

RESEARCH ARTICLE

Exploring the intention to use menstrual cup through the framework of the theory of planned behaviour

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ABSTRACT

The intention to use a menstrual product is influenced by the socio-economic and cultural environment. The present study was done among reproductive college students in Kerala to understand the factors influencing the intention to use menstrual cups using the theory of planned behaviour. A survey was carried out among a sample of 1937 female students. The hypothesis was tested using multiple regression analysis. All the three factors of TPB namely, ATB, SN and PBC were found to have a positive and significant influence on the MCI. The study results could be used by the policymakers to implement initiatives to promote the use of menstrual cups.

Keywords: Sustainable menstruation; Menstrual cup; Theory of planned behaviour; Intention to use

1. Introduction

An inevitable aspect of a women's life cycle is menstruation. On an average a women menstruates for about 40 years, which means translates to 2400 days (6.5 years) of her life that she is spend menstruating. Earlier menstrual cycles were associated with health problems and economic losses for women. In the recent years it has also been related to the environmental pollution affecting the entire population^[1]. As far as the WHO is concerned menstrual health is to be recognized, framed and addressed not as a hygiene issue but as a frequently overlooked obstacle to human rights^[2]. Thus menstruation research can be addressed from a sustainable perspective and also from a human rights perspective. Menstrual hygiene management plays a vital role in women's health, yet it remains a topic shrouded in stigma and misinformation across various cultures.

Any product designed to absorb menstrual blood is refereed to as menstrual absorbents and the commonly used menstrual absorbents are clothes/ cloth pads, disposable sanitary pads, menstrual cups, and tampons. One-time use disposable products like sanitary pads and tampons are referred to as non-sustainable menstrual absorbents due to their nature of high waste generation and subsequent environment pollution due to the plastic content. The practice of the use of reusable menstrual absorbents like cloth, cloth pads and menstrual cups is known as sustainable menstruation as it has multiple benefits on user's health, social and

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economic well being and most importantly reduces negative environmental impacts. Despite the multiple benefits of sustainable menstrual absorbents factors like fear, ignorance and lack of availability hinder the women from experimenting with the various menstrual absorbents. According to the National Family Health Survey (NFHS-5), 77.3% of menstruating women are dependent upon sanitary pads during menstruation^[3]. The adoption of sustainable menstrual products, such as menstrual cups, has gained traction as a viable alternative to traditional disposable products like sanitary pads and tampons but the adoption is happening at a very slow pace . Menstrual cups are made of medical grade silicon and are available in various sizes. The use of menstrual cups involves insertion into the vagina during the menstrual cycle and can be used upto ten years with proper cleaning and maintenance. Thus, menstrual cup as a menstrual absorbent is an economical sustainable alternative. The cultural stigmas associated with the insertion of cup to the vagina and the perception of menstrual blood as impure and the disgust associated with the menstrual blood are reported to be some of the reasons for its slow adoption^[4] .

Menstrual health does not have a specific goal or indicator, but it is closely connected with many SDGs,. Some of the SDGs that have a close link with menstrual health are Goal 3(good health and wellbeing) ; Goal 4 (quality education); Goal 5 (gender equality); Goal 6 (clean water and sanitation); Goal 8(decent work and economic growth); and Goal 12 (responsible consumption and production. Studies have indicated that improving menstrual health can lead to progress across all the goals^[5]. Specifically the role of menstrual cups in increasing school attendance among adolescent girls has also been reported ^[6].

Several campaigns were launched separately by government and NGOs in the state of Kerala in India to promote the use of menstrual cups among menstruating women. The campaign of ‘ Cup of Life’ was launched in the district of Ernakulam in 2022 which included awareness sessions and free distribution of 100001 menstrual cups ^[7]. Another noteworthy project is the ‘Project Thinkal ’ implemented by Hindustan Latex Ltd. (HLL) under the Ministry of Health and Family Welfare, Government of India ^[8]. Over 150 local administrative bodies in Kerala have implemented various initiatives aimed at promoting menstrual hygiene. ^[9]. The ultimate success of such campaigns is dependent upon the rate of conversion to menstrual cup usage. However, menstrual cup usage was reported to be only among only 5 percent of reproductive age girls/women in India^[10]. Despite their benefits, the adoption rate of menstrual cups remains low, particularly in developing countries, where cultural norms and lack of awareness pose significant barriers . At the same time Indian women have also reported high intention to use menstrual cups ^[11]. Thus it is imperative to comprehend the elements that can facilitate the intention to use menstrual cup among women. The Theory of Planned Behavior (TPB) provides a robust framework for understanding the factors influencing individuals' intentions to engage in specific behaviours, including the use of menstrual cups. Therefore, this study aims to investigate the factors that affect young women's intention to use menstrual cups by applying the TPB framework.

2. Review of literature

2.1. Menstruation

Studies have reported that while not widely known, menstrual cups can provide a safe and acceptable option for menstrual hygiene, regardless of income level^[4] . Menstrual cups have been recognized to have the potential to be an alternative menstrual hygiene management product^[12] and were also reported as a safe, comfortable, and sustainable alternative product with significantly fewer health concerns^[13]. It was also found that compared with sanitary pads, menstrual cups have less leakage, they won't fall, and they're more comfortable once inserted ^[14]. Additionally, it was also found that the use of a menstrual cup not only changes how women physically experience their periods but also how they perceive menstruation and their

bodies^[15,16]. Schoolgirls can manage menstrual hygiene by using menstrual cups, which are convenient, inexpensive, and environmentally friendly ^[17,18]. Women who used menstrual cups were more aware of how their products affect the environment^[1].

There are several challenges associated with menstrual cups, including easy accessibility, the availability of cups in appropriate size, and support systems for guidance and awareness^[12]. Some other challenges include high chances of infection on using it in the public, leaking, and the cup getting stuck in the vaginal canal^[13]. According to research, self-objectification and body shame are also associated with poor attitudes towards reusable menstrual products and low usage rates of them ^[19]. The need to increasing awareness campaigns and improving availability of cups are also identified as the major means by which such barriers can be overcome^[20,21].

2.2. Theory of planned behaviour

The theory of planned behaviour (TPB) posits that the behavioural intentions of a person are shaped by three key components: attitudes toward the behavior (ATB) , subjective norms (SN) , and perceived behavioural control (PBC)^[22,23]. Attitude towards behavior refers to one's positive and negative evaluations regarding a certain behavior. Subjective norm refers to the perception of how important people will approve and support a certain behavior. Perceived behavioural control pertains to the degree to which one perceives to have the capability to perform a certain behavior. TPB has previously been found to be effective at improving healthy behaviours ^[24]], and the statistical results indicated that variance in intention was explained by TPB up to 39 % and variation in health behavior was explained by TPB up to 27 % ^[25]. The major factors influencing the intention to use a specific menstrual product were found to correspond to the constructs of TPB namely, ATB, SN, and PBC. An individual's evaluation of an action or behavior refers to his or her positive or negative assessment of it and this is referred to as ATB. (in the context of menstrual product use intention it corresponds to women's cultural values). An individual's perception of support or approval from salient others when participating in a certain behavior is called SN (e.g., corresponding to women's maternal support in the context of menstrual product use intention). The PBC measures how much one believes they are capable of performing a particular action (e.g., corresponding to the availability of water for women to manage their menstrual cycle for menstrual management in the context of menstrual product use intention).

TPB has been used for explaining multiple health related behaviours like use of hormone replacement therapy^[26], behavioural characteristics of Ugandan postpartum women related to contraception^[27],pubertal and menstrual health education among Iranian secondary school girls^[28], to forecast the intention to use long-acting reversible contraceptive methods ^[29], oral contraceptive use ^[30] and reproductive health of women with endometriosis in Iran .Positive attitude was found to play the most significant role in improving puberty health^[28] and reproductive health ^[31]. In rural India, perceived behavioural control emerged as a crucial factor in understanding social beliefs and health-related behaviours.^[32]

One of the initial studies to utilise the Theory of Planned Behavior (TPB) as a theoretical framework to elucidate the intention to use menstrual cups was conducted by Huang and Huang (2020). This research revealed that attitudes toward behavior (ATB) concerning both positive and negative outcomes, supportive subjective norms (SN), and perceived behavioural control (PBC) under limiting conditions were all linked to a strong intention to use menstrual cups in their findings^[33]. Another study looked at the role of TPB among Chinese women to understand their attitudes towards tampons. The use of tampons was found to have a positive and significant correlation with both injunctive and descriptive norms, in addition to perceived behavioural control. Additionally, the same study also noted that an additional control variable was media

use, which significantly and positively influenced the use of tampons^[34]. A study conducted in Philippines explored the likelihood that a woman will use a menstrual cup and found that intentions were significantly predicted by perceived behavioural control and attitudes among non-users but not subjective norms^[35]. A recent study conducted in India found that attitude was the most influential factor, in the intention to use menstrual cup. The same study also reported that PBC had no significant impact ^[36].

3. Research objectives and hypotheses

Based on the extensive review of the literature done the major research objective of this study was formulated as to explain the intention to use menstrual cup through the use of theory of planned behaviour. The three factors namely ATB, SN and PCB were proposed to influence the intention to use the menstrual cup as shown in **Figure 1**.

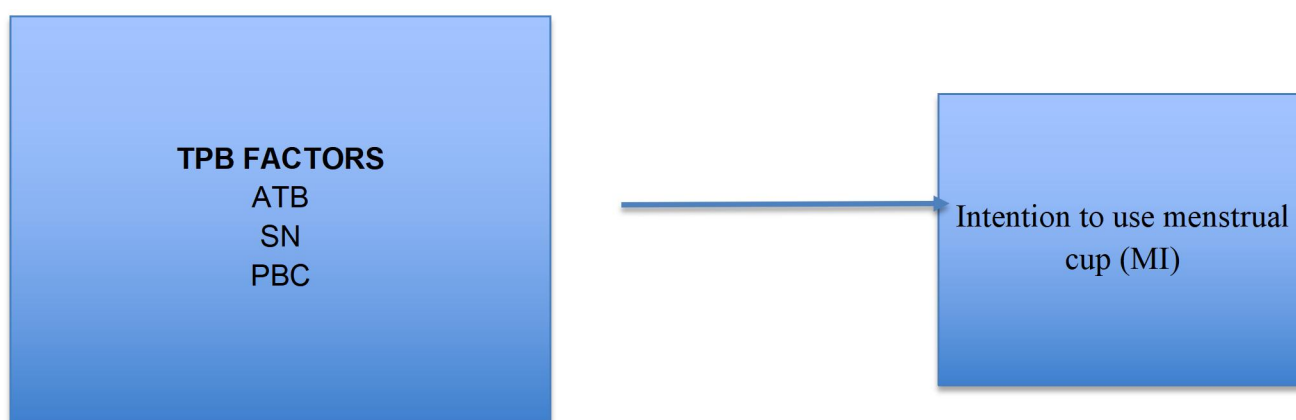


Figure 1. Conceptual framework.

Accordingly, the following hypothesis was postulated:

H1: Attitudes, perceived behavioural control and subjective norms will influence the intention to use menstrual cup

4. Methodology

This study targeted college girls as the target population because female university students are still trying out different menstrual products and peer norms and attitudes about menstrual health are more likely to influence the way they exchange information. The study followed an exploratory research design. A survey was conducted among college-going menstruating women, in the age group of 18-24 in the state of Kerala from December 2022 to May 2023. The inclusion criteria for the sample was that they should not be using or have not used menstrual cups as a menstrual absorbent. All the respondents were given an awareness session on sustainable menstruation and menstrual cups. After the session, they were asked to fill out the questionnaire which was distributed in hard copy. A single question evaluated the intention to use a menstrual cup: “How likely are you to use a menstrual cup during your next period?” which was adapted from a pre-existing scale ^[33]. ATB, SN and PCB coming under TPB were measured using the items generated specifically for the context of menstruation ^[33]. The survey also collected responses to questions on basic awareness about sustainable menstruation and menstrual cups including frequency and sources. It was a completely voluntary study, and respondents were assured their responses would be kept confidential.

A final analysis was performed based on the received sample of 1937 responses from 23 colleges across Kerala.

5. Analysis and results

Analysis of the data was carried out using SPSS 21. The socio-demographic details of the sample are given in **Table 1**. The average age of the respondents was 19.8 years with a standard deviation of 0.04. The sample consisted of both undergraduate (1317) and postgraduate students (620). Among the sample, only 58 students were married and the remaining (1879) were all single.

Table 1. Socio-demographic details of the sample.

Variable		Frequency (n)	Percentage(%)
Educational Qualification	UG	1317	70
	PG	620	30
Marital status	Single	1879	97
	Married	58	3
Socio-economic status	1-3 Lakhs	1271	65.6
	3-5 Lakhs	529	27.4
	5-10 Lakhs	77	4
	Above 10 Lakhs	60	3

The majority of the respondents were undergraduate students (70%) with some post-graduates (30%) as well. Similarly, a large proportion of our respondents were found to be single (97%)

with a few married respondents (3%). The socio-economic status of the respondents was measured through annual family income in rupees which fell into categories like 1-3 lakhs (65.6%), 3-5 lakhs (27.4%), 5-10 lakhs (4%) and above 10 lakhs (3%). The descriptive statistics and correlation of the study variables are presented in **Table 2**. All the three independent variables were found to be positively related to MI with ATB (0.413) having the strongest correlation followed by PCB (0.331) and SN (0.230)

Table 2. Descriptive statistics and correlation.

	Mean	SD	ATB	SN	PBC	MI	VIF
ATB	3.6	1.05	1				1.071
SN	3.8	0.6	0.28	1			1.138
PBC	3.6	0.75	0.245	0.146	1		1.093
MI	3.3	1.03	0.413	0.331	0.161	1	

To test H1, multiple regression analysis was carried out with ATB, SN and PBC as the independent variables and intention to use menstrual cup as the dependent variable. No multicollinearity was found among the independent variables as given in table 2. The adjusted R square value was 0.221 and the overall model was found to be significant (F=179.87, p=0.01). All the three independent variables were found to be having a positive and significant relationship with intention to use menstrual cup. Among the three variables, the strongest

predictor was ATB (0.337, p=0.01), followed by SN (0.230, p=0.01) and PBC (0.045, p=0.05). Thus, H1 was accepted.

6. Discussion and conclusion

The major objective of this study was to understand the influence of TPB factors in MCI among college students. From the results we could conclude that theory of planned behaviour could explain the intention to use menstrual cup. Although all the three factors of TPB were found to be significant predictors, ATB was the strongest predictor followed by SN and PBC. This result is not surprising as prior studies have also highlighted the significant influence of positive attitude on the intention to use menstrual cup [33,36]. Here in terms of the consequences of using a menstrual cup, ATB refers to the degree of favourability or unfavourability a female student feels about using one. In the Indian context there are several cultural taboos associated with menstruation and hence it is a very significant finding to understand that the attitude of the users is having the greatest influence on their intention to use the menstrual cup. Thus, awareness and sensitisation programmes aimed at creating a favourable attitude about the menstrual cups will go a long way in popularising the use of menstrual cups.

The purpose of subjective norms is to measure how people perceive the expectations of others that influence their behavior. Basically, it refers to how much relevant individuals or groups support or oppose a particular behavior. To measure SN, participants were asked how much their closest friends, family members, or colleagues would support them in using menstrual cups. The study results indicated that the support of the closest ones play a positive and significant role in the intention to use a menstrual cup. Prior studies have also mentioned that for tampons, which is also an insertive menstrual product, the perceived support from significant persons reported a significant influence on tampon use intention among women [37]. Mothers were believed to play a huge role in advising and supporting young girls to use menstrual cups and joint trainings for mother-daughter combos were also recommended [15]. Prior research has indicated that school girls heard about the benefits of menstrual cups from their friends which in turn encouraged them to use menstrual cups [18].

Perceived behavioural control (PBC) refers to how an individual perceives the ease of using a menstrual cup. The perceived control over the use of menstrual cup was also having a smaller but still significant influence on the intention to use menstrual cup.

Several measures have been taken by the Kerala state government to increase the use of menstrual cups to address the problem of the accumulation of biodegradable waste from napkins in the environment. The present study was done among college students in Kerala to understand the factors influencing the intention to use menstrual cups using the theory of planned behaviour. All the three factors of PCB namely, ATB, SN and PBC were found to have a positive and significant influence on the MCI. The study results could be used by the policymakers to implement initiatives to promote the use of menstrual cups. Since attitude was found to be the most significant predictor, the government should focus on increasing outreach efforts that emphasize the long-term environmental and personal health benefits of menstrual cups. Similarly, peer-influence programs should be organized to help normalise the use of menstrual cups, as subjective norms were also found to be a significant predictor. Promoting student ambassadors from the users could be a strategy to be used for promoting the use of menstrual cups in schools, colleges and universities. Perceived behavioural control aspects can be addressed by conducting practical training sessions to enhance students' confidence and reduce apprehensions. Initiatives should not be a one-time event with distribution of cups, there have to be regular followups to ensure the continued use of menstrual cups.

Despite the numerous contributions, this study is not free from limitations. The study was done exclusively in the age group of 18-24 years thereby limiting the generalizability of the study findings. Menstruating women in the various age groups and life cycle stages may have different factors influencing

their attitude towards the use of menstrual cups. Factors like sexual activity, no. of child births, type of delivery (normal/caesarean section) can have significant influence on the attitude towards menstrual cup and further studies should be looking at these factors as well.

Conflict of interest

No conflict of interest was reported by all authors.

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