivering educational programs on sanitary pads usage across different mediums like television and radio as they are found to

influence consumer perceptions and buying behavior. Reliance can also be placed on other factors like training school teachers and health personnel, the inclusion of sex education in school curriculum towards creating this educational awareness. Through our study, we suggest organizing comprehensive programs for both genders—men and women. The rationale for this arises as in many societies, men are the decision makers at the household level and the budgeting for sanitary napkins and provisioning of toilet facilities is influenced by their willingness and understanding of the issue. Therefore, it is pertinent to change their perception regarding menstruation and its related aspects.

As female health is a critical issue in developing countries, global health organizations have also been entrusted with the task of promoting menstrual hygiene and reproductive health education, particularly in low and middle-income countries. Governments in low-income countries can also use varied approaches like disseminating information and providing training when working with private players (Mills *et al.* 2002). However, the efficiency of these educational programs essentially rests on the proper understanding of existing myths and perceptions in these countries. Hence, for easy adoption and adaption, this should be aligned with the socio-cultural framework prevailing in these countries. Further, it is also important to cross-check the relevance and accuracy of information before putting it in circulation. It would also be relevant to revisit the earlier versions of educational materials made available to adolescents for necessary updations. Roping in female brand ambassadors which are considered as an epitome of confidence and responsible citizen can also contribute to driving the female hygiene movement. For example, to encourage families to adopt a positive approach towards periods conversation, Stayfree, a brand providing feminine hygiene product, recently unveiled a digital video with the hashtag, 'ItsJustAPeriod'. Another campaign by Pee Safe #OwnTheRed challenges the stigma associated with periods and menstrual health.

Our study found that the use of sanitary napkins is low amongst menstruating females. Being cost-effective and easily available, the majority of the respondents confirmed using cloth during their menstrual cycle and reusing it after washing. Only a few amongst them shared that they dry the cloth under the sun. When asked about the access to toilet facilities, almost all confirmed using the shared washrooms. Few amongst them submitted having vaginal itching and discharge. Upon further investigating, the respondents shared that limited financial resources are also one of the factors inhibiting the usage of disposable sanitary napkins. As poor menstrual hygiene is one of the closely related factors responsible for reproductive tract infections amongst women, this study draws attention to the inadequate availability and poor access to healthcare facilities in low and middle-income countries. The findings of this study show that better provisioning of healthcare facilities can play a crucial role in influencing the usage of sanitary napkins. Government, NGOs, Civil bodies, and society should accord higher priority to ease the discomfort arising out of menstruation for females. Planners and decision-makers should focus on developing robust sanitation, hygiene, and menstrual health services in the country. Clean public and community toilets with running water, sanitary napkins vending machines,

dustbins, or incinerators for proper disposal of used napkins are a must in this direction. WASH (Water, sanitation, and hygiene) facilities should be made available in schools and public places. Sanitary napkins should be made available to women at lower prices. Therefore, government and other bodies should work towards the economic solution of the cost of pads and also the affordability of essential pain-relieving medicines.

This study suggests that improved educational awareness and better healthcare facilities can enhance the usage of sanitary napkins. Menstruation is still considered taboo in India and women feel uncomfortable participating in such discussions. Therefore, it is very important to impart proper training and education to women and society at large on such health issues. Apart from launching schemes aimed at improving menstrual hygiene, the government and other bodies should also make women aware of the various schemes available for them, so that the benefits can be reaped and Indian women can buy and use the low-priced sanitary napkins. The government can also consider associating with the formal private sector comprising of doctors, nurses, and pharmacists as an initiating point of influencing women's behavior. Since, media is capable of influencing and educating society about various hygiene health practices, the findings of this study advocate screening of impactful advertisements on TV/Radio challenging the myths and misconceptions associated with periods. They should also focus on empowering women to make their life choices and decisions on their own.

The findings of the study are relevant for policy formulations in states of Northern India. As India is a land of different cultures, religions, and traditions, there exist vast socio-cultural regional divergence. Thus the scope of this study is confined to states of North India. Since a standardized measure is not available, there is a need to develop an instrument to measure factors influencing the awareness and adoption of hygienic practices during menstruation. Future studies can undertake a comparative regional analysis of the issue to devise suitable schemes and incentives for the upliftment of these marginalized women in India.

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