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Knowledge, Attitudes and Practices Regarding Menstrual Health, Hygiene and Diet Among School-Going Girls in a Rural Community of Nirmal District, Telangana: A Cross- Sectional Study

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Abstract- Menstrual health and hygiene remain under-addressed in rural India, where taboos and limited awareness impact adolescent girls' well-being. The present study aimed to assess the knowledge, attitudes and practices regarding menstrual health, hygiene and diet among school-going girls (10-15) in a rural community of Nirmal district, Telangana, and to examine the association between age group and overall knowledge level.A descriptive cross-sectional study was conducted among 100 girls from two schools, selected via convenience sampling. Data were gathered using a structured questionnaire covering demographics, menstrual knowledge, hygiene practices, and diet. An educational pamphlet was used to spread awareness. Data analysed using simple frequency and percentage and the association between variables was analysed using chi square test, conducted in Microsoft Excel. Results showed that 78% of participants had not yet attained menarche, and 55% were aged 10-11 years. Only 24% correctly recognized menstruation as a natural process, with widespread misconceptions. Hygiene knowledge was poor-43% didn't know proper pad-changing frequency, and 35% were unaware of safe disposal methods. Dietary awareness was also limited, with 30% reporting no prior information. A significant association was found between age and knowledge levels ($p = 0.027$), with older girls showing better awareness. These findings emphasize the urgent need for menstrual health education in rural schools, particularly for younger adolescents. School-based interventions using visual aids and open dialogue can help dispel myths, improve knowledge, and foster healthy practices.

Keywords- Menstrual health, Menstrual hygiene, Adolescent girls, Awareness. Diet, School-based intervention, Hygiene knowledge, Visual aids, Knowledge levels.

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I. Introduction

Menstruation is a vital biological process and developmental milestone in adolescent girls, yet it remains surrounded by stigma and misinformation, especially in low- and middle-income countries like India. Despite nearly 1.8 billion people menstruating globally each month (UNICEF, 2020), many girls face menarche unprepared, leading to confusion, fear, and shame. Cultural taboos often label menstruation as impure, restricting girls' mobility and participation in daily life. Studies indicate that 70% of girls in West Bengal were unaware of menstruation before their first period, underscoring gaps in reproductive education (Dasgupta & Sarkar, 2008). Menstrual health encompasses physical, emotional, and social well-being throughout the menstrual cycle (UNFPA, 2021). Adolescents commonly experience issues like dysmenorrhea or menorrhagia but rarely seek help due to stigma or lack of awareness (Chandra-Mouli & Patel, 2017). Poor menstrual hygiene further complicates their health. Access to clean absorbents, water, private toilets, and disposal facilities is essential but often lacking in rural areas. Many girls still use unsafe materials like cloth or ash, leading to infections and discomfort (Narayan et al., 2001; Mudey et al., 2010). Nutrition significantly impacts menstrual health. Iron-deficiency anaemia, affecting over half of India's adolescent girls (WHO, 2016), is linked to menstrual blood loss and poor diets. Nutrients like iron, calcium, magnesium, vitamin B6, and omega-3 fatty acids are critical for maintaining menstrual regularity and reducing symptoms of premenstrual syndrome (Rathi et al., 2018; Kaur et al., 2018). However, dietary habits among adolescents often include low nutrient intake, high junk food consumption, and skipped meals, which worsen menstrual issues (Ramakrishnan et al., 2020). Emotional well-being is also a critical yet overlooked aspect. Hormonal changes can trigger mood swings, anxiety, and irritability. Many girls suffer silently due to a lack of emotional support or safe spaces for expression (Patkar, 2004). While government programs like the Menstrual Hygiene Scheme (MHS) and Rashtriya Kishor Swasthya Karyakram (RKSK) have improved awareness and product access, significant gaps remain, particularly in rural areas. Most existing research focuses narrowly on hygiene, neglecting the broader intersections of nutrition, mental health, and empowerment. This study aims to adopt a holistic approach to understand menstrual experiences among adolescent girls by exploring hygiene practices, dietary habits, emotional challenges, and levels of awareness. Insights from this research can support more inclusive, school- and community-based interventions that uphold menstrual dignity and promote health equity among adolescent girls in rural India.

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II. Methodology

The study employed a descriptive cross-sectional design to assess the knowledge, attitude, and practices (KAP) related to menstruation among school going girls aged10–15 years from a Government School and Sri Saraswati Vidyanikethan School in Pakpatla village, Nirmal district, Telangana. Data were collected using a structured questionnaire covering demographics, menstrual health and hygiene practices, dietary habits, and personal experiences. An educational pamphlet was also distributed to raise awareness. Descriptive statistics (frequency and percentage) were used to analyse responses, while knowledge scores were categorized as low, moderate, or high based on median values. Chi-square tests were conducted in Microsoft Excel to examine associations between demographic variables and knowledge levels.

III. Results

The study was done to assess the knowledge, attitude and practice regarding menstrual health, hygiene and diet among school going girls and establish association between age group and level of knowledge regarding menstrual health hygiene and dietary practices. The following are the results.

Table:1 Association Between Age Group and Perception of Menstruation

Response Choices	Age Group			P value
	10-11	12-13	14-15	
A disease	14	9	4	0.536 (Insignificant)
Natural biological process	11	8	5	
A symptom of illness	12	8	1	
I don’t know	18	5	5	

P value (0.536) >0.05

The above table 1 shows how adolescent girls across three age groups perceive menstruation. A large number of girls aged 10-11 years (18%) reported "I don’t know," indicating limited awareness at younger ages.Misconceptions such as menstruation being a disease or a symptom of illness were also common,especially in the younger groups.Correct understanding-viewing it as a natural biological process-was low across all age groups, with only 5 girls (5%) aged 14-15 identifying it accurately. Similar findings were observed in the study by Thakre et al. (2011), where misconceptions about menstruation were common across all age groups, and age was not significantly associated with better understanding.Likewise, Khanna et al. (2005) reported that many

girls, regardless of age, perceived menstruation as a disease or curse, with little improvement in knowledge as they grew older. These results align with the present study, where perceptions varied minimally with age and the association was statistically insignificant (p = 0.536).

Table:2 Association Between Age Group and Knowledge Regarding Menstrual Symptoms

Response Choice	Age Group			P value
	10-11	12-13	14-15	
Stomach cramps	6	4	4	0.839 (Insignificant)
Headache	6	6	3	
Nausea	9	8	2	
Fatigue	6	9	4	
I don't know	28	3	2	

P value (0.839) >0.05

The above table 2 shows the awareness of menstrual symptoms among different age groups. A high number of girls aged 10-11 years (28%) responded with "I don't know," indicating limited understanding of common menstrual symptoms in younger adolescents. Awareness of symptoms like fatigue, nausea, stomach cramps, and headache was slightly better in older groups, especially ages 12-13. Similar findings were observed in the study by Agarwal et al. (2018), where a large proportion of adolescent girls lacked awareness of common menstrual symptoms such as cramps, fatigue, and nausea, particularly among the younger age groups.

The study noted that while older girls demonstrated slightly better awareness, the difference across age groups was not statistically significant. Likewise, Thakre et al. (2011) found that many girls, irrespective of age, were unable to identify typical menstrual symptoms, with a considerable number responding with uncertainty or misinformation. These findings support the present study, where a high number of girls aged 10-11 reported "I don't know," and the association between age and symptom awareness was found to be statistically insignificant (p = 0.839).

Table:3 Association Between Age Group and Knowledge Regarding Consequences of Improper Menstrual Hygiene

Response Choice	Age Group			P value
	10-11	12-13	14-15	
Skin irritation	6	10	3	0.067 (Insignificant)
Urinary tract infection	6	3	3	
Reproductive health issues	8	7	4	
All of the above	10	1	0	
I don't know	25	9	5	

P value (0.067) > 0.05

The above table 3 highlights the awareness of possible health issues due to poor menstrual hygiene. A large number of girls aged 10-11 years (25%) responded with "I don't know," indicating low awareness in the younger group. Older girls, particularly those aged 12–13, showed slightly better awareness, especially regarding skin irritation and reproductive health issues.

Similar findings were observed in the study by Agarwal et al. (2018), where awareness of the consequences of poor menstrual hygiene-such as skin irritation, urinary tract infections, and reproductive health issues-was found to be low across all age groups, with younger adolescents particularly unaware. Although older girls showed slightly improved understanding, the difference was not statistically significant. Likewise, Anjali et al. (2021) reported that many participants were unaware of the health risks associated with poor hygiene practices, especially among the younger age group, and the study did not find a strong correlation between age and awareness. These results are consistent with the present study, where the majority of girls aged 10-11 responded "I don't know," and the association between age and awareness was statistically insignificant (p = 0.067).

Table:4 Association Between Age Group and Knowledge Regarding Diet During Menstruation

Response Choices	Age Group			P value
	10-11	12-13	14-15	
Fruits and vegetables	12	3	2	0.22 (Insignificant)
Iron rich foods	7	9	5	
Spicy foods	7	5	3	
Sweets and junk food	6	5	3	
I don't know	23	8	2	

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P value 0.22 > 0.05

The above table 4 shows dietary awareness during menstruation across age groups. A majority of girls aged 10-11 years (23%) responded with "I don't know," indicating poor dietary knowledge in the youngest group. Awareness improves slightly in older age groups, especially regarding iron-rich foods and the need to limit spicy or junk foods. Similar findings were observed in the study by Balamurugan and Bendigeri (2012), where dietary knowledge during menstruation was generally poor among adolescent girls, particularly those in the younger age group. Although older girls showed slightly better awareness of iron-rich foods and the need to avoid unhealthy items, the difference across age groups was not statistically significant. Similarly, Thakre et al. (2011) reported low awareness regarding appropriate dietary practices during menstruation, with many participants unable to identify beneficial or harmful foods. These observations align with the present study, where a high number of 10-11 year-old girls responded "I don't know," and the association between age and diet-related knowledge was statistically insignificant (p = 0.22).

Assocation Between Age Group and overall knowledge regarding menstrual health hygiene dietary practices among school going girls

Table:5 Over-All Knowledge Levels by Age Group

Level of Knowledge	Age Group			P-value
	10-11	12-13	14-15	
Low	47	22	8	0.027 (Significant)
Moderate	8	8	7	

P value (0.027) < 0.05

From the above table 5 the data show a significant association between age and menstrual knowledge (p = 0.027). Younger girls (10-11 years) had predominantly low knowledge, while older groups (12-15 years) showed gradual improvement. The trend highlights the need for early, age-appropriate menstrual health education, especially targeting the youngest age group. These findings are in line with earlier studies by Thakre et al. (2011) observed that older girls, particularly those above 13 years, showed relatively better knowledge and practices, reinforcing the impact of age-related exposure.

IV. Discussion

Menstruation is a natural physiological process marking a key transition in a girl's life. Despite its biological importance, menstruation remains a sensitive and stigmatized

subject in many parts of India, leading to poor knowledge and unhealthy practices among adolescent girls. Menstrual education, therefore, plays a vital role in improving awareness about menstrual health, hygiene, and diet, thereby empowering girls to manage menstruation safely and confidently.

The study assessed knowledge levels related to menstrual health, hygiene, and diet among school-going girls aged 10-15 years. The results offer important insights into age-wise differences in awareness and understanding.

The findings revealed widespread misconceptions about menstruation, particularly among the youngest age group (10-11 years), where 18% girls reported that they did not know what menstruation is, and several others believed it to be a disease or a symptom of illness. Correct identification of menstruation as a natural biological process was low across all age groups. The p-value of 0.536 indicates that this difference was not statistically significant, implying that poor understanding is prevalent irrespective of age.

Knowledge regarding common menstrual symptoms such as stomach cramps, fatigue, and nausea was generally low. The highest number of "I don't know" responses (28%) was again observed in the 10-11 age group. Although slight improvements were seen in older age groups, the p-value of 0.839 suggests no significant association between age and awareness of menstrual symptoms.

Girls demonstrated limited knowledge about health risks resulting from poor menstrual hygiene, including skin irritation, urinary tract infections, and reproductive health issues. While awareness was relatively better among girls aged 12-13, a substantial number of younger participants (25%) responded with "I don't know." The p-value of 0.067, although close to the 0.05 threshold, was not statistically significant, indicating no strong age-related difference in this domain either.

Nutritional awareness related to menstruation was also found to be low, particularly in the youngest group. The majority (23%) of 10–11year olds were unaware of appropriate dietary choices. Some improvement was noted in girls aged 12-13, especially in recognizing the importance of iron-rich foods. However, the p-value of 0.22 confirms that this association was not statistically significant.

In contrast to the individual domains, the cumulative analysis of overall menstrual knowledge showed a significant association with age ($p = 0.027$). Most girls in the 10–11 age group (47%) fell into the "low knowledge" category, whereas the 12-15 age groups showed a gradual shift toward moderate knowledge levels. This suggests that while individual aspects of menstrual health may not vary significantly with age, the

overall understanding improves as girls grow older, likely due to increased exposure and experience.

The study highlights a concerning gap in menstrual health awareness among school-going adolescent girls, particularly in the youngest age group (10-11 years). Across all domains-perception, symptoms, hygiene, and diet-knowledge levels were low and largely uninfluenced by age, as reflected by non-significant p-values in most tables. However, the significant result in overall knowledge indicates that menstrual understanding does increase with age, emphasizing a delayed onset of menstrual education.

V. Conclusion

These findings underscore the urgent need to introduce age-appropriate, comprehensive menstrual health education programs at the primary school level. Addressing misconceptions early and providing accurate information on hygiene, nutrition, and reproductive health will not only improve menstrual management practices but also foster a sense of dignity, confidence, and well-being among adolescent girls.

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