

## ORIGINAL RESEARCH

# The present past and future menstrual cups: A health educational intervention study

<sup>1</sup>Dr. Lokesh KC, <sup>2</sup>Dr. Swetha Chandru, <sup>3</sup>Dr. Vimarshitha P, <sup>4</sup>Dr. Pradeep TS, <sup>5</sup>Dr. Chaluvraj TS

<sup>1</sup>Assistant Professor, Community Medicine, MVJ MC & RH, Hoskote, Bangalore, Karnataka, India

<sup>2</sup>Associate Professor, Department of Biochemistry, MVJ MC & RH, Hoskote, Bangalore, Karnataka, India

<sup>3</sup>Assistant Professor, Department of OBG, SDUMC, SDUAHER, Kolar, Karnataka, India

<sup>4</sup>Associate Professor, Community Medicine, SDUMC, SDUAHER, Kolar, Karnataka, India

<sup>5</sup>Associate Professor, Community Medicine, MVJ MC & RH, Hoskote, Bangalore, Karnataka, India

**Corresponding Author**  
Vimarshitha P

Received: 12 March, 2023

Accepted: 18 April, 2023

### **ABSTRACT**

**Background:** Menstruation is a significant stage in the development of adolescent girls. Especially those who cannot afford the materials needed for menstrual management<sup>1</sup>. The women resort to non-absorbent, unhygienic and uncomfortable materials for management<sup>2</sup>. The inadequate management of menstruation in low/middle income countries and the religious traditions and taboos have emerged as an important priority for action. Due to non-availability and cost barriers, as well as the lack of knowledge and taboos associated with menstruation, the management of menstruation is a source of social embarrassment<sup>3</sup>. Hence the need for better, comfortable, hygienic and cost effective products has arisen something like menstrual cups. **Objective:** To assess perceptions regarding menstrual cups among menstruating women before and after health education intervention and to assess the perceptions regarding menstrual cups among those participants who are using menstrual cups. **Methods:** It is a health education intervention study (Non randomized, no blinding) carried on menstruating women between 18-45 years age group for a period of two years from June 2018 to November 2020 in UHTC field practice area of MVJMC & RH, Hoskote Rural Bangalore on 400 women calculated on previous study. Menstruating women between 15-45 years age group were included and Menopausal women were excluded. **Results:** Out of 400 participants, 378 used sanitary pads among which 328 experienced one or other side effects. Majority used 1-3 pads/day. Health education intervention regarding reusability, methods of cleaning and process of insertion of menstrual cups came significant. Follow up of 3 cycles among 30 menstrual cup users showed improved acceptance compared with sanitary pads in the same participants. **Conclusion:** Menstrual cups are eco-friendly, reusable and cost effective. It's time now that more emphasis should be given on usage of menstrual cups which has many advantages compared to other methods followed during menstruation.

**Key words:** Sustainable menstruation, menstrual cups

---

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

---

### **INTRODUCTION**

Menstrual hygiene management can be challenging. Menstrual cycle usually produces biomedical waste in the form of menstrual pads which are most of the times disposed unhygienically and unscientifically<sup>1</sup>. Menstruating Girls and women need effective, safe, and affordable menstrual products. Menstrual cup is a device for menstrual flow management and is claimed to be a healthy, economic and environment friendly alternative to conventional menstrual products<sup>2</sup>. It is manufactured using non-toxic, non-allergic silicone hence it is absolutely inert and smooth, thereby nullifying problems of infection

allergies, rashes and excoriations. It is worn internally hence it eliminates foul odour and feeling of wetness. It can also be worn for long hours because of its capacity. It can be sterilized before use and is the most hygienic and safe product. It is a reusable device which can last many years which makes it more economical and also reduces the problem and embarrassment of disposal of sanitary products. Nevertheless concern remains about any vaginal intrusions particularly among girls with poor WASH facilities<sup>3</sup>. But if this can be improved, menstrual cups can be the answer to unaffordable and unhygienic menstrual practices. The knowledge

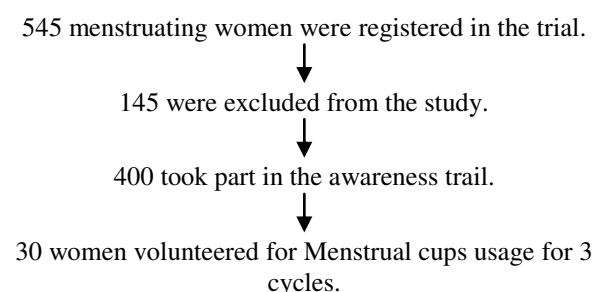
regarding menstrual cups is poor among women. They are just like tampons inserted into the vagina where menstrual blood gets collected and should be emptied every 4-12h, depending on menstrual flow and type of cup<sup>4</sup>. The use of unhygienic clothes to replace pads or tampons may cause restriction in movement, skin irritation, concerns about leaking and odour increasing the risk of urogenital infections<sup>5-7</sup>. With this background, study was started to assess the perception regarding menstrual cups among menstruating girls, to create awareness about menstrual cups in same participants followed by reassessment and enrol follow up of menstrual cup users.

## METHODOLOGY

The present study was Interventional study done in MVJ medical college research hospital for period of two years from 2018 to 2020. All adolescent girls visiting the urban health center of medical college were part of the study. A study done in Gujarat showed that 60% of adolescent girls had adequate knowledge<sup>8</sup>. Sample size calculated using Open Epi software with error of 5% and 95% confidence interval sample size for awareness estimation was 384. Menstruating women between 18-45 years age group were included in the study. Adolescent girls with any menstrual irregularities, women with any other health issues and post-menopausal women were excluded from the study. Among 400 menstruating

women, health education was given to all in the form of health education lecture for 15 minutes along with leaflets and post test data collection regarding change in the knowledge was done after 15 days through telephonic conversation. Study was started after ethical committee clearance obtained from the Institution. The participation in the study was completely voluntary. All data were collected by interview technique by pre-tested semi-structured questionnaire which lasted not more than 15 minutes. All data collected were coded and entered in Microsoft excel sheet analyzed using SPSS version 22. Descriptive statistics applied where ever needed and to check for association chi-square was applied with p value less than 0.05 defined as statistically significant.

## FLOW OF RECRUITMENT OF THE STUDY PARTICIPANTS



## RESULTS

**Table 1: Distribution of menstruating women according to socio-demographic characteristics**

Sociodemographic characters		Frequency	Percentage
Age in years	Less than 30	162	40.5
	More than 30	238	59.5
Education	Education up to middle school	218	54.5
	Completed High school	182	45.5
Occupation	Working for wages	252	63
	Homemaker	148	37
Socioeconomic status (Modified BG Prasad Classification 2022)	II	58	14.5
	III	125	31.2
	IV	111	27.8
	V	106	26.5

Out of 400 menstruating women who took part in the study, 238(59.5%) were aged more than 30 years, 218(54.5%) had completed high school education,

252(63%) were working for wages and 125(31.2%) belonged to class III Socioeconomic status according to Modified BG Prasad Classification 2022.(Table 1)

**Table 2: Comparison of Pretest and post-test knowledge in menstruating women about menstrual cups**

Criteria	Pretest (n=400)	Posttest (n=400)	P value
a) Do you know about menstrual cups	53 (13%)	397 (99%)	0.02
b) Do you know how to clean it?	18 (4%)	377 (94%)	0.01
c) Can it be used for many years?	18 (4%)	385 (96%)	0.01
d) How to use it?	05 (1%)	295 (74%)	0.004
e) Regarding complication	03 (0.7%)	290 (73%)	0.02
f) Is it cost effective?	17 (4%)	365 (91%)	0.01
g) Are you interested to use it?	10 (2%)	155 (39%)	0.001

#Chi-square test

Above table shows that, there was statistically significant improvement in the knowledge domain regarding usage of menstrual cups following health education session. (Table 2)

**Table 3: Comparison between three consecutive menstrual cycle usage of Menstrual cups among volunteers (n=30)**

Sl. No.	Parameters	Cycle1		Cycle 2		Cycle3		p value
		Easy	Difficult	Easy	Difficult	Easy	Difficult	
1.	Wearing	13(43%)	17(47%)	21(70%)	9(30%)	28(94%)	2(6%)	0.01
2.	Removal	23(76%)	7(23%)	30(100%)	0(0%)	30(100%)	0(0%)	0.02
3.	Leakage	10(34%)	20(64%)	4(13%)	26(87%)	1(3%)	29(97%)	0.04
4.	Cleaning & Storage	25(84%)	5(16%)	25(84%)	5(16%)	28(94%)	2(6%)	0.02

#Chi-square test

Above table shows that with usage various parameters had significant improvement suggesting that it can be better acceptable with regular usage (Table 3).

**Table 4: Comparison between cycle usage with sanitary pads and menstrual cups among volunteers**

Parameters	Sanitary Pads		Menstrual Cups	
	Easy	Difficult	Easy	Difficult
1 Wearing	30(100%)	0(0%)	28(94%)	2(6%)
2 Disposal	5(16%)	25(87%)	29(97%)	1(3%)
	Yes	No	Yes	No
3 Leakage & Smell	28(93%)	2(6%)	1(3%)	29(97%)
4 Repeated Changing	30(100%)	0(0%)	0(0%)	30(100%)
5 Allergic Reactions, Rash, Dryness	12(40%)	18(60%)	2(6%)	28(94%)

Above table shows that wearing and disposal of menstrual cups were easy compared with sanitary pads however leakage with smell, repeating changing and allergic reactions rash and dryness were common complaints in menstrual cup users. (Table 4)

## DISCUSSION

The present study is an interventional study which was to assess the perception regarding menstrual cups among menstruating girls, to create awareness about menstrual cups in same participants followed by reassessment and enroll follow up of menstrual cup users. Study done in Nepal showed that the use of vaginal menstrual cups for menstrual hygiene management among schoolgirls, appears feasible and acceptable along with practical, economic and environmental advantages<sup>9</sup>. Study done by Philips *et al.*, showed that Provision of menstrual cups and sanitary pads for 1 school-year was associated with a lower STI risk and cups with a lower bacterial vaginosis risk<sup>10</sup>. A qualitative pilot study done in Zimbabwe shows that women in a low-resource setting can accept and correctly use menstrual cups as an alternative and reusable menstrual care product<sup>11</sup>. Study done by Stewart *et al.*, has showed that vaginal tampons have been better alternative for sanitary pad<sup>12</sup>. Study done in Iran has shown that Acceptability and safety of the menstrual cups among Iranian women was very high suggesting that its very good alternative for sanitary napkins which has lot of environmental issue during disposal<sup>13</sup>. Menstrual cups are those vaginal inserts which are better as day progresses, has lesser side effect easy to use, less

chances of leak, can collect more than a pad or tampon with no offensive odour<sup>14</sup>. However there are literature showing that it's not completely free of side effects. There could be issue for the right size of the vaginal tampon. It could be filthier and crumble some period if not handled according to instructions. A confirmed case of Toxic shock syndrome has been reported from menstrual cup user suggesting that precautions must be taken by users<sup>15</sup>.

Strengths of the present study being an interventional study first of its type to be carried out where health education intervention was given and acceptance of the vaginal tampons were looked. Weakness of the present study being smaller sample size. The study needs to be conducted at different age groups and also with those with menstrual irregularities to make it more acceptable to generable population.

## CONCLUSION AND RECOMMENDATION

Menstrual cups are eco-friendly reusable cost effective and associated with less complication. Many are not aware about menstrual cups, so awareness should be created among general population through mass media and health education activities. Lack of motivation is one of the major obstacles for the use of menstrual cups, so health educator should motivate repeatedly the women those who are interested to use it.

## REFERENCES

- Critchley HO, Babayev E, Bulun SE, Clark S, Garcia-Grau I, Gregersen PK, Kilcoyne A, Kim JY, Lavender M, Marsh EE, Matteson KA.

- Menstruation: science and society. American journal of obstetrics and gynecology. 2020 Nov 1;223[5]:624-64.
2. Shah C. Use of Flow Care Menstrual Cups over conventional menstrual products in India. International Journal for Advance Research and Development. 2017;2[8]:78-82.
  3. Mukherjee A, Lama M, Khakurel U, Jha AN, Ajose F, Acharya S, Tymes-Wilbekin K, Sommer M, Jolly PE, Lhaki P, Shrestha S. Perception and practices of menstruation restrictions among urban adolescent girls and women in Nepal: a cross-sectional survey. *Reprod Health*. 2020;17[1]:81.
  4. Peter A, Abhitha K. Menstrual Cup: A replacement to sanitary pads for a plastic free periods. *Materials Today: Proceedings*. 2021 Jan 1;47:5199-202.
  5. Mahajan T. Imperfect information in menstrual health and the role of informed choice. *Indian Journal of Gender Studies*. 2019 Feb;26[1-2]:59-78.
  6. Van Eijk AM, Zulaika G, Lenchner M, Mason L, Sivakami M, Nyothach E, Unger H, Laserson K, Phillips-Howard PA. Menstrual cup use, leakage, acceptability, safety, and availability: a systematic review and meta-analysis. *The lancet public health*. 2019 Aug 1;4(8):e376-93.
  7. Sommer M, Hirsch JS, Nathanson C, Parker RG. Comfortably, safely, and without shame: defining menstrual hygiene management as a public health issue. *American journal of public health*. 2015 Jul;105[7]:1302-11.
  8. RS L. Awareness, preference and attitude towards the usage of menstrual cups among girls and women. *Journal of Pharmaceutical Negative Results*. 2022 Sep 26:1023-31.
  9. Pokhrel D, Bhattarai S, Emgård M, Von Schickfus M, Forsberg BC, Biermann O. Acceptability and feasibility of using vaginal menstrual cups among schoolgirls in rural Nepal: a qualitative pilot study. *Reproductive health*. 2021 Dec;18[1]:1-0.
  10. Phillips-Howard PA, Nyothach E, Ter Kuile FO, Omoto J, Wang D, Zeh C, Onyango C, Mason L, Alexander KT, Odhiambo FO, Eleveld A. Menstrual cups and sanitary pads to reduce school attrition, and sexually transmitted and reproductive tract infections: a cluster randomised controlled feasibility study in rural Western Kenya. *BMJ open*. 2016 Nov 1;6[11]:e013229.
  11. Madziyire MG, Magure TM, Madziwa CF. Menstrual cups as a menstrual management method for low socioeconomic status women and girls in Zimbabwe: a pilot study. *Women's Reproductive Health*. 2018 Jan 2;5[1]:59-65.
  12. Stewart K, Powell M, Greer R. An alternative to conventional sanitary protection: would women use a menstrual cup? *Journal of Obstetrics and Gynaecology*. 2009 Jan 1;29[1]:49-52.
  13. Gharacheh M, Ranjbar F, Hajinasab N, Haghani S. Acceptability and safety of the menstrual cups among Iranian women: a cross-sectional study. *BMC Women's Health*. 2021 Dec;21[1]:1-8.
  14. Manley H, Hunt JA, Santos L, Breedon P. Comparison between menstrual cups: First step to categorization and improved safety. *Women's Health*. 2021 Nov;17:17455065211058553.
  15. Mitchell MA, Bisch S, Arntfield S, Hosseini-Moghaddam SM. A confirmed case of toxic shock syndrome associated with the use of a menstrual cup. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2015 Jul 1;26[4]:218-20.
  16. Nonfoux L, Chiaruzzi M, Badiou C, Baude J, Tristan A, Thioulouse J, Muller D, Prigent-Combaret C, Lina G. Impact of currently marketed tampons and menstrual cups on *Staphylococcus aureus* growth and toxic shock syndrome toxin 1 production *in vitro*. *Applied and Environmental Microbiology*. 2018 Jun 15;84[12]:e00351-18.