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A Descriptive Study to Assess the Knowledge and Attitude Regarding Menstrual Cup Usage among Adolescent Girls in Selected School of New Delhi

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ABSTRACT

Introduction: A descriptive study to assess the knowledge and attitude regarding menstrual cup usage among adolescent girls in selected Schools of New Delhi.

Objectives: (1) To assess the knowledge regarding menstrual cup usage among adolescent girls. (2) To assess the attitude regarding menstrual cup usage among adolescent girls. (3) To find out the relationship between knowledge and attitude regarding menstrual cup usage among adolescent girls. (4) To find the association between knowledge regarding menstrual cup usage and selected demographic variables. (5) To find the association between attitude regarding menstrual cup usage and selected demographic variables.

Methodology: A quantitative, descriptive cross-sectional study was conducted among 150 adolescent girls aged 13–19 years from selected schools in New Delhi, India. Participants were selected using systematic random sampling. Data were collected using a structured demographic questionnaire, a knowledge questionnaire, and a three-point Likert scale to assess attitudes towards menstrual cup use. The data were analysed using descriptive and inferential statistics, including frequencies, percentages, mean, median, and standard deviation.

Result: The data collected was analyses using descriptive and inferential statistics. Findings show that majority of participants 82% had a moderate level of knowledge regarding menstrual cup usage, while 12% had poor knowledge and only 6% demonstrated good knowledge. More than half 53.34% showed a neutral attitude toward menstrual cups, followed by 32.66% with a negative attitude and 14% with a positive attitude. A slight negative, statistically non-significant correlation was observed between knowledge and attitude ($r = –0.123$, $p = 0.135$).

Knowledge level was significantly associated with age, educational standard, and monthly family income ($p < 0.05$), while attitude was significantly associated with age and mother's occupation ($p < 0.05$). Other demographic variables showed no significant association.

Conclusion: The study found that most adolescent girls had moderate knowledge and a neutral attitude toward menstrual cups. Age, education, family income, and mother's occupation influenced these outcomes, highlighting the need for health education to improve awareness and acceptance of menstrual cups.

Keywords: Adolescent Girl's Menstrual Cup, Knowledge, Attitude

INTRODUCTION

According to the World Health Organization (WHO), adolescence is the period of life that takes place between the ages of 10 and 19, during which children grow and develop into adults. This stage involves many significant physical, emotional, mental, and reproductive changes. For girls, a major change during this time is the beginning of menstruation, also known as menarche, which typically starts between the ages of 10 and 16, with an average age of around 12 years.[1]

Menstruation is a natural biological process that signals the beginning of a girl's ability to reproduce and is an important part of a woman's life. Despite its significance, it is often surrounded by cultural taboos and incorrect information. Maintaining good menstrual hygiene is essential for a woman's overall health and well-being. Poor menstrual hygiene practices and the use of unsuitable menstrual products are strongly linked to a higher risk of urinary and reproductive tract infections. These infections can lead to serious health issues such as pelvic inflammatory disease (PID), infertility, and conditions like bacterial vaginosis (BV) or urinary tract infections (UTIs).[2]

The choice of menstrual products—such as pads, tampons, or menstrual cups—depends on culture, cost, availability, and personal comfort. Financial difficulties may lead to period poverty.

Since every product has different benefits and limitations, girls and women should choose the option that is safe, affordable, comfortable, and suitable for their needs. [3]

In India, sanitary napkins continue to be the most popular menstrual product due to their user-friendliness, availability, and variety. However, their widespread use generates significant environmental burden annually, about 12.3 billion pads **(**113,000 tons**).** These disposal practices can pollute soil, water, and air, and may also block sewage systems, emphasizing the need for better menstrual waste management methods.[4]

A menstrual cup is a soft, flexible device made of medical-grade silicone that is inserted into the vagina to collect menstrual blood. Unlike pads or tampons, it collects rather than absorbs the flow. It can be worn safely for 6–12 hours, depending on menstrual flow. With proper cleaning and care, one cup can be reused for 5–10 years, making it a cost-effective and eco-friendly menstrual hygiene option. Menstrual cups also come in various sizes to suit different people's needs. Smaller sizes are typically recommended for teenagers, young women, or those with lighter flow**,** while medium or large sizes are more appropriate for women over 30**,** those who have heavier periods**,** or have given birth vaginally.[5]

From a health perspective, menstrual cups are a reusable option for menstrual care made from medical-grade silicone. They are free from harmful chemicals found in some disposable products, provide good leak protection, and are generally comfortable to use. Although some users may experience difficulty at first, proper education and guidance can improve their confidence and acceptance of menstrual cups.[6] A UK laboratory study of 14 menstrual cup brands found major differences in their size, shape, firmness, and capacity. The cups held about 18.9–38.1 mL of fluid, which may affect comfort, leakage, and safety.[7]

According to the National Family Health Survey (NFHS-5, 2019–21), menstrual cup use remains very low in India, with only 0.3% of females aged 15–24 using them. In comparison, 64.5% use sanitary napkins, 49.3% use cloth, and 15.2% use locally made napkins.[8] In India, menstrual hygiene is often hindered by taboos and lack of awareness. As studies show limited knowledge and misconceptions about menstrual cups, it is essential to assess adolescent girls' understanding and promote awareness for informed menstrual health choices.

BACKGROUND

A successful example of menstrual cup promotion is the Kumbalangi initiative in Kerala**,** India's first sanitary napkin-free village. The program provided free menstrual cups along with awareness and training sessions to address safety concerns and usage doubts, encouraging adoption among adolescent girls and women. The initiative is expected to prevent nearly 400 tons of sanitary pad waste, highlighting its positive impact on both health and the environment.[9]

A qualitative study in rural Nepal among 28 schoolgirls aged 13–19 years found that menstrual cups were generally well accepted. The girls reported benefits such as better school attendance, convenience, and cost savings. Although some experienced initial discomfort and had cultural concerns, the study concluded that menstrual cups are a practical option when proper education and support are provided.[10]

METHODOLOGY

This study used a quantitative descriptive cross-sectional design. It was carried out among 150 adolescent girls aged 13–19 years from selected schools in New Delhi, India. The participants were selected through systematic random sampling. Information on their knowledge and attitude towards menstrual cup use was collected using a structured questionnaire and an attitude rating scale. The data were then analysed using appropriate descriptive and inferential statistical methods.

The tool is divided into 3 sections:

Section I: This section consists of 10 items related to background data of the study participants such as age, education, family's income, mother education etc.

Section II: Structured questionnaire to assess the knowledge regarding menstrual cup usage among adolescent girls. This part contains 35 questions that are used to assess the knowledge among adolescent girls regarding menstrual cup usage.

Section III: This section consists of 24 statements to assess the attitudes of adolescent girls regarding menstrual cup usage using a 3-point Likert scale.

ETHICAL CONSIDERATION: Ethical approval was obtained from the Jamia Hamdard Institutional Ethics Committee, and permission was taken from the school principal. Written consent was obtained from all participants. Participation was voluntary, and confidentiality, anonymity, and the right to withdraw were ensured.

RESULTS

Table 1: Frequency and percentage distribution of adolescent girls as per their demographic characteristics in selected schools of New Delhi.

n = 150

S.No	Sample Characteristics		Frequency	percentage
1	Age in years	13-14	22	14.7%

		15-16	51	34%
		17-18	38	25.3%
		19-20	39	26%
2	Educational Standard	9th	22	14.7%
		10th	37	24.7%
		11th	40	26.7%
		12th	51	34%
3	Type of family	Nuclear family	88	58.7%
		Joint family	50	33.3%
		Extended family	11	7.3%
		Single parent family	1	0.7%
4	Monthly family income	<Rs 10000	22	14.7%
		Rs 10001- Rs 20000	13	8.7%
		Rs 20001- Rs 30000	46	30.7%
		>Rs 30000	69	46%
5	Mother Education	No formal education	29	19.33%
		Primary school	11	7.33%
		Secondary school	53	35.33%
		Higher secondary and above	57	38%

TABLE 2: Frequency and percentage distribution of level of knowledge regarding menstrual cup usage among adolescent girls.
n =150

S. No.	Sample Characteristics		Frequency	Percentage
6.	Mother's Occupation	Homemaker	115	76.7%
		Private employee	23	15.3%
		Government employee	12	8%
7.	Age at Menarche	Below 11 years	1	0.7%
		11–12 years	102	68%
		13–14 years	46	30.6%
		15 years or above	1	0.7%
8.	Current Method Used for Menstrual Management	Sanitary pads	150	100%
		Tampon	0	0%
9.	Heard about the menstrual cup.	Yes	150	100%
		No	0	0%
10.	If yes, specify	Family	11	7.3%
		Friends	17	11.3%
		Teachers	8	5.3%
		Social media / TV / Radio / Newspaper	114	76%
11.	Knowing anyone who uses a menstrual cup.	Yes	40	26.67%
		No	110	73.33%

Knowledge Category	Frequency	Percentage
Poor (0-12)	18	12%
Moderate (13-24)	123	82%
Good (25-35)	9	6%

TABLE 3: Mean, Median, SD and obtained range of level of knowledge regarding menstrual cup usage among adolescent girls.

n = 150

Possible range of score	Obtained range of score	Mean	Median	Standard deviation
0- 35	4 - 28	16.62	16	±4.17

TABLE 4: Frequency and percentage distribution of attitude level regarding menstrual cup usage among adolescent girls.

n = 150

Attitude category	Frequency	Percentage (%)

Unfavourable attitude (24-39)	49	32.66%
Neutral attitude (40-55)	80	53.33%
Favourable attitude (56-72)	21	14.00%

TABLE 5: Mean, Median, SD and obtained range of level of attitude regarding menstrual cup usage among adolescent girls.

n = 150

Possible range of score	Obtained range of score	Mean	Median	Standard deviation
24-72	33-57	44.36	46.5	±6.8

TABLE 6: Finding related to the relationship between knowledge and attitude regarding menstrual cup usage among adolescent girls.

n= 150

Relationship between Knowledge and attitude using Karl Pearson's coefficient of correlation			
	Mean		
Knowledge	16.6	r = -0.123	p=0.135>0.05
Attitude	44.36		

p>0.05 not significant at 0.05 level

TABLE 7(a): Association between levels of knowledge score with their demographic variables using Fisher Exact test

n=150

Variables	Options	Poor Knowledge	Moderate Knowledge	Good knowledge	Fisher Exact test	df	*P* value
Age	13-14	1	33	4	17.999	6	0.002*
	15-16	10	27	2			
	17-18	8	35	2			
	19-20	0	28	0			
Educational Standard	9th	2	26	4	15.66	6	0.018*
	10th	11	30	2			
	11th	5	36	2			
	12th	1	31	0			
	Nuclear family	14	98	6	0.751	6	0.658

Type of family	Joint family	4	24	2			
	Extended family	1	0	0			
	Single parent	0	1	0			
Monthly family income	<Rs 10000	4	8	0	11.780	6	0.038*
	Rs 10001- Rs 20000	10	61	2			
	Rs 20001- Rs 30000	5	29	4			
	>Rs 30000	0	25	2			

*p< 0.05 level of significance

TABLE 7(b): Association between levels of knowledge score with their demographic variables using Fisher Exact test
n=150

Variables	Options	Poor Knowledge	Moderate Knowledge	Good knowledge	Fisher Exact test	df	P value
Mother education	No formal education	2	24	3	2.84	6	0.7
	Primary school	1	43	0			
	Secondary school	3	16	2			
	Higher secondary and above	3	40	13			
Mothers Occupation	Homemaker	7	63	3			
	Daily wage worker	5	16	3	6.138	6	0.363
	Private employee	4	26	2			
	Government employee	3	18	0			
Age at menarche	Below 11 years	0	5	0	3.13	6	0.754
	11–12 years	15	88	8			
	13–14 years	4	27	0			
	15 years or above	0	3	0			

TABLE 7(c): Association between levels of knowledge score with their demographic variables using Fisher Exact test
n=150

Variables	Options	Poor Knowledge	Moderate Knowledge	Good knowledge	Fisher Exact Test	df	P value
Current method use	Sanitary pads	8	123	19	-	-	-
Heard about the menstrual cup.	Yes	4	123	23	-	-	-
	N0						
If yes, specify	Family	0	9	1	3.216	6	0.707
	Friends	1	11	1			
	Teachers	0	4	0			
	Social media/TV/Radio/News Paper	18	99	6			
Knowing anyone who uses a M.C.	Yes	10	20	10	1.78	2	0.82
	No	5	101	4			

p≥ 0.05 not level of significance

Using Fisher's Exact Test, it was found that age, educational standard, monthly family income is significantly associated with the knowledge level of adolescent girls ($p < 0.05$). However, other demographic variables such as type of family, mother education, mother's occupation, age at menarche, and the current method used for menstrual management showed no significant association with knowledge ($p > 0.05$).

TABLE 8(a): Association between levels of attitude score with their demographic variables using Fisher Exact test.

n= 150

Variables	Options	Negative attitude	Neutral attitude	Positive attitude	Fisher Exact test	df	P value
Age	13-14	7	13	2	14.635	6	0.045*
	15-16	21	26	4			
	17-18	16	20	2			
	19-20	5	31	3			
Educational Standard	9^{th}	5	15	2	33.758	6	0.721
	10^{th}	14	20	3			
	11^{th}	11	25	4			
	12^{th}	19	30	2			
	Nuclear family	34	47	7	10.629	6	0.075

P >0.05 not level of significance

Type of family	Joint family	9	41	4			
	Extended family	6	1	0			
	Single parent	0	1	0			

TABLE 8(b): Association between levels of attitude score with their demographic variables using Fisher Exact test.

n=150

Variables	Options	Negative Attitude	Neutral Attitude	Positive Attitude	Fisher Exact Test	df	P value
Monthly family income	< ₹10,000	8	13	1	7.548	6	0.238
	₹10,001 – ₹20,000	3	10	0			
	₹20,001 – ₹30,000	10	33	3			
	>30000	28	34	7			
Mother's education	No formal education	9	17	3	1.552	6	0.972
	Primary school	3	8	0			
	Secondary school	19	30	4			
	Higher secondary & above	18	35	4			
Mother's occupation	Homemaker	36	71	8	11.53	4	0.013*
	Daily wage worker	0	0	0			
	Private employee	5	17	1			
	Government employee	8	2	2			

*p< 0.05 level of significance

TABLE 8(c): Association between levels of attitude score with their demographic variables using Fisher Exact test.

n=150

Variables	Options	Negative attitude	Neutral attitude	Positive attitude	Fisher Exact Test	df	P value
Age at menarche	Below 11 years	0	1	0	7.049	6	0.356
	11–12 years	33	59	10			
	13–14 years	15	30	1			
	15 years or above	1	0	0			
Current method uses	Sanitary pads	49	90	11	-	-	-
Heard about the menstrual cup.	Yes	49	90	11	-	-	-
	No	0	0	0			
If yes, specify	Family	2	9	0	6.960	6	0.260
	Friends	3	12	2			
	Teachers	1	7	0			
	Social media/TV/News paper	43	62	9			
Knowing anyone who uses a M.C.	Yes	12	25	3	1.87	2	0.950
	N0	37	65	8			

P ≥0.05 not level of significance

Using Fisher's Exact Test, it was found that only two demographic variables age, and mother occupation are significantly associated with the attitude of adolescent girls ($p < 0.05$). However, other demographic variables such as education standard, monthly family income, type of family, mother's education, age at menarche, and the current method used for menstrual management showed no significant association with attitude ($p > 0.05$). This suggests that these factors did not have any meaningful influence on the attitude of adolescent girls toward menstrual cup usage.

DISCUSSION

The findings of the present study showed that most of the participants 82% had a moderate level of knowledge about menstrual cup usage, 12% had poor knowledge, and only 6% had good knowledge. Regarding attitude, more than half 53.34% had a neutral attitude, 32.66% had a negative attitude, and only 14% had a positive attitude toward using a menstrual cup. The study's findings are inconsistent with a recent study by Thapa and Roy,[11] which assessed the knowledge and attitude towards menstrual cup usage among young women. Their findings revealed that 49% of participants had adequate knowledge, 43.5% had moderately adequate knowledge, and 7.5% had inadequate knowledge. With respect to attitude, 31%

showed a positive attitude, 64.5% a neutral attitude, and 4.5% a negative attitude towards menstrual cup usage.

The present study revealed a very weak negative relationship between knowledge scores and attitude scores. The correlation coefficient ($r = –0.123$) indicates a slight negative association, suggesting that higher knowledge scores did not correspond to more favorable attitudes among the girls. The p-value ($0.135 > 0.05$) further indicates that this relationship is not statistically significant. The findings of the present study are inconsistent with the study conducted by Priya T.[12] which assessed the knowledge and attitude regarding menstrual cups among adolescent girls. The aim of their study was to assess knowledge and attitude toward menstrual cups and to determine the correlation between knowledge and attitude among adolescent girls. Their results showed a weak positive correlation ($r = 0.020$, $p = 0.802$) between knowledge and attitude, which was also statistically non-significant.

The present study showed that only three demographic variables age, educational standard, monthly family income is significantly associated with the knowledge level of adolescent girls ($p < 0.05$). However, other demographic variables such as type of family, mother education, mother's occupation, age at menarche, and the current method used for menstrual management showed no significant association with knowledge ($p > 0.05$). The present study is inconsistent with Syama and Reeja R.[13] that assess the knowledge and attitude of female college students regarding menstrual cup usage. According to this study showed that significant association between the attitude of female college students and education of mother.

LIMITATIONS

The study was conducted on a small sample and limited to only a selected school of New Delhi; therefore, generalization cannot be made.

CONCLUSION

The major conclusions drawn on the basis of the findings of the study were as follows:

- The adolescent girls had a moderate level of knowledge regarding menstrual cup usage.
- The adolescent girls had a neutral attitude towards menstrual cup usage.
- There was a very weak and negative relationship between the knowledge scores and attitude scores. regarding menstrual cup usage among adolescent girls.
- There was a significant association between knowledge regarding menstrual cup usage and selected demographic variables such as age, educational standard and monthly family income.
- There was a significant association between attitude regarding menstrual cup usage and selected demographic variables such as age, and mother occupation.

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