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Research Article

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Knowledge Regarding Menstrual Cups and its Usage among Adolescent Girls

Veena Madi[1*], Kamala KN[2], Deelip Somaninga Natekar[3]

[1]Student, Dept. of Obstetrics and Gynaecological Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

[2]Professor & Head, Dept. of Obstetrics and Gynaecological Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

[3]Principal, Dept. of Obstetrics and Gynaecological Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

***Address for Correspondence:** Veena Madi, Department of Obstetrics and Gynaecological Nursing, Shri B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India
E-mail: veenamadi04@gmail.com

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ABSTRACT

Background- Menstruation cups have been around for decades, but due to a lack of awareness & the widespread usage of sanitary pads, its use is restricted in India. They are environmentally beneficial & lessen solid waste because they are reusable. The present study was conducted to gather knowledge regarding menstrual cups & its usage among adolescent girls.

Methods- A descriptive study was conducted among 120 adolescent girls, 60 PUC I year students & 60 PUC II year students using disproportional stratified random technique. The data was collected by using the structured open ended knowledge questionnaire with self-administered technique. The data was analyzed by using descriptive & inferential statistical in terms of mean, frequency distribution, percentage, & chi-square test.

Results- The result depicts that the majority of adolescent girls (49.16%) have inadequate knowledge, 47.1% moderately adequate knowledge & 3.33% adequate knowledge. The overall finding reveals that the knowledge of adolescent girls was 51.6%. There is a significance difference found between the course of study & facing problems with the current method of menstrual management. There was an irrelevant association found between the knowledge scores of adolescent girls and socio-demographic variables.

Conclusion- The overall study finding depicted that the mean percentage score of knowledge of adolescent girls was 51.6%. Hence, it was concluded that adolescent girls have inadequate knowledge regarding menstrual cups & its usage.

Key-words: Adolescent girls, Menstrual cups, Menstrual management, Sanitary pads, Socio-demographic variables

INTRODUCTION

Adolescence is commonly characterized as a span of years. Adolescence appears to be a period of physical, psychological, & social maturation that lasts from childhood to adulthood, encompassing the period from puberty to complete reproductive maturity [1]. The menstrual cycle is a physiological event.

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But it has been connected to taboos in emerging nations like India. Even in situations where taboos are not a significant issue, accessible or affordable menstrual collection materials may not be readily available, making period management not just challenging but potentially seriously detrimental to women's lives [2].

Despite having a longer history than tampons, menstrual cups are not widely known. The blood is collected in a receptacle that can hold 10-38 ml of blood. Menstrual cups are placed into the vagina. Depending on the type of cup & the flow of the menstrual cycle, the menstrual cup should be emptied every 4 to 12 hours. There are two kinds of cups available: vaginal cups, which are often bell-shaped structures, & cervical cups, which are placed

around the cervix high in the vagina & function similarly to contraceptive diaphragms. Menstruation cups have a ten-year shelf life & are composed of medical-grade silicone, rubber, latex, or elastomer. Menstruation cups that may be disposed of after use are also available [3].

The majority of women are reluctant to discuss this topic. Unsanitary menstruation practices can have a negative impact on girls' health by increasing their vulnerability to reproductive tract infections & pelvic inamatory illnesses, which can lead to infertility [4]. In contrast to a menstruation pad, a menstrual cup is inserted into the vagina. This is why a lot of people think that if you use a cup on an unmarried girl, she will lose her virginity. Because of our Western cultural upbringing, the notion of "use & throw" is spreading more widely than practical thinking. Even well-educated individuals are aware of menstruation cups due to the lack of publicity & widespread use of sanitary pads [5].

Menstrual hygiene management can be difficult in resource-constrained settings due to traditional practices & beliefs, a lack of knowledge & information on best hygienic practices, a lack of infrastructure such as access to soap and water, and a lack of appropriate & affordable hygienic products [6]. Menstrual cups are vaginal vessels composed of silicone, thermoplastic elastomers (TPE), & natural rubber. They are designed to collect menstrual blood for up to 12 hours before being emptied, cleaned, & reinserted [7]. Only 58% of girls & women aged 15 to 24 used modern forms of menstruation protection, such as sanitary pads. The materials utilized vary depending on the location, but sanitary pads are increasingly being used in program interventions for at least three consecutive cycles [8].

The menstrual cycle is still viewed as filthy or unclean in Indian culture. People's awareness & understanding of the issue influence how they respond to menstruation. How a girl is taught about menstruation & the changes that go along with it may affect how she reacts when menarche occurs [9]. In places where tampons & sanitary towels are too expensive & were using rags, newspapers, & other traditional means of protection presents many difficulties, the invention may offer women a viable, useful, & affordable alternative form of sanitary protection [10]. The environmentalist claims that the use of sanitary pads & tampons poses a serious risk to the environment, affecting everything from the raw materials to the manufacturing process. According to research, whilst cups are environmentally friendly, maintain vaginal pH, & promote minimum bacterial growth, tampons are composed of cotton fiber & take six months to biodegrade, which is dangerous for the environment [11]. Women's health & personal hygiene must healthily manage their periods. Tampons, menstruation cups, sanitary napkins, & napkins made locally are regarded as hygienic means of protection by the National Family Health Survey [12].

MATERIALS AND METHODS

Adolescent girls from PU College of Bagalkot were chosen, & its awareness of menstruation cups & its use was evaluated using a descriptive design. An open-ended structural knowledge questionnaire was utilized to gather the data, and descriptive & inferential statistics were employed to organize & assess the findings.

Study design- Descriptive survey approach was used to assess knowledge regarding menstrual cups & its usage among adolescent girls.

Setting of the study- The research was conducted at the B.V.V.S Arts, Sciences, and Commerce Independent PU College in Vidyagiri Bagalkot, Karnataka.

Participants- Participants in the current study were adolescent girls. The sample comprised of 60 PUC I & 60 PUC II year students. They were chosen using a disproportional stratified random sampling technique.

Instruments- A systematic open-ended knowledge questionnaire was used in the investigation. To test knowledge and utilization, data was gathered using a standardized questionnaire and an interview schedule. The 36 items on the test measure one's knowledge of menstrual cups and how to utilize them.

Description of data collection instruments

Part 1: Socio-demographic variables- Comprised of 12 items, which included age, education, type of family, family monthly income, religion, occupation of father, occupation of mother, place of residence, age at menarche, the current method of menstrual management, facing any problem with current method of menstrual & previous knowledge about menstrual cup to assess the socio-demographic variables of adolescent girls.

Part 2: Structured questionnaire knowledge regarding menstrual cup & its usage among adolescent girls- Comprised of 24 items to assess the knowledge regarding menstrual cup & its usage.

Data collection procedure- The major study was conducted between July & August 2023, with previous administrative authorization received from the B.V.V Sangha's Arts, Sciences, & Commerce Independent PU College in Vidyagiri Bagalkot. Informed consent was obtained prior to the study volunteers, & the nature of the investigation was explained. The investigation selected 60 PUC I & 60 PUC II year students using the Disproportional Stratified Random Sampling technique. The investigator had little difficulty collecting data from the subject. The responses were cooperative. It took around 30 to 45 minutes to collect data from each participant, which was then assembled for analysis.

Statistical Analysis- Data analysis is the systematic arrangement & synthesis of research data, as well as the use of gathered data to test research hypotheses. Data was analyzed using descriptive & inferential statistics. Socio-demographic data was evaluated using frequency & percentage distributions. The mean, standard deviation, & independent 't' test were used to compare adolescent girls' understanding of menstruation cups & how to use them. The Chi-square test & Yale's correction formula test were used to determine the relationship between knowledge scores & selected socio-demographic characteristics among adolescent girls.

Ethical Approval- Certificate of ethical permission obtained from the ethical committee of the institution & written consent taken from each participant.

RESULTS

The study found that the majority of adolescent girls (61%) were between the ages of 17 & above. 39% were between the ages of 15 & 16. 50% of adolescent girls' educational status. 76.6% followed the Hindu religion. 69% were from nuclear families. 66% were in rural areas. 50% of the adolescent girls' mothers were homemakers. 32.5% of adolescent girls' fathers worked in agriculture. 33.33% of adolescent females came from families with a monthly income of 20001-40000. 39% of adolescent girls aged 14 & up experienced menarche. 69.16% of adolescent girls use sanitary pads as their primary method of menstruation management. 79% of adolescent girls reported no problems with their present approach of menstruation management.

Table 1 shows that the average percentage of knowledge scores for adolescent girls was 51.6%. Table 2 demonstrates that the majority of adolescent girls (49.16%) had inadequate information, 47.5% had intermediate knowledge, and 3.33% had adequate understanding of menstruation cups and how to use them.

Table 1: The mean, median, SD, and mean percentage score of knowledge regarding menstrual cup and its usage among adolescent girls.

Area	Max score	Mean	Median	SD	Mean percentage (%)
Knowledge	24	12.6	13	8.41	51.6

SD: Standard deviation

Table 2: Level of knowledge distribution of score regarding menstrual cup and its usage among adolescent girls.

Level	Score	Number of participants	Percentage (%)
In-adequate knowledge	0-12	59	49.16
Moderate knowledge	13-18	57	47.5
Adequate knowledge	19-24	4	3.33

Table 3 demonstrates that the chi-square computed between the knowledge scores & socio-demographic variables such as course of study & having any problems with the existing technique of menstruation management for adolescent females was significant. As a result, it was discovered that there was a strong association between knowledge scores and specific socio-demographic factors in adolescent girls. The chi-square value for the selected socio-demographic parameters such as age, religion, family type, place of residence, mother's occupation, father's occupation, monthly income, age at menarche, method of period management, and prior knowledge of menstrual cups. This shows that no significant relationship was identified between socio-demographic characteristics & adolescent girls' knowledge scores.

Table 3: Association between the knowledge regarding menstrual cups and its usage among adolescent girls with their socio-demographic variables.

Variable	Chi-square value	Table value	DF	p-value
Age	0.62	3.84	1	>0.05
Course of study	14.70	3.84	1	<0.05
Religion	0.12	3.84	1	>0.05
Type of family	1.23	3.84	1	>0.05
Place of residence	0.69	3.84	1	>0.05
Occupation of mother	0.07	7.82	3	>0.05
Occupation of father	0.46	7.82	3	>0.05
Monthly income	2.58	7.82	3	>0.05
Age at menarche	3.66	5.99	2	>0.05
Method of menstrual management	1.01	5.99	2	>0.05
Facing any problem with current method of menstrual management	4.48	3.84	1	<0.05
Previous knowledge about menstrual cups	0.13	3.84	1	>0.05

DF: Degree of freedom; p<0.05: Significant; p>0.05: Not-significant

DISCUSSION

Menstrual cups have been found to be effective in managing menstruation among adolescent girls compared to traditional methods. Studies have shown that the use of menstrual cups is associated with higher adaptability & satisfaction rates [13]. Menstrual cups are a better alternative to traditional methods, such as sanitary pads, as they are safe, eco-friendly, cheap, & durable [14]. The use of menstrual cups has been found to maintain a healthy vaginal microbiota, reducing the risk of infections & other side effects [15]. Adolescent girls who used menstrual cups had moderate to adequate knowledge & a good attitude towards them. The acceptability of menstrual cups among adolescent girls was high, with the cups being seen as a sustainable & safer substitute for unhygienic menstrual products [16]. Overall, menstrual cups have shown to be effective in managing menstruation among adolescent girls, providing a more sustainable & cost-effective option compared to traditional methods.

The availability & accessibility of menstrual cups have been shown to impact their adoption & usage among adolescent girls in different regions. Studies have found that providing free menstrual cups as part of community-based sexual & reproductive health services increased the use of appropriate menstrual products among adolescent girls aged 15-19 [17]. Additionally, research conducted in India found that education, awareness, & availability of eco-friendly practices, including menstrual cups, were important factors in promoting their use

among adolescent girls [16]. Another study conducted among women of reproductive age in Bangalore found that the majority had poor knowledge regarding menstrual cups, highlighting the need for increased awareness & education [13]. Furthermore, a study in Mozambique & Uganda found that the menstrual cup was widely accepted and used as a substitute for sanitary pads, with economic advantages being a key factor in its adoption. Planned teaching programs have also been effective in enhancing knowledge & improving the usage of menstrual cups among adolescent girls [18].

The current study was conducted to assess adolescent girls' understanding and use of menstrual cups at a PU college in Bagalkot, Karnataka. To achieve the study's objectives, a descriptive survey method was used. A sample of 120 adolescent girls was drawn using the disproportional stratified random sampling method. The percentage distribution of teenage girls by age in the year reveals that, out of 120, 61% were 17 or older. 39% were aged between 15 and 16 years. The current study's findings are compatible with and confirmed by Babu's investigation in Thiruvananthapuram, Kerala. The result showed that 58% of nurses are over 25 years old. Out of 60% of nurses, the highest percentages (58%) were in the age group between 25-30 years, 34% were in the age group between 31-35 years & remaining 5% were in the age group above 36 years [2].

The percentage-wise distribution of adolescent girls according to their course of study reveals that, out of 120 adolescent girls, 50% were PUC I year students & 50% were PUC II year students. Out of 120 adolescent girls, 72.6% were Hindu, 12.5% were Muslim, 5.8% were Christians, & 5.0% were others. It shows that most adolescent girls (72.6%) were Hindu. Among the 120 adolescent girls, the percentage distribution of responses by family type shows how the respondents are categorized. 69% of respondents indicated they were part of a nuclear family, while 31% indicated they were in a joint family. That shows that the majority of teenage girls came from nuclear families (69%) in this study. The categorization of respondents by place of residence is seen in the percentage-wise distribution of adolescent girls. 34% & 66% of the respondents, respectively, were from urban & rural areas. It shows that the bulk of teenage girls (66%) lived in rural areas.

The distribution of adolescent girls by their mother's work, expressed as a percentage, shows that, of the 120 adolescent girls, the largest percentage (50%) were homemakers, followed by private employees (17.5%) & government employees (15.8%). Others had the lowest percentage (16.7%). It shows that the mother of the majority of teenage girls (50%) was a homemaker. Based on the father's occupation, the largest percentage of adolescent girls (32.5%) worked in agriculture, followed by government employees (25.8%) & business (22.5%), with the lowest number (19.60%) in other.

Adolescent girls based on their family's monthly income. The highest percentage (33.33%) of monthly incomes were 20001-40000, 30% were <20000, 21.66% were 40001-60000, & 15% were >60001. Adolescent girls are classified based on their menarche age. The highest percentage (39%) was 14 years or more, 31% was less than 12 years, and the lowest percentage (30%) was 12-13 years. According to their present method of menstrual management, the majority of adolescent girls (69.16%) use sanitary pads, 20% use others, & the lowest, 10.80%, use cloth.

The mean percentage score of knowledge about menstruation cups & its use was 51.6%. The majority of adolescent females (49.16%) were assessed for their awareness of menstruation cups and its use. Inadequate knowledge was reported by 47.5%, followed by fairly adequate understanding by 3.33%. Meanwhile, 49.16% of adolescent girls lack adequate understanding. The findings of the present study are contradictory from the study conducted by Siji *et al.* [16] which showed that, out of 50 adolescent girls, 4% had insufficient knowledge, 86% had somewhat adequate knowledge, & 10% had adequate knowledge.

There is a substantial relationship between adolescent girls' knowledge scores & chosen socio-demographic variables such as course of study & experiencing any problems with their present method of menstruation management. Our findings contradict the findings of Rani and Swaminathan. Their findings indicated that age was statistically significant (p=0.001 in bivariate analysis) [19]. However, there is no significant relationship between adolescent girls' knowledge scores and selected socio-demographic variables such as age, religion, family type, place of residence, mother's occupation, father's occupation, monthly family income, age at menarche, method of menstrual management, and prior knowledge of menstrual cups. These findings contradict those of Kakrani and Bhatt. Their data demonstrated that there is

no significant association between participants and reusable menstrual cups providing no substantial health risks [20].

CONCLUSIONS

The study is useful in assessing knowledge about menstruation cups & its use among adolescent females at Bagalkot PU College, Karnataka. The entire survey findings revealed that adolescent girls have a mean percentage score of knowledge (51.6%). Adolescent females have the highest level of awareness (49.16%) about menstruation cups & their use.

LIMITATION

The study was limited to adolescent girls at a single PU College, which limits generalizability. The study's sample size was limited to 60 PUC I & 60 PUC II students, which constrained statistical assumptions about the results. The data was collected via a structured questionnaire, which limited the respondents' ability to provide comprehensive information about menstrual cups and their use.

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CONTRIBUTION OF AUTHORS

Research Concept: Miss Veena Madi, Dr. Kamala K.N.
Research Design: Miss Veena Madi, Dr. Kamala K.N.
Supervision: Miss Veena Madi, Dr. Deelip Somaninga Natekar.
Materials: Miss Veena Madi.
Data Collection: Miss Veena Madi.
Data analysis and Interpretation: Miss Veena Madi.
Literature Search: Miss Veena Madi.
Writing Article: Miss Veena Madi.
Critical Review: Miss Veena Madi, Dr. Deelip Somaninga Natekar.
Article Editing: Miss Veena Madi, Dr. Kamala K. N, Dr. Deelip Somaninga Natekar.
Final Approval: Miss Veena Madi, Dr. Kamala K.N, Dr. Deelip Somaninga Natekar

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