

# Study Examines Sanitary Pad Side Effects and Promotes Menstrual Cup Use among College Students

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## Abstract

Menstruation, often referred to as menses or a period, involves the monthly discharge of blood and mucosal tissue from the uterus through the vagina, typically beginning between the ages of 12 and 15, known as menarche. The menstrual cycle lasts 21-45 days in young women, averaging 28 days in adults, with bleeding lasting 2 to 7 days. Feminine hygiene products, essential for managing menstruation, include disposable items like sanitary napkins and tampons, as well as reusable options such as menstrual cups and cloth pads. Menstrual cups, made from silicone, are eco-friendly and cost-effective but face adoption barriers due to lack of awareness. This study aimed to assess knowledge about the side effects of sanitary pads and promote menstrual cup usage among college girls. Utilizing a non-experimental survey design, data was collected over seven days from 30 respondents using a structured questionnaire. Results indicated that a significant majority (90%) of participants had inadequate knowledge regarding menstrual cups, with only 10% exhibiting moderate knowledge. The findings highlight a critical gap in awareness about menstrual health and hygiene, emphasizing the need for educational interventions. Promoting knowledge about menstrual cups could encourage better practices and hygiene management during menstruation. Further research is necessary to explore effective strategies for increasing awareness and acceptance of menstrual cups among young women.

**Keywords:** Menstrual cup, menstrual hygiene, sanitary pad.

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## INTRODUCTION

### BACKGROUND

Adolescence is considered to be the teen years between the ages of 12 -20. This long period is the change from childhood to adulthood. World Health Organization (WHO) defines adolescents as any person between the ages 10-19 years. This age range falls within whose definition of young people which refer to individual between ages 10-24 years. According to Vinod k Paul and Aravind Bagga 2013 - Puberty in girls start with breast development (the Menarche) anytime between 8 and 13 years. This followed by appearance of pubic hair and subsequently menstruation (menarche) occurring at an average of 12-16 years (range of 1-16 years) Menstruation is a complex coordinated biological process and its onset indicates the start of reproductive years in female life Women and adolescent girls worldwide need safe, effective and affordable menstrual hygiene management product. A basket of choices like

sanitary napkins, tampons, menstrual cup etc., are available in the market. All over the world, women and girls use their own strategies for managing menstruation that varies from country to country, depending on personal preferences, available resources, economic status, indigenous traditions, cultural beliefs, and knowledge. Menstrual cup is one of the safe, comfortable, eco-friendly and sustainable menstrual hygiene management products available throughout the world. Although they have been available for decades, their use in India is limited because of lack of awareness and due to popularity of sanitary pads. They are reusable and reduce solid waste generation and are environment friendly. These cups are made from higher level medical grade silicon, latex, rubber, or elastomer when inserted inside the vaginal canal are capable of collecting menstrual blood and has got relatively lesser side effects.

They can be reinserted after emptying and requires simple boiling which makes them a better cost

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effective product available in the market. Information on leakage, acceptability and safety of menstrual cups is essential in order to make informed decisions and provide more comprehensive menstrual health education for women and girls. There are a few quality studies in this area and further research is needed on the safety and acceptability of menstrual hygiene management products. Further research could provide more information on the acceptability, cost effectiveness, environmental impacts of this product. This study aims to determine the side effects of sanitary pads and promote the menstrual cups. They can be reinserted after emptying and requires simple boiling which makes them a better cost effective product available in the market. They can be reinserted after emptying and requires simple boiling which makes them a better cost effective product available in the market. Information on leakage, acceptability and safety of menstrual cups is essential in order to make informed decisions and provide more comprehensive menstrual health education for women and girls. There are a few quality studies in this area and further research is needed on the safety and acceptability of menstrual hygiene management products. Further research could provide more information on the acceptability, cost effectiveness, environmental impacts of this product. This study aims to determine the side effects of sanitary pads and promote the menstrual cup.

A menstrual cycle begins when you get your period or menstruate. This is when you shed the lining of your uterus. This cycle is part of your reproductive system and prepares your body for a possible pregnancy. A typical cycle lasts between 24 and 38 days. The period extending from the beginning of a period (men) to the beginning of the next one is called menstrual cycle. The first menstruation (menarche) occurs between 11–15 years with a mean of 13 years. It is more closely related to bone age than to chronological age. For the past couple of decades, the age of menarche is gradually declining with improvement of nutrition and environmental condition. Once the menstruation starts, it continues cyclically at intervals of 21–35 days with a mean of 28 days it is kept in abeyance due to pregnancy and lactation. Ultimately, it ceases between the ages 45–50 when menopause sets in. The duration menstruation (men) is about 4–5 days and the amount of blood loss is estimated to be 20 to 80 mL with an average of 35 ml. nearly 70 percent of total menstrual blood loss occurs in the first 2 days. The menstrual discharge consists mainly of dark altered blood, mucus, vaginal epithelial cells, and fragments of endometrium, prostaglandins, enzymes and bacteria' (D.C. DUTTA, Text book of gynecology).

Menstrual Hygiene Management of the material to absorb or collect the menstrual blood, that can be changed in privacy as often as necessary, using soap and water for washing the body as required, and having access to. Safe and convenient facilities to dispose of used menstrual management materials. They understand

the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear.

Menstrual Products that are used during menstruation may also be called menstrual hygiene products, which are including menstrual pads (sanitary napkins), tampons, menstrual cups, menstrual sponges and period panties. Feminine hygiene products also include products meant to cleanse the vulva or vagina, such as douches, V Wash feminine wipes, and soap.

A sanitary napkin or pad is an absorbent item worn by woman while she is menstruating, absorption on any other situation where it is necessary to absorb flow of blood. Wearing a pad for long a time can cause rashes, redness, and irritation. It can also block the airflow to your vaginal, which increases the risk of bacterial infection and skin problems. Prolonged use of sanitary pads can sometimes result in discomfort especially if not changed regularly in time and it cost very much Dioxin is a chemical that is used to bleach sanitary pads. Dioxin can be very harmful to the body and may poses many health dangers.

A menstrual cup is a type of reusable menstrual product. It's a small, flexible funnel-shaped cup made of rubber or silicone that you insert into your vagina to catch and collect period fluid. Cups can hold more blood than other methods, it leading many women to use them as an eco-friendly alternative to Sanitary Pads and other products. And depending on your flow, you can wear a cup for up to 12 hours. The menstrual cup is a reusable, non-toxic, and non-allergic silicone device that can be used to capture menstrual fluids made up of silicon that is non-allergic and not toxic. After insertion of the menstrual cup, it opens in an oval shape and has to be positioned between the posterior fornix and pubic bone, covering the cervix. To remove it, a finger has to be hooked over the rim behind the pubic bone. The menstrual cup is a reusable, non-toxic, and non-allergic silicone device that can be used to capture menstrual fluids made up of silicon that is non-allergic and not toxic. After insertion of the menstrual cup, it opens in an oval shape and has to be positioned between the posterior fornix and pubic bone, covering the cervix. To remove it, a finger has to be hooked over the rim behind the pubic bone.

### Need for the study

Now a days worldwide surveys reveal that menstrual cups are used by approximately 4- 10% of women worldwide, reflecting a growing towards this sustainable option. In contrast, sanitary pads are the predominant choice for menstrual hygiene globally, given their widespread availability and familiarity. In India, According to a 2023 national health survey, only 0.3% of women aged 15–24 in India use menstrual cups. However, some say that the use of menstrual cups has increased after the pandemic. According to the Population Foundation of India on June 2023, 84.4% of

784 women who purchased menstrual cups between January 2022 and March 2023 used them for all of the last three months. The adoption of menstrual cups is relatively very low, with less than 5% of women using them. The majority of Indian women rely on sanitary pads, though a significant portion also uses cloth due to cost constraints and accessibility issues. In the state Karnataka, While 69.1% use sanitary napkins, 2.9% use tampons and 0.3% menstrual cups, 21.9% use locally prepared napkins in Karnataka. The patterns largely mirror national trends, with menstrual cup usage being limited but on the rise, while sanitary pads remain the most commonly used menstrual product. Efforts to increase awareness and accessibility for menstrual cups are ongoing, aiming to address health, environmental, and economic concerns Associated with traditional sanitary products. Overall, while the use of menstrual cups is increasing, sanitary pads continue to dominate the market due to their widespread acceptance and availability. If there are so many side effects of sanitary pads over than menstrual cup, then why is still not been so popular? It because of lack knowledge and misinformation regarding menstrual cup especially in a country like India. A menstrual cup is inserted into vagina, while menstrual pad isn't. So, people thinks that using a cup in unmarried girls might Result in loss of virginity. People have no idea about the side effect of sanitary pad and it leads to chronic diseases like PCOD, and the chemical substance used Dioxin is lead to cancer. So, the objective of this study was to determine the side effect of sanitary pads and the advantages of menstrual cup and its usage in selected college.

### Review of Literature

A qualitative explorative study among 26 MC users was carried out telephonically using an In- Depth Interview Guide (IDI). The age of participants ranged 25–37 years with a mean age of 29.6 ( $\pm 0.91$ ) years and their average duration of MC use was 2.4 ( $\pm 0.34$ ) years. MCs were found to be more economical, safe, convenient, and environment friendly compared to sanitary pads. MC is an effective and convenient period product that has potential to be an alternate method for MHM. However, it needs more awareness, promotion for wider use leveraging existing platforms. Girls in low and middle-income countries (LMIC) lack access to hygienic and affordable menstrual products. We explore Kenyan schoolgirls' use and views of the cup compared to girls provided with disposable sanitary pads for a feasibility study. School girls aged 14-16 years, received a menstrual cup in 10 schools or 16 pads/month in another 10 schools. While a smaller proportion of girls provided with cups used them in the first months compared to girls given pads, reported use was similar by study-end, and early acceptability issues reduced over time.

A cross-sectional study with an online survey regularly applied to matriculate women from Medical School in January 2021. Of 277 women, 164

participated. The mean age was  $22.26 \pm 3.21$  years. In all 136 women preferred external pads, 60 internal pads, 28 menstrual cups, and 11 did not use. The significant independent factors for the use or adherence to menstrual cups were: women using a method to reduce their menstrual flow; concerning bio-degradation; concerning vaginal health; with no concerns about manipulating their genitalia.

**Problem Statement:** Study examines sanitary pad side effects and promotes menstrual cup use among college students.

### Objectives of the study

- To determine the level of knowledge regarding the side effect of sanitary pad and to promote the use of menstrual cup.
- To describe the level knowledge regarding the side effect of sanitary pad and to promote the use of menstrual cup among the selected demographic variables.

### Assumptions

- The students may affected with side of sanitary pads think to change menstrual cup
- The college students may aware about the side effect of sanitary pad and the use of menstrual cup
- The increased use of sanitary pad can cause environmental problem

### Proposed approach

Conduct a literature review on sanitary pad side effects and menstrual cup benefits. Use a mixed-methods design targeting college students through surveys and interviews. Implement an awareness campaign. Analyze data quantitatively and qualitatively. Discuss findings, promote menstrual cups, and suggest further research for public health implications.

### Value of Research

The value of this research project lies in its potential to improve menstrual health awareness and choices among college students. By identifying side effects of sanitary pads and promoting menstrual cups, the study can contribute to healthier practices, enhance comfort, reduce stigma around menstruation, and inform public health policies.

### Hypothesis

**H1:** There is a difference between the level of knowledge regarding side effect of sanitary pad and to promote the use of menstrual cup among college girls.

**H2:** There is a significant difference between the level of knowledge regarding side effect of sanitary pad and to promote the use of menstrual cup among selected demographic variables of college girl.

## METHODS AND MATERIALS

Qualitative approach - Non-Experimental; Survey design was adopted. Convenient sampling technique was used to select the sample size 30 among college girls in selected college for a period of seven days data was collected. Structured knowledge questionnaire was used as a tool to assess the level of knowledge on side effect of sanitary pad and to promote the use of menstrual cup. The obtained data was analyzed in terms of the objectives and it was calculated and tabulated.

### Sampling criteria

**Inclusive Criteria:** All college girls, in the present institution. Are all willing to participate in the study.

**Exclusive Criteria:** Who were not willing to participate in the study. Who is chronically ill during data collection period. Who is below the age group of 18 years.

### Data Collection process

Formal written permission was obtained from Principal, Smt. Nagarathamma College of Nursing, and Bengaluru prior to the data collection from respondents in order to Study to determine the side effect of sanitary pad and promote the use of menstrual cup in selected college. After the Formal written permission was obtained from Principal, Smt. Nagarathamma College of Nursing and study was conducted during the month of July from 03/07/24 to 31/07/24.

Respondents were selected in accordance with laid down criteria. Consent was obtained from each respondent after giving assurance of confidentiality. Data was collected from 3<sup>rd</sup> year and 2<sup>nd</sup> semester college girls at Smt. Nagarathamma College of nursing Soladevanahalli as per the convenience of respondents. Prior to the data collection, permission was obtained from the concerned authority. The samples were informed about the purpose of the study and consent was taken from the respondents. A modified structured questionnaire was developed, validated by experts, and tested for reliability through a pilot study. Data collection began after obtaining consent from the principal. Initially, a pre-test assessed existing knowledge, followed by an Awareness Programme delivered via lecture and audio-visual aids for 45 minutes. One week later, a post-test using the same questionnaire was conducted to measure knowledge improvement. The analysis utilized descriptive and inferential statistics. Participants were cooperative and expressed eagerness to learn more about use of menstrual cup indicating the programmer's relevance and impact. This structured approach highlights the importance of targeted education in enhancing adolescent awareness of side effect of

sanitary pad and promote the use of menstrual cup. The collected data were organized, tabulated and analyzed by using both descriptive statistics (mean, standard deviation) and inferential statistics (chi square or cross tabulation analysis) was done to determine the level of knowledge regarding side effect of sanitary pad and to promote the use of menstrual cup and to determine the association between level of knowledge with the selected demographic variables of the sample.

### Instruments

Structured Knowledge Questionnaire was constructed for the study to determine the level of Knowledge on side effect sanitary pad and to promote the use of menstrual cup among college girls.

**Development of Tool:** Structured Knowledge Questionnaire was constructed for the study to determine the level of Knowledge on side effect sanitary pad and to promote the use of menstrual cup among college girls.

The steps included in preparation tools are:

- Review of Literature
- Consultation with expert in OBG nursing

### Analysis Strategies

Analysis involves systematically organizing and synthesizing research data to test hypotheses. In this study, data were analysed according to the research objectives using both descriptive and inferential statistics.

### Descriptive Statistics:

- Frequency and percentage distributions were employed to examine demographic variables, including age, class, religion, age at menarche, number of pads used daily, sanitation methods, menstrual cycle regularity, information sources, and details regarding the mother's occupation, education, and family income.
- Mean and standard deviation (SD) were calculated for pre-test and post-test scores to assess the knowledge levels of adolescent girls
- The distribution of knowledge scores was categorized into three levels: inadequate, moderate, and adequate.

**Inferential Statistics:** chi square or cross tabulation analysis) was done to determine the level of knowledge regarding side effect of sanitary pad and to promote the use of menstrual cup and to determine the association between level of knowledge with the selected demographic variables of the sample.

## 1.1 Tables

Table 1: Level knowledge regarding the side effect of sanitary pad and to promote use of menstrual cup among selected demographic variables of college girls

Sl/No	Demographic Variables	frequency	Percentage	Chi-square	Df	P-Value
1	<b>Age in year</b>					
	17-19	26	86.67%	1.154a	1	0.283 *S
	20-22	4	13.33%			
2	<b>Educational status</b>					
	BSc. Nursing (year)	4	13.33%	0.513 <sup>a</sup>	1	0.474 *S
	BSc. Nursing (semester)	26	86.67%			
3	<b>Age at menarche</b>					
	12- 14	27	90%	0.370 <sup>a</sup>	1	0.543 NS
	15-16	3	10%			
4	<b>Duration of menstruation</b>					
	2-4	15	50%	0.826 <sup>a</sup>	2	0.662 *S
	5-7	13	43.33%			
	More than a week	2	6.67%			
5	<b>Flow of bleeding</b>					
	Normal	25	83.33%	2.14 <sup>a</sup>	2	0.342 *S
	Scanty	3	10%			
	Excessive	2	6.67%			
6	<b>Economic status</b>					
	Lower class	1	90%	0.370a	2	0.831 NS
	Middle class	27	6.67%			
	Upper class	2	3.33%			
7	<b>Usage of menstrual cup</b>					
	Yes	29	96.67%	0.115 <sup>a</sup>	1	.735 NS
	No	1	3.33%			
8	<b>Comfortable to use menstrual cup</b>					
	Yes	15	50%	0.370a	1	0.543 NS
	No	15	50%			
9	<b>Harmful chemicals in sanitary pad</b>					
	Yes	30	100%	constant	0	Constant
	No	0	0%			
10	<b>Disposable sanitary pad is good for environment</b>					
	Yes	6	80%	0.833 <sup>a</sup>		0.361 *S
	No	24	20%			
11	<b>Menstrual cu safe and hygienic</b>					
	Yes	27	90%	0.370 <sup>a</sup>	1	0.543 NS
	No	3	10%			
12	<b>Menstrual cup is eco-friendly</b>					
	Yes	26		0.513a	1	0.474 *S
	No	4				

## 1.2 Figure and graphics

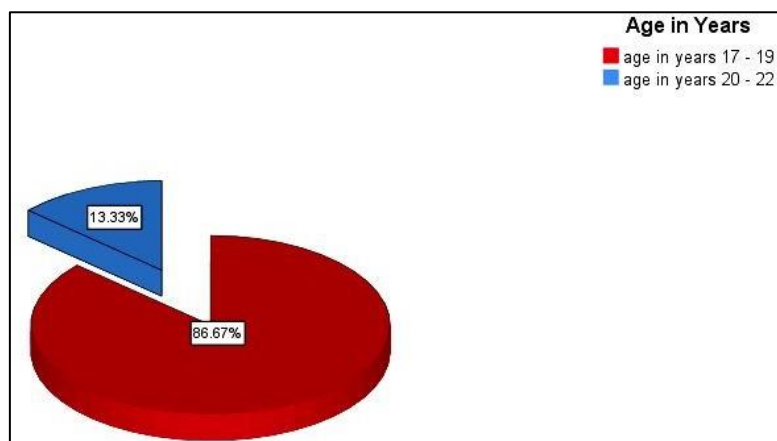


Fig 1: Percentage distribution of Age in years

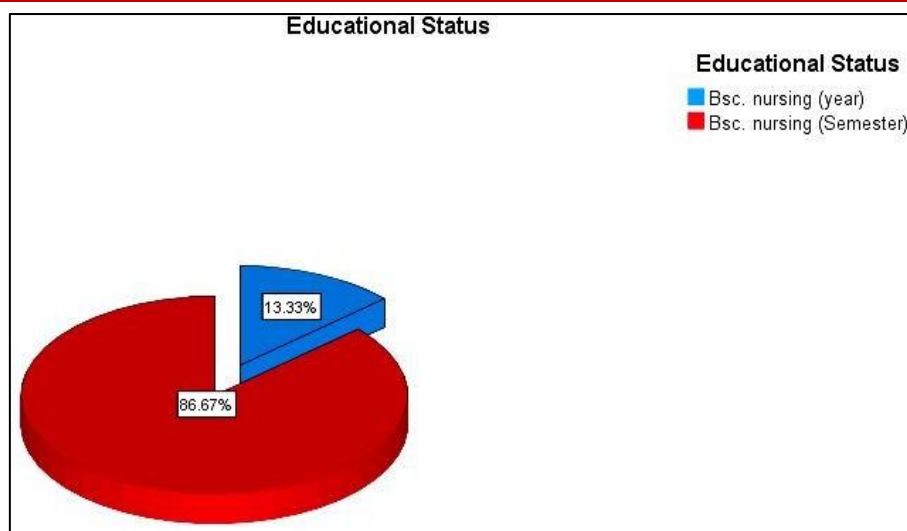


Fig 2: Percentage of distribution Educational status

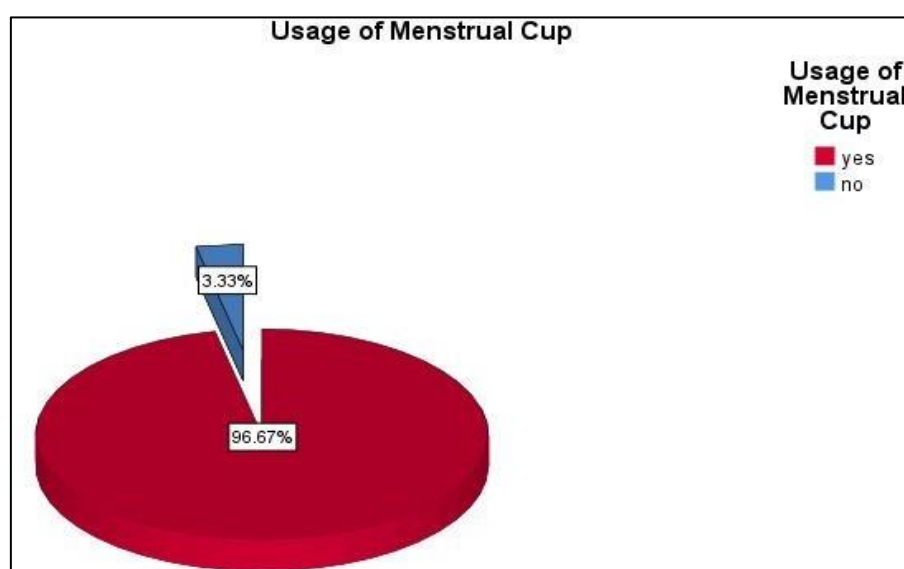


Fig 3: Percentage distribution on use of menstrual cup among college girls

#### 4. RESULTS AND DISCUSSION

The study indicates that majority of respondents in 26 (86.67%) of the students are between the age group of 17-19 years and 4 (13.33%) of students are between the age group of 20- 22 years. The study shows that majority of respondents in 13.33% of the students are studying BSc. nursing (year) and 86.67% of students are studying BSc. nursing (semester) The study shows that majority of respondents in 90% of student's age at menarche is 12-14 and 10% of student's age of menarche is 15-16. The study indicates that majority of respondents in 83.33% of students having normal blood flow and 10% having scanty and 6.67 having excessive blood flow. The study indicates that majority of respondents in 3.33% of students are lower economic status 90% of students are middle class and 6.67 % of students are belongs to high class. The study indicates that majority of respondents in 96.67 % of students are using menstrual cup and 3.33% of students are not using menstrual cup. The study shows that majority of respondents in 50% of students are comfortable to use menstrual cup and 50 % are not

comfortable with use menstrual cup. The study shows that majority of respondents in 100% of the students are aware about the harmful substances in sanitary pad. The study indicates majority of respondents in 80% of students says that disposable sanitary pads are good for environment and 20% says that it is not good for environment. The study shows that of respondents in 90% of students says that menstrual cup is safe and hygienic. The study indicates majority of respondents in 86.67% of students says menstrual cup is Eco friendly 13.33 % says it is not Eco friendly. frequency and Percentage distribution on assessment level of knowledge regarding side effect of sanitary pad and to promote the use of menstrual cup. And The overall findings shows that the study majority respondents 0 (0%) did not have adequate knowledge regarding the use of menstrual cup and 3 (10%) have moderate adequate knowledge the use of menstrual cup and 27 (90%) have Inadequate knowledge the use of menstrual cup. Assesses pre-test and post-test knowledge levels. The pre-test revealed that 52% had moderate knowledge,

with no one demonstrating adequate knowledge. Post-test results indicated a shift, with 44% achieving adequate knowledge. Mean scores improved significantly from pre-test to post-test, indicating the effectiveness of the awareness program.

## 5. CONCLUSION

The conclusion drawn, implications, limitations, suggestions and recommendation. The focus of the study was "To evaluate the effectiveness of planned teaching programme on knowledge regarding menstrual cup among teenage girls and mothers at Soladevanahalli, Bengaluru. The main aim of the study was to assess the level of knowledge regarding menstrual cup among teenage girls and mothers in rural areas. The conclusions which have drawn from the study are: The study shows that the respondents had inadequate level of knowledge regarding the use of menstrual cup. There is a significant difference in level of knowledge with the selected demographic variables regarding the use of menstrual cup and to maintain the menstrual hygiene during menstruation cycle.

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At last, we thank to our parents for being such a source of strength and encouraging us throughout our nursing career.

## Declaration

I hereby declare that this research project titled "Study examines sanitary pad side effects and promotes menstrual cup use among college students" is my student's original work and has not been submitted for

any other degree or qualification. All sources of information and contributions from others have been acknowledged appropriately.

Furthermore, I affirm that I have adhered to ethical guidelines and standards in conducting this research, including obtaining necessary permissions and ensuring the confidentiality and rights of participants.

## Author Contribution

**Author<sup>1</sup>** Conceptualization of the study, formulation of report, and information.

**Author<sup>2</sup>** Data collection, and administration of the knowledge regarding assessment & care.

**Author<sup>1</sup>** Writing of the manuscript draft, literature review, and manuscript editing.

**Author<sup>2</sup>** Final review of the manuscript, approval of the final version for submission, and supervision of the overall project.

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**Competing interest:** All Authors of this project was sended a mail before publication and they accepted No evidence of any conflict towards to this project

**Ethical Clearance:** The study was approved by the Institutional Ethics Committee

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