

Article

# Effect Of Use Menstrual Cup To Personal Hygiene And Genital Inflammation : Systematic Literature Review

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### A B S T R A C T

Backgrounds: Poor personal hygiene factors and frequency of changing sanitary napkins make genital becomes more moist and susceptible to bacterial growth. (Sari, 2012). The alternative choice of the menstrual cup is considered the best medium for collecting menstrual blood because it can minimize fishy odors and the emergence of infections, irritations, and rashes (Beksinska et al., 2015). Purpose: Describe the menstrual cup affect on personal hygiene and genital inflammation. Method: This study used a systematic review of articles in the Scopus, Pubmed, Science Direct, Proquest, and EBSCOhost CHINAHL. Twelve articles that met the inclusion and exclusion criteria were included as samples for future review. The results regarding the factors causing late referral are explained in the narrative. Result: Participants had good habits in personal hygiene when using menstrual cups (6 articles), participants felt the benefits of menstrual cups (5 articles), it was found that genital inflammation in low prevalence, but also the majority of participants felt the benefits of menstrual cups (5 articles). Conclusion: Generally participant had a good habit, although there is some different personal hygiene method. The menstrual cup is a kind of safe menstrual sanitary with low risk of health problems, so it can be a choice for women.

## I. INTRODUCTION

During menstruation, the reproductive organs become moist so they can susceptible to various problems of reproductive health. Generally, reproductive tract causes no symptoms and has become a silent epidemic that threatens women's health (Sari, Firani, and Yuliatun, 2013). Based on data from the WHO in 2013, there were 75% of women in the world have a history of genital infections and poor hygiene when menstruating. While the incidence of ISR in the

world at the age of women around 27%-33% (Andira, 2013). Poor personal hygiene factors and frequency of changing sanitary napkins can make genital more moist and susceptible to bacteria (Sari, 2012).

Menstrual cup is considered best as a storage medium for menstrual blood because it comes from silicone material medical-grade safe and able to minimize the fishy smell and the emergence of infection, irritation, and rashes due to blood menstruation does not touch the vagina for hours (Beksinska *et al.*, 2015).

Based on this background, it is necessary to research to determine the effect of using the menstrual cups on personal hygiene and genital inflammation.

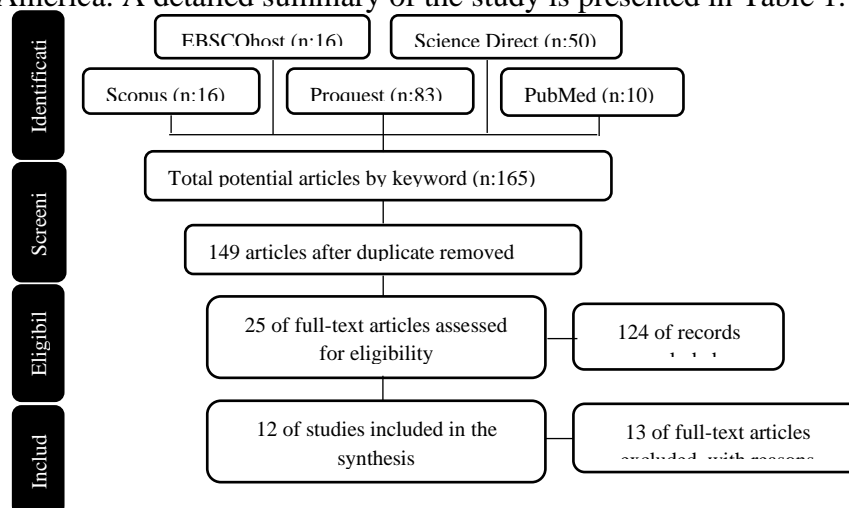
## II. METHODS

This research was made in the form of a systematic review with a qualitative approach. The research question with SPIDER “What is the effect of use menstrual cup for personal hygiene and genital inflammation”. The literature search was conducted by obtaining data from PubMed, Science Direct, Scopus, Proquest, and EBSCOhost CINAHL to analyze and identify relevant research. The literature is taken from all research that describes the effect of using menstrual cup and outcomes personal hygiene and genital inflammation, literature in English and Indonesian, full text and open-access literature. Non-research studies, systematic reviews, and women who have a history of genital disease were excluded from this study.

Search results reported in the PRISMA flowchart. To assess the quality of the literature in this study will use a tool that is MMAT (Mixed Method Appraisal Tools). The MMAT is a critical assessment tool designed to assess that includes quantitative, qualitative, and mixed methods studies. The scoring system uses 5 indicators according to the research design and the determination is made with the team (Hong et al, 2018).

## III. RESULT

In total there were 165 studies on keyword searches. Researchers screened and obtained 12 articles that matched the inclusion and exclusion criteria for later systematic review in this study. Following are the results of the Prisma flowchart on the literature search (Figure 1). The total participants include these studies were 1.675 respondents from Asia, Africa, North America, South America. A detailed summary of the study is presented in Table 1.



**Figure 1. PRISMA flowchart of the screening process**

**Table 1. Summary of literatures**

<b>Author and year of publication</b>	<b>Instrument and analysis</b>	<b>Method and sample size</b>	<b>Key findings</b>	<b>Rate of quality</b>
(Ferreira, 2020)	List of interview topics and Thematic analysis	Exploratory Studies 6 women aged 21 and 32 and 9 women aged 19 and 26 in the City of Lavras/MG, Brazil	Since participants use a menstrual cup, they feel it can reduce friction in the genital area and bacterial growth	Strong
(Sundqvist and Fritz, 2015)	List of interview topics and Qualitative data analysis	Exploratory Studies 15 young women of Msiriwi Middle School in Tanzania	Participants didn't feel a yeast infection since using a menstrual cup	Strong
(Hyttel et al., 2017)	List of interview topics with discussion groups (FGDs) and Thematic analysis	Exploratory Studies 36 post menarche school girls in Bungatira sub-county, Gulu district, Uganda	Participants reported washing hands with soap before and after using, disinfecting/boiling the menstrual cup between menstrual periods. Most of the participants described using a menstrual cup to reduce discomfort such as sores, rashes, itching, pain.	Strong
(Pokhrel et al., 2021)	List of interview topics with group discussion and Conventional analysis of content	Exploratory Studies 28 young women aged 13-19 years in Thokarpa, Sindupalchowk, Nepal	In addition, the effort made is not much compared to cloth sanitary napkins. Do not cause problems in cleaning menstrual cups like washing and boiling.	Strong
(Beksinska et al., 2015)	Questionnaire and Stata versions 11.0 and 13.0, and Descriptive Statistics	Quantitative random control S: 124 female participants aged 18-45 years in Durban, South Africa	98%-99% = wash hands before using and changing menstrual cup Participants reported as many as 1 in 124 participants experienced vaginal irritation.	Strong
(Howard et al., 2011)	Online survey and SAS (Statistical Analysis System, version 9.1)	Quantitative random control S: 110 women aged 19-40 in Vancouver, Victoria, and Prince George, Canada	Women (low prevalence) in the menstrual cup group reported subjective vaginal irritation but decreased during the study.	Strong
(Phillips-Howard et al., 2016)	List of interview topics assessed by the Pediatric Quality of Life Inventory (PEDSQL) and SAS version 9.3 and SPSS version 22	Quantitative random control 188 schoolgirls ages 14-16 in Western Kenya	Reported bacterial vaginosis/albicans: 21.5% = menstrual cup group	Strong

(Kakani and Bhatt, 2017)	Questionnaire and personal interview MS Excel 2007	Cohort 158 participants aged 20-50 years in Gujarat Medical Education and Research Society	90% = find it easy to clean menstrual cup with soap and water Cycle 1, 1.33% = have a rash. 1.33% = have genital infection.	Strong
(North and Oldham, 2011)	Questionnaire and FDA MedWatch system	Cohort 406 women in 7 downtowns in the US	After monitoring for 3 cycles with an examination, no side effects were found or did not interfere with the pH and normal flora.	Strong
(Gharacheh et al., 2021)	Questionnaire with Google Form and SPSS version 16	Cross-Sectional 515 women aged 18-50 years in Iran	In this study the menstrual cup was safe to use and acceptable but found: 9.3% = experiencing vaginal irritation	Strong
(Tellier, 2012)	Structured questionnaire survey, semi-structured interviews, and focus group discussions and Qualitative data analysis	Sequential explanatory mixed method 31 participants in Kampala, Uganda	70% = participants wash their hands before using/removing the menstrual cup 81% = participants boil their menstrual cup when they are finished	Moderate
(CARE international Uganda et al., 2018)	M&E tools, personal interviews, and group discussions and Thematic coding using kobo toolbox and excel.	Sequential explanatory mixed method 49 participants in Uganda	94% = wash hands with soap when changing menstrual cup 100% = disinfect menstrual cups by boiling in hot water after use 94% = feel very comfortable when using a menstrual cup and get benefits that have never been felt when using previous types of sanitation such as, no longer feel irritation.	Moderate

#### IV. DISCUSSION

Based on the results of the systematic review, the following will discuss the demography, environment and culture that have effects on to use menstrual cups, and especially about the effect of using menstrual cups on personal hygiene and genital inflammation.

The result from 12 literatures, the risk of inflammation of the genital area often occurs on the continents of Asia and Africa, which have hot and humid weather and climates (Beksinska et al, 2015; Kakani and Bhatt, 2017; Gharacheh et al, 2021; Phillips Howard et al, 2016) in low prevalence. But in other findings reporting the incidence of inflammation of the genital area on the North American continent (Howard et al, 2011) with differences in weather and the climate tends to be colder.

Some countries have problems with waste. Especially sanitary napkins and diapers, one of the wastes with a high number of environmental pollution. The elements in microplastic waste in single-use sanitary napkins and diapers can pose a danger to human health such as cancer, skin diseases, infertility because the recycling process takes a long time. The menstrual cups can be an alternative solution in reducing microplastic waste significantly (BPS, 2020; Sachidhanandham, 2020; Sharma and Chatterje, 2017; Siddiqe, 2019).

With cultural differences in several countries, there are differences of opinion regarding the use of menstrual cups, especially in Indonesia. In Indonesia, the values of virginity are still very strong and have become a symbol of a woman's personality so that acceptance of the menstrual cup which is often associated can eliminate virginity in women who are not sexually active and still cause pros and cons among the public because of the way it is used which is inserted into the vagina. (Kurnianto, 2017).

The effect of using menstrual cup to personal hygiene, have some result from 6 literatures reported personal hygiene when using a menstrual cup (Hyttel et al., 2017; Pokhrel et al., 2021; Beksinska et al., 2015; Kakani and Bhatt, 2017; Tellier, 2012; CARE international Uganda et al., 2018). Personal hygiene when using a menstrual cup is known to have several differences because the method is different from other types of menstrual sanitation. From the findings, it was found that the habit of washing hands with soap before and after using the menstrual cup, boiling the menstrual cup after using it in one menstrual period, in cleaning the menstrual cup requires less water than other methods.

Meanwhile the effect of using menstrual cup to genital inflammation. Three literatures reported satisfaction with using menstrual cups because they no longer felt symptoms of pathological vaginal discharge. Menstrual cup can reduce the development of bacterial infections that cause pathological vaginal discharge (Ferreira, 2020). Since using a menstrual cup because I don't feel a yeast infection (Sundqvist and Fritz, 2015). Menstrual cup can reduce the risk of bacterial vaginosis growth and does not interfere with the pH or normal vaginal flora (North and Oldham, 2011).

Different results found that respondents experienced an increase in the growth of bacterial vaginosis which causes pathological vaginal discharge (Phillips-Howard *et al.*, 2016).

Two literatures mention satisfaction with using menstrual cups because they no longer feel the symptoms of rash and irritation. Menstrual cup reduces discomfort such as sores, rashes, itching, pain (Hyttel *et al.*, 2017). Respondents get benefits that have never been felt when using previous types of sanitation such as no longer feeling irritation (CARE international Uganda *et al.*, 2018).

Four literatures reported findings with complaints of vaginal rash and irritation at a low prevalence but the majority of participants found it beneficial. Participants had a very positive experience when using a menstrual cup, but it was found that 1 in 124 participants experienced vaginal irritation (Beksinska *et al.*, 2015). It was found in this study that respondents'

complaints of vaginal irritation were low but decreased during the next cycle (Howard *et al.*, 2011). During the first cycle of use, 1.33% experienced a rash and genital infection. This number decreased in the second cycle of use to 0% of respondents experienced rashes (Kakani and Bhatt, 2017). Reported as many as 6% of respondents experienced allergies and rashes and 9.3% experienced vaginal irritation (Gharacheh *et al.*, 2021).

These complaints can arise as a result of poor personal hygiene behavior during menstruation. The knowledge and attitudes of some women who do not understand self-care during menstruation are also the cause of the symptoms.

## V. CONCLUSION

A systematic review study on the effect of using a menstrual cup on personal hygiene and inflammation of the genital area was obtained as many as twelve literatures that met the inclusion and exclusion criteria.

The results showed that personal hygiene when using a menstrual cup was generally good, although the personal hygiene method required different habits. And menstrual cups have the effect of reducing the risk of genital inflammation. However, it is undeniable that some women complain of feeling inflammation of the genital area even though the prevalence is low. Taking into account the cultural aspects in Indonesia, menstrual cups are more recommended for use on women who are already sexually active.

It is important to know the type of menstrual sanitation used and the attitude of maintaining personal hygiene during menstruation to reduce the risk of inflammation of the genital area.

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