Biological Forum – An International Journal **15(4): 374-378(2023)**

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Menstruation Hygiene Practices and Prevalence of Poly Cystic Ovarian Syndrome in Young Adult Girls: A Case Study

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(Received: 21 February 2023; Revised: 13 March 2023; Accepted: 18 March 2023; Published: 20 April 2023)
(Published by Research Trend)

ABSTRACT: The study was performed to evaluate menstrual practices in young adult girls and the incidence of polycystic ovarian syndrome. Periods, also known as menstruations, are regular vaginal bleeding that take place as part of a woman's monthly cycle. The monthly hormonal preparation a woman's body goes through for a potential pregnancy is known as the menstrual cycle. In the years between puberty and menopause, regular menstrual cycles are typically a sign that the body is in good health. Periods that are heavy, painful, or irregular are not typical. Premenstrual syndrome (PMS) symptoms are common in females. It includes the most prevalent typical symptoms, such as minor cramps and exhaustion, but these go away once the period starts. Too much or too little bleeding, or the complete lack of a cycle, may indicate that other problems are causing the irregular menstrual cycle. The health of young women is significantly influenced by menstrual hygiene. Menstrual health and hygiene issues practiced by girls and others who menstruate have recently received attention as a significant public health issue, leading to the development of new studies, programmes and the major challenge of the researchers is to lower period deficiencies and confiscate the insistent disgrace associated with menstruation. Henceforth the primary emphasis of this study is adolescent females' menstruation issues to find the derivation. The main goals of the current study are to determine how aware teenage girls are of menstrual issues, to investigate these issues in girls, and to show how lifestyle choices can negatively affect women's menstrual health and increase the prevalence of disorders like polycystic ovarian syndrome (PCOS).

Keywords: Menstruation, PCOS, menstrual health, menstrual disorders, menarche.

INTRODUCTION

Menstruation is a normal physiological process that occurs in sexually mature females and is characterized by the flow of blood and other menstrual fluids from the uterus through the cervix and out of the vagina. A large proportion of females suffer to some extent menstrual abnormalities, almost 75% of adolescent girls experience dysmenorrhea worldwide (Mughal, Zaib-Un-Nisa *et al.,* 2021). The menstrual cycle is regulated by a complex interplay of hormones and can vary in length and intensity between individuals. Menstrual health is a critical aspect of overall reproductive and sexual health and encompasses the physical, mental, and social well-being of individuals in relation to their menstrual cycle. It includes aspects such as menstrual physiology, menstrual hygiene management, menstrual disorders, and cultural beliefs and attitudes towards menstruation. The promotion of menstrual health can help to reduce stigma and improve quality of life for individuals who menstruate (Critchley *et al.,* 2020). Educators play a crucial role in shaping the thoughts and beliefs of young individuals, yet the topic of menstrual hygiene is often absent. This topic is significant, as it is included in the Millennium Development Goals. Thus, it is crucial to investigate the present methods of managing menstrual hygiene among teenage girls in order to comprehend the consequences and significance of adopting proper menstrual hygiene practices. Such research can aid in designing effective strategies for addressing menstrual hygiene-related issues in the future (Sharma *et al.,* 2017). The World Health Organization has reported that a staggering 2.3 billion females around the world face challenges in safely managing their menstruation. This is due to factors such as inadequate menstrual hygiene management (MHM) facilities, high expenses, and insufficient knowledge. Consequently, many resort to using unsanitary materials like old clothes as menstrual absorbents, which can expose them to infections and other health issue (WHO, 2017). As per the National Family Health Survey 5 (NFHS-5, 2019) data, 77.3% of Indian women in the age group of 15 to 24 years adopt hygienic practices during their menstrual cycle to protect themselves from health issues. This percentage is higher in urban areas at 89.4% compared to rural areas where it is 72.3%. (International Institute). The management of menstrual hygiene differs significantly across countries and even within states, influenced by various factors such as personal choices, economic conditions, cultural beliefs, local customs, and education levels. In settings with limited literacy and financial resources, women often resort to managing menstruation using unhygienic or inconvenient methods. This is particularly prevalent in poorer

communities (Sumpter and Torondel 2013). Regrettably, approximately 500 million women and girls worldwide lack sufficient facilities to manage their menstrual health and hygiene effectively. Furthermore, 335 million girls attend schools where they do not have access to water or soap for menstrual hygiene management. These challenges highlight the urgent need to improve menstrual health and hygiene infrastructure and services globally (Hussein *et al.,* 2022; World Bank, 2018). The stigma and negative attitudes towards menstruation can have significant impacts on menstrual health. In many cultures, menstruation is seen as dirty, shameful, and something that should be hidden. This can lead to a lack of education and awareness about menstrual hygiene, and reluctance to discuss menstrual issues openly. Menstruating individuals may feel ashamed or embarrassed, which can lead to a lack of access to menstrual products, inadequate menstrual hygiene practices, and a higher risk of reproductive tract infections. Moreover, in some communities, menstruating individuals are excluded from participating in certain activities, including religious practices, which can impact their social and emotional wellbeing. This can lead to the increase in the rate menstrual disorders affecting the women (Bhartiya 2013). Around 76% of women experience problems associated with menstruation with the most common ones being dysmenorrhea, irregular menstrual cycles and premenstrual syndrome. Other less common menstrual disorders included menorrhagia, oligomenorrhea, and amenorrhea. The severity of menstrual disorders is positively correlated with the level of psychological stress experienced by the students (Rafique and Al-Sheikh 2018). Recent studies show that lifestyle can severely impact menstrual health of women and increase in the prevalence of disorders such as polycystic ovarian syndrome (PCOS). We, therefore, surveyed the prevalence of polycystic ovarian syndrome (PCOS) among the students. We also assessed the general patterns of menstrual cycle, usage of menstrual products and the extent of uneasiness around menstrual talks prevalent in the college students.

MATERIALS AND METHODS

Participants and setting. The survey was conducted among the students of first year of all the streams studying in B.M.S. College for Women. The survey was performed with the due consent from the Principal of BMSCW & the Department of Biotechnology, BMSCW. We made sure that the privacy of the respondents was secured. The respondents were given a choice of answering to the survey anonymously. Students from various combinations & branches participated in the survey. The questionnaire was distributed as Google Forms and each participant could fill it only one time. The questionnaire collected data about menarche, regularity of menstruation, general menstrual patterns, dysmenorrhea, menstrual leaves, and preferences in menstrual products and pervasiveness of polycystic ovarian disorder (PCOS) among the students. The survey received responses from a total of 323 respondents.

Statistical analysis. The mean of the values was calculated after each analysis and the values are compared by statistical methods such as repeated ANOVA thereby identifying significant difference on a particular variable and comparison of the data was performed.

RESULTS AND DISCUSSION

The study was conducted with 323 students from Bangalore in India. Among them, 36.2% (117) from B.Sc, 27.6% (89) from B.Com, 13.3% (43) from B.Voc, 8.4% (33) from BBA, 8.4% (27) from BCA & 4.3% (14) from BA responded to the survey through Google Form. Majority of the students, 316 (97.8%) belonged to 18-24 age group. While 7 (2.2%) students were below 18 years of age. It gives us a general overview of performance of menstrual health among students, knowledge about menstruation, general menstrual patterns and whether or not lifestyle impacts menstrual cycles of the students. Table 1 reveals that over 52 (14.2%) girls are embarrassed to talk about menstrual health and periods. Menstruation is a taboo topic in Indian society. Menstruation is not openly discussed in schools or colleges. In many Indian households, girls are not allowed to touch or enter certain places, such as the kitchen or temple, during their periods. This practice reinforces the idea that menstruation is dirty or impure, and should be kept hidden from others. This further invokes embarrassment and some girls being ashamed about their menstruation (Juyal *et al.,* 2013). Menarche is the onset of the first menstrual period in girls (Ramraj *et al.,* 2021). Due to the embarrassment, myths and taboos around menstruation, girls do not receive sufficient knowledge about menstruation before menarche and this can lead to confusion, fear, and anxiety, and may result in inadequate menstrual hygiene practices and potential health problems (Dasgupta and Sarkar 2008). According to our study, 152 (47.1%) girls did not have any knowledge about menstruation and 71 (22%) girls had a vague idea about menstruation before experiencing their first period. The mean age of menarche was found to be 13.6 years with the majority (71.2%) of the students attaining menarche at the age range of 13-15 years, while 5 (1.5%) girls started menstruating under the age of 10 years and 2 (0.6%) girls got their first period when they were 18 years or older. The age of menarche is influenced by various factors which include genetics, body mass index, nutrition, physical activity, geographical location, socioeconomic status, and environmental factors (Karlsson *et al.,* 2014). Table 2 shows that cycle lengths ranged from 21 to 35 days for 250 (77.3%) girls, and menstrual bleeding lasted 3-5 days for 249 (77.1%) girls. However, 51 (15.8%) girls reported menstrual bleeding for 6-8 days, and 6 (1.9%) girls reported bleeding for more than 8 days. 29 (9%) girls also have reported to be having frequent periods (cycles <21 days apart). Excessive bleeding can significantly affect the quality of life. It affects a woman's physical, emotional, social, and material quality of life. It is characterized by bleeding that lasts longer than 7 days. This affects approximately 20% of women of reproductive age and can be caused by a variety of

underlying conditions, such as hormonal imbalances, fibroids, or endometriosis (Hong *et al.,* 2014). According to Table 3, 170 (52.6%) of girls have cramps during their periods on a regular basis, while 104 (32.2%) have them occasionally. 260 (80.5%) of them said they didn't take any pain relievers. Painful menstruation or dysmenorrhea is a common condition affecting a high proportion of women worldwide and can significantly impair their quality of life. Several risk factors for dysmenorrhea include early age of menarche, nulliparity, heavy menstrual bleeding, and psychological stress (Omidvar *et al.,* 2016). There is a high prevalence of dysmenorrhea in Indian women, affecting around 70% of them at varying degrees of pain (Omidvar *et al.,* 2018). Girls face physical and emotional discomfort during menstruation. The physical discomforts include abdominal pain, backache, headache, and fatigue. Girls also bear emotional discomfort, such as feeling irritable or depressed, during menstruation. These discomforts can affect their daily activities. Due to this, it becomes prudent for the girls to take leaves during menstruation. However, 192 (59.2%) girls have reported that they do not take leaves during their periods. Menstrual hygiene practices are necessary to manage menstruation in a clean and hygienic manner. Menstrual hygiene management is a significant challenge for many girls and women due to a lack of knowledge and information, limited access to affordable and hygienic menstrual products, and inadequate sanitation facilities. Menstrual products play a vital role in maintaining menstrual hygiene and health in the long run (Kaur *et al.,* 2018). In our study, 298(92.3%) girls use single-use disposable sanitary napkins over other menstrual products. They are not very environmentally friendly and, as the name implies, are not reusable. These napkins are made of cotton, which is not entirely natural and might have pesticide residues. They are the most widely used menstrual products, nevertheless, and they are easily accessible in the nearby stores. 23 (7.1%) girls have reported to be using cloth pad as their choice of menstrual product. Cloth pads are reusable and eco-friendly. Yet if not cleaned and dried in the sun correctly, these can have harmful effects. In order to prevent contamination, they must also be stored in a clean, dry area before being used again. Menstrual cups are used by 15 (4.6%) girls. Recently, menstrual cups are gaining popularity as they are sustainable and reusable. In areas with poor sanitation, it provides a practical, affordable, and sustainable option. The cups are made of medical-grade silicone, which unlike sanitary products like tampons and napkins has no negative impact on human bodies. In addition to using menstruation products correctly, it's critical to understand hygienic menstrual practices to prevent any potential health risks in the future (Das *et al.,* 2015). In our study, 26 (8%) of the girls were determined to have polycystic ovarian syndrome (PCOS), while 297 (92%) of the girls indicated that they were not diagnosed with PCOS. Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder that affects women of reproductive age. PCOS is characterized by hyperandrogenism (elevated levels of male hormones), anovulation (absence of ovulation), and polycystic ovaries (enlarged ovaries containing multiple small cysts). The exact cause of PCOS is still unknown, but it is believed to be a complex interplay of genetic, environmental, and lifestyle factors. Some of the common risk factors associated with PCOS include insulin resistance, obesity, sedentary lifestyle, and a family history of the condition. PCOS can lead to a range of symptoms including irregular menstrual periods, hirsutism (excessive hair growth on the face and body), acne, male-pattern baldness, and fertility problems. In addition, PCOS has been associated with an increased risk of developing various health conditions such as type 2 diabetes, hypertension, and cardiovascular disease (Deswal *et al*., 2020). Prevalence of PCOS in India ranges from 3.7 to 22.5 per cent depending on the population studied and the criteria used for diagnosis (Ganie *et al.,* 2019). However, compared to rural places, the prevalence is higher in metropolitan areas. The exact cause of PCOS is still unknown, but it is believed to be a complex interplay of genetic, environmental, and lifestyle factors. Some of the common risk factors associated with PCOS include insulin resistance, obesity, sedentary lifestyle, and a family history of the condition. There is no exact treatment for this condition, which is personalized to meet each individual's needs (Deswal *et al.,* 2019). One sign of the PCOS syndrome is irregular menstruation. 46 (14.2%) of the girls in our survey who reported having irregular periods. In order to diagnose an illness like PCOS early and stop further damage from occurring, it is necessary to teach the girls the various indications and symptoms of the condition.

Table 1 shows that 271 (83.9%) girls are not embarrassed to have talks about menstruation, while the remaining 52 (14.2%) girls are uncomfortable with menstrual talks. Further, 230 (71.2%) girls attained menarche around the age of 13-15 years, with the mean age of menarche being 13.6 years. While only 100 (31%) girls of them had knowledge about menstruation before attaining menarche, 152 (47.1%) girls were not aware about the same.

Table 2 depicts that 277 (85.8%) girls have menstruation in regular intervals. 183 (56.7%) girls reported that this interval is usually around 21-28 days. The duration of each cycle is reported to be 3-5 days by 249 (77.1%) girls.

Table 3 depicts that 170 (52.6%) girls regularly experience cramps during menstruation while 104 (32.2%) girls have experienced pains at some point. 260 (80.5%) girls prefer not to take any medicines to relieve these pains. Further, 192 (59.4%) girls are on leave during menstruation and 93 (28.8%) girls have been on period leaves sometimes.

Table 4 shows that 298 (92.3%) girls use single use sanitary napkins, 23 (7.1%) girls use cloth pads, 15 (4.6%) girls use menstrual cups and only 2 (0.6%) girls use tampons as their choice of menstrual products.

Table 5 depicts that 297 (92%) girls are not diagnosed by menstrual disorders while 26 (8%) girls are diagnosed with PCOS or other menstrual disorders.

Table 1: Awareness and information about menarche.

Profile	Profile variables	Number (n=323)	Percentage (%)
Embarrassment around period talk	Yes	52	14.2
	No	271	83.9
Age of menarche or first period	Under 10 yrs.	5	1.5
	10-12 yrs.	60	18.6
	13-15 yrs.	230	71.2
	16-18 yrs.	26	8
	18 or older yrs.	2	0.6
Knowledge about menstruation before menarche	Yes	100	31
	No	152	47.1
	Maybe	71	22

Table 2: Regularity and duration of menstruation.

Profile	Profile variables	Number (n=323)	Percentage (%)
Menstrual cycles are regular	Yes	277	85.8
	No	46	14.2
Time interval between each cycle	Less than 21 days	29	9
	21-28	183	56.7
	29-35	67	20.7
	More than 35 days	13	4
	Irregular periods	31	9.6
Duration of the period	Less than 3 days	17	5.3
	3-5 days	249	77.1
	6-8 days	51	15.8
	More than 8 days	6	1.9

Table 3: Dysmenorrhea and Menstrual Leaves.

Profile	Profile variables	Number (n=323)	Percentage (%)
Do you experience period cramps?	Yes	170	52.6
	No	49	15.2
	Sometimes	104	32.2
Do you take medications to relieve the pain?	Yes	22	6.8
	No	260	80.5
	Sometimes	41	12.7
Do you take leave during periods?	Yes	38	11.8
	No	192	59.4
	Sometimes	93	28.8

Table 4: Menstrual Products used by the students.

Profile	Profile variables	Number (n=323)	Percentage (%)
Choice of menstrual products	Single use sanitary napkin	298	92.3
	Cloth pad	23	7.1
	Tampon	2	0.6
	Menstrual cups	15	4.6

Table 5: Menstrual disorders in the students.

Profile	Profile variables	Number (n=323)	Percentage (%)
Diagnosed with PCOS or other menstrual disorders	Yes	26	8
	No	297	92

CONCLUSIONS

Menstrual health is an essential aspect of overall health and well-being for people who menstruate. Understanding and managing menstrual disorders, such as polycystic ovarian syndrome (PCOS), is crucial to ensuring a healthy menstrual cycle. Menstrual disorders such as dysmenorrhea, irregular periods, and heavy bleeding can significantly impact a person's quality of life. It's essential to seek medical attention if experiencing any abnormal menstrual symptoms or discomfort. Educating oneself and others about menstrual health and disorders can help reduce the stigma surrounding menstruation and promote healthy menstrual habits. Overall, prioritizing menstrual health is crucial for individuals to live their lives to the fullest potential and manage conditions like PCOS.

FUTURE SCOPE

The study emphasizes and focuses the need of tormented menstrual hygiene management interventions in younger generations like creating awareness on menstrual health and impact of lifestyle changes. Further study focuses on spreading the awareness on the use of age old practices and explaining the possible risk of reproductive tract infections and diseases like PCOS. Strategies are being developed for the improvement of physical, psychological and mental health during menstruation in girls and their active participation in the society.

Acknowledgement. The authors are thankful to the Management, Director and Principal of B.M.S. College for Women, Bangalore for providing the necessary facilities for this research work.
Conflict of Interest. None.

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How to cite this article: V.M. Vyshali, K.R. Sumalatha, S. Sushmitha and H. Deeksha (2023). Menstruation Hygiene Practices and Prevalence of Poly Cystic Ovarian Syndrome in Young Adult Girls: A Case Study. *Biological Forum – An International Journal, 15*(4): 374-378.