Journal of Infectious Diseases and Patient Care

Research Article

WRJIDPC-24-002

Menstrual Knowledge and Hygiene Practices Among Adolescent Girls in Rural India: A Cross-Sectional Study

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Citation: Prasad P, Gunasekharan L, Sravanan YG, Al-Maslamani M (2024) Menstrual Knowledge and Hygiene Practices Among Adolescent Girls in Rural India: A Cross-Sectional Study. J Infect Dis & Pati Care 1: 5.

Abstract

Menarche marks the onset of menstruation and signifies a girl's transition to womanhood. Despite its importance, many adolescent girls in rural areas lack adequate knowledge about menstruation, which leads to various health and social challenges. Factors such as embarrassment and cultural taboos hinder effective education. This study aimed to assess menstrual knowledge and hygiene practices among adolescent girls in rural areas of India. A cross-sectional study was conducted among 209 girls aged 13-15 years in government schools. The data revealed that maternal guidance was the primary source of information. Most of the participants recognized menstruation as a natural phenomenon, while some attributed it to be a divine intervention. The study participants reported using sanitary pads during menstruation, but issues such as proper disposal and affordability were prevalent. Challenges in maintaining her menstrual hygiene were attributed to inadequate protection, lack of proper toilets and cultural restrictions.

Keywords: Knowledge; Menstruation; Hygiene; Rural India

Received date: September 12, 2024; **Accepted date:** September 28, 2024; **Published date:** October 15, 2024

Introduction

Menarche, the onset of menstruation, is a biological phenomenon in the lives of young girls [1]. It symbolizes the onset of womanhood and denotes the start of a girl's reproductive journey. This transitional milestone holds definite significance because it reflects not only biological maturation but also the societal and cultural norms that pertain to femininity, marriage and fertility [2]. In southern India, menarche occurs at a mean age of 13 ± 1.1 years [3].

Despite its importance, numerous studies have highlighted a pervasive lack of accurate and comprehensive knowledge among teenage girls regarding menstruation and menstrual health. Insufficient menstrual health education can lead to a wide range of complications, including increased morbidity and various physical, mental and social challenges [4-7]. Inadequate education within school settings often results in girls making uninformed decisions about their menstrual health and management [8]. Factors such as embarrassment, reluctance to engage in discussions about genital health, adherence to notions of menstrual privacy and the prevalence of superstitions further hinder effective education on this topic [8,9]. Moreover, health personnel encounter challenges in delivering effective menstrual health education due to time constraints, a lack of educational resources, a shortage of trained staff, poor coordination between health centers and schools and the sensitive nature of the subject matter within general education settings [10,11].

The school environment plays a critical role in supporting menstrual health, encompassing access to essential supplies, adequate restroom facilities, designated areas for pad disposal and proper sanitation facilities, including handwashing stations [4]. Understanding the multifaceted nature of menstrual health, influenced by physiological, cultural, social and economic factors, underscores the complexity of addressing this issue comprehensively. Many of these factors remain poorly understood, prompting the need for further investigation.

This lack of understanding not only poses risks to physical health but also perpetuates stigma and shame, contributing to psychosocial challenges and hindering access to essential information and resources. Consequently, there is an urgent need for comprehensive menstrual health education initiatives that address the multifaceted barriers to menstrual health and empower girls with the knowledge and resources they need to navigate this critical aspect of their development with confidence and dignity.

Motivated by these challenges, we conducted a study among adolescent girls in government schools to assess their knowledge and awareness regarding menstrual hygiene.

Aim

The aim of our study was to delineate the knowledge, attitudes, beliefs and practices surrounding menarche, menstrual hygiene and menstrual health among adolescent girls.

Objectives

The specific objectives of this study are as follows:

1. To explore the cultural roots of shame surrounding menstruation and its impact on the menstrual health discourse among adolescent girls.
2. To investigate the prevalence of discomfort among health instructors among students discussing menstruation problems.
3. To provide insights into the challenges and barriers faced by adolescent girls in addressing menstrual health issues in developing countries.

Materials and Methods

A cross-sectional questionnaire study design was adopted to investigate menstrual health knowledge, attitudes, beliefs and practices among adolescent girls attending government schools in rural areas of Tiruchengode, Namakkal. Girls between the ages of 13 and 15 who were enrolled in the chosen school's grades 8 through 10, who had undergone menarche, who gave their informed consent after receiving permission from their parents or guardians and who expressed a willingness to participate were among the inclusion requirements. The exclusion criteria included girls who had not yet experienced menarche, those with developmental disabilities and those with mental health conditions impeding participation.

The study proposal was reviewed and approved by the Ethical Committee of Vivekanandha Dental College of Women (Reference number: VDCW/IEC/405/2023). All subjects provided informed consent for inclusion before they participated in the study.

Study Participants and Sampling

The study cohort comprised 209 girls aged between 13 and 15 years who were representative of the diverse sociocultural fabric of the region. Ethical approval was obtained from the institutional review board. Explicit permissions were secured from school authorities to conduct the study, ensuring compliance with ethical guidelines and institutional protocols. The questionnaire consisted of twelve culturally sensitive questions in the vernacular language (Tamil). It was precisely crafted to capture the nuances of menstrual health perceptions and behaviours. The questionnaire was pretested to ensure linguistic clarity and cultural relevance to the target population. Trained investigators, equipped with a deep understanding of the local context and sensitivities surrounding menstrual health, administered the questionnaire during scheduled school hours, promoting an environment of trust and confidentiality conducive to open and honest responses.

Results

Analysis of the survey data **(Table 1)** yielded invaluable insights into the menstrual health experiences of adolescent girls in our study cohort, shedding light on the complex interplay between biological, cultural and socioeconomic factors shaping menstrual health outcomes. Most participants reported experiencing menarche between the ages of 12 and 14 years, underscoring the significance of early adolescence as a critical period for menstrual health education interventions. These results were in accordance with those of a study conducted by Singh et al. in which the average age of menarche was approximately 13 years [6]. Despite the prevalence of menstruation, a 32% proportion of girls lacked adequate information about puberty.

Table 1: Descriptive statistics on menstrual hygiene and practices among study participants.

		Frequency (N)	Percent (%)
	Age of attaining puberty		
	Less than 12	45	21.5
	12-14 years	136	65.1
Q1	More than 14 years	28	13.4
	Are you aware of menstruation before attaining puberty		
	Yes	78	37.3
Q2	No	131	62.7
	From Whom did you get the information regarding menstruation for the first time		
Q3	Mother	98	46.9

	Teacher	7	3.3
	Friend	15	7.2
	Relatives	14	6.7
	Sister	9	4.3
	Don't remember	66	31.6
	What do you think is the reason for a women menstruation		
	Hormonal changes	190	90.9
	God given gift	13	6.2
	Misfortune	4	1.9
Q4	Disease	2	1
	How many times do you change your napkins every day?		
	Once	19	9.1
	Two to four times	122	58.4
Q5	More than four times	68	32.5
	During menstruation do you wash your genital region after using the restroom?		
	Always	173	82.8
Q6	Sometimes	36	17.2
	What is the reason for not washing after the restroom?		
	Scarcity of water	11	5.3
	No privacy	13	6.2
	No separate washroom	1	0.5
	No time	10	4.8
Q6.1	I will not do during school time	26	12.4
	No reason	23	11
	Generally, what do you use to wash your genital region?		
	Water	99	47.8
	Soap	108	51.7
Q7	Others	2	1
	What do you use during menstruation?		
	Sanitary napkin	201	96.2
	Cotton	5	2.4
	New cloth	0	0
Q8	Old clothes	3	1.4
	What prevents you from using sanitary napkins?		
	Disposal of napkins	11	5.3
	Cost	11	5.3
	Unawareness	23	11
Q8.1	Not comfortable	4	1.9
	What are the restrictions do you face during menstruation?		
	Going to temple	105	50.2
Q9	Doing house chores	103	49.3
	Going to school	0	0
	Certain foods	1	0.5

Approximately half of the participants predominantly relied on maternal guidance for insights about menstruation. This was in accordance with a study in which 81.7% of the population knew about menarche from their mother [7]. Notably, while most participants (91%) recognized menstruation as a natural physiological process, a notable minority (6%) attributed it to divine intervention, reflecting the complex interplay of cultural beliefs and biological phenomena.

More than half of the study population reported changing 2-4 sanitary pads per day and 30% reported changing more than four times. Approximately 60% reported washing their external genitalia every time they changed their sanitary pad. Among those who did not wash their external genitalia before changing their sanitary pads, half of them were unaware that external genitalia should be washed before keeping the sanitary pad and half of them said they do not have proper toilet facilities.

In the present study, approximately half of the study population used only water to clean their genitals. Almost the entire population reported using sanitary pads during menstruation.

Sanitary pad usage emerged as a prevalent practice among the study population, with most girls reporting regular usage during menstruation.

Discussion

Menarche is acknowledged as a distinctive and crucial time for girls, where major hormonal and emotional changes occur. Menstrual hygiene is a critical aspect of women's health, particularly during adolescence, when girls experience significant physical and emotional changes. In many low- and middle-income countries, including India, menstruation is often surrounded by stigma, taboos and misconceptions, leading to inadequate knowledge and practices related to menstrual hygiene.

Menstruation is surrounded by taboos and beliefs about the paranormal, despite being such a typical physiological occurrence for females of reproductive age. Therefore, many teenage girls-especially those living in rural areas-do not have access to sufficient knowledge about menstruation and hygienic practices and as a result, they frequently encounter menarche without being unprepared.

In this study, most participants reached puberty between 12 and 14 years, with approximately 20% reporting puberty onset before 12 years. These results were in accordance with those of a study conducted by Singh et al. in which the average age of menarche was approximately 13 years [6]. This early onset of puberty

could be attributed to numerous factors, including lifestyle changes and environmental factors. It is concerning that many adolescent girls start their periods uninformed and unprepared. Despite the prevalence of menstruation, a 32% proportion of girls lacked adequate information about puberty. These results were lower than those of a study conducted in Ethiopia, where 72% of girls were aware [2].

Mothers are the primary source of information for girls, but the information they provide is often insufficient, delayed or influenced by their own perceptions and cultural beliefs. Approximately 50% of the participants predominantly relied on maternal guidance for insights into menstruation. This was in contrast to a study in which 81.7% of the population had acquired prior knowledge about attaining menarche from their mother [7]. Another study reported that knowledge about menstruation was imparted to them by their mothers (60.7%), which was relevant to the current study [8].

In Indian culture, the mother-daughter relationship is not always conducive to open discussions about menstruation due to its orthodox nature. This lack of communication can lead to misunderstandings and misinformation about menstrual hygiene practices. Additionally, one-third of the study participants reported receiving no information about menstrual hygiene, highlighting the taboo surrounding menstruation in Indian society.

Notably, while most participants (91%) recognized menstruation as a natural physiological process, a notable minority (6%) attributed it to divine intervention, reflecting the complex interplay of cultural beliefs and biological phenomena. Approximately 84.77% of the study participants in Maharashtra strongly agreed that menstruation is a natural phenomenon [9]. These results were contrary to the results of a study in which 55% of the participants attributed it to be a physiological phenomenon, whereas 28.3% believed it to be God-given [6]. The majority of the participants (88.2%) in another study believed menstruation to be a natural phenomenon and the results were similar to those of the current study [8].

Despite these challenges, most study participants reported using sanitary pads during menstruation. Sanitary pad usage emerged as a prevalent practice among the study population, with most girls reporting regular usage during menstruation. These results were in accordance with the study conducted by Surendran et al., where all of the participants used sanitary pads [10]. Sanitary pad usage among the participants in this study was greater than that in other studies performed in India, where nearly 12.6% of the population used cloth [7]. This may be due to local fiscal policy to provide sanitary napkins in schools.

More than half of the study population reported changing 2-4 sanitary pads per day and 30% reported changing more than four times. These results concurred with those of another study in which the majority of the study population in rural areas reported changing sanitary pads 2-3 times daily [7]. Another study reported that 66% of the study participants reported changing pads 3-4 times a day, which is greater than that reported in the current study [11]. In the present study, approximately half of the study population used only water to clean their genitals. Approximately 60% reported washing their external genitalia every time they changed their sanitary pad. Among those who did not wash their external genitalia before changing their sanitary pads, half of them were unaware that external genitalia should be washed before keeping the sanitary pad and half of them said they do not have proper toilet facilities.

However, there are still issues related to the proper disposal of sanitary pads and the cost of sanitary protection, which can be a significant burden for many families [12]. Health education and promotion are crucial for addressing these issues and ensuring that girls have access to the information and resources they need to maintain proper menstrual hygiene [13,14].

The study also revealed that many girls face difficulties in maintaining their menstrual hygiene due to inadequate protection, lack of proper toilet facilities in schools and time constraints. These results were in accordance with studies conducted in Gujarat, India and Bangladesh, where approximately 5% of the participants mentioned that a lack of toilets and inadequate water facilities in schools were the main reasons for not changing their pads [15,16]. Furthermore, cultural restrictions during menstruation, such as bans on entering religious places (50.2%) and limitations on certain household chores (49.3%), contribute to the stigma and shame associated with menstruation. A study conducted in Bangladesh reported that 32% of the study population had food restrictions, whereas in the present study, 0.5% of the participants faced such restrictions [15].

However, challenges related to sanitary pad disposal and affordability were commonly cited, emphasizing the socioeconomic barriers that hinder equitable access to menstrual hygiene products [17]. Furthermore, cultural norms surrounding menstruation, such as restrictions on temple visits and household chores during menstruation, underscore the pervasive influence of cultural beliefs on menstrual health behaviour. Another study reported that 38.5% of respondents avoided religious ceremonies due to restrictions imposed [5].

Future Recommendations

Future research should focus on implementing and evaluating targeted interventions to improve menstrual hygiene practices among adolescent girls in rural areas. This includes developing culturally sensitive educational programs, ensuring access to affordable menstrual hygiene products and improving school facilities.

Collaborations with local communities and healthcare providers are essential for the successful implementation of these interventions. Additionally, exploring the use of digital health technologies and community-led initiatives could provide innovative solutions to overcome barriers to menstrual hygiene management.

Conclusion

The findings of our study underscore the urgent need for targeted interventions to address the multifaceted challenges surrounding menstrual health among adolescent girls in resource-constrained settings. In addition to enhancing access to menstrual hygiene products and infrastructure support, initiatives must prioritize comprehensive menstrual health education that addresses cultural taboos, dispels myths and nurtures a supportive environment for open dialogue. By empowering girls with accurate information and instilling confidence in managing their menstrual health, we can contribute to their overall well-being and promote gender equity in health outcomes. As we strive to advance the menstrual health agenda, it is imperative to recognize the intersecting influences of culture, infrastructure and education on menstrual health outcomes, advocating for holistic approaches that empower girls and communities to embrace menstrual health as a fundamental aspect of human dignity and well-being.

Data Availability Declaration

All data supporting the findings of this study are available within the paper.

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