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Original research article

A Study of Physical Health, Menstrual Problems, and Its Awareness in Adolescent Girls Studying in Government Welfare Residential Schools in Warangal (Urban)

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Abstract

Background: Important features of female existence include menarche and menstruation. Teenage females struggle to manage menstruation, even though it is a natural physiological function. This study tried to assess the physical health profile of adolescents and different variables affecting their physical health and menstrual health and their hygiene in adolescent girls in Warangal urban studying in socio welfare residential school.

Methods: The minimum population size required was n=320 we have included n=500 subjects in the study. The selected females were explained about the protocol and the purpose of the study and were requested to complete the pre-test and a validated semi-structured questionnaire was used. The questionnaire comprised of sociodemographic characteristics, knowledge of menstruation, menstrual patterns and habits, cleanliness followed, and lastly, any limits followed during menstruation.

Results: Among study subjects n=80 (16%) members attain menarche at 11 years of age, n=195 (39%) members attained at age of 12 years, n=140(28%) members attained at 13 years, n=20 (4%) members at 14 years, n=65 (13%) members not attained yet. Among study subjects, n=25 (5%) members have dental caries (figure 2). The mean age of menarche was 13.5 ± 1.5 years. In the study subjects, n=5(1.1%) members have oligo, n=10(2.3%) members have polymenorrhea, n=15(3.4%) members have menorrhagia, n=25(5.7%) members dysmenorrhea.

Conclusion: The incidence of dysmenorrhea is increasing in the population. Although the majority of females in the study were satisfactory as far as menstrual hygiene practices are concerned. However, false perceptions, ignorance and unsafe practices during menstruation are still prevailing in a small proportion of respondents. Most of the females agreed that they wanted additional information.

Keywords: *Adolescents, Menarche, dysmenorrhea, polymenorrhea, sanitary hygiene*

Introduction

The word "adolescence" is coined from the Latin word "adolescere" which means "to grow into maturity" [1] Adolescence term is defined as including those aged between 10 and 19 years. [2] During this period physical, psychological, and social maturity takes place. Adolescence is a period of transition between childhood and adulthood and is a crucial part of one's life. [3] They are no longer children but not adults either. [4] Hence, they have different needs in terms of nutrition, psychological support, counseling, and education about reproductive and sexual health. According to the census of India in 2011, 253 million adolescents are contributing to 20.9% of the population which contributes to one-fifth of the total population. [5] The adolescent period represents a period of great turbulence [6]which is characterized by exceptionally rapid growth. This peak of growth is exceeded by growth during fetal life and early infancy. Because of the puberty spurt and rapid physical growth, the nutritional requirements are quite different i.e., demands are increased in different proportions for boys and girls. Hence it is considered a second chance for growth or catch-up growth for those children who experienced nutritional deficiencies in their early childhood. [6] Adolescent girls constitute a more vulnerable group, especially in developing countries where the girls join household activities. Also, traditionally girls are married at an early age and hence are exposed to a higher risk of reproductive morbidity and mortality. According to District Level Health Survey-4 (DLHS-4), in Telangana, Adolescents (15-19 years) having anemia total 51.0(%) 49.5 (rural%), 53.6(urban%) Adolescents (15-19 years) having severe anemia total 6.0(%), 5.5 (rural%), 6.8(urban%). [7] This shows that a substantial proportion of girls are still married at an early age. There is added burden in girls due to menstrual blood loss either normal or excess which precipitates the situation of undernutrition. [8] In such conditions, if nutritional needs are not adequately met, especially calories, iron, and proteins, then they are likely to give birth to undernourished children. [9] Thus, a vicious cycle of malnutrition continues to affect future generations as well. Menstruation is an important physiological phenomenon that occurs among girls during the adolescence period. There are several misconceptions and practices about menstruation in rural areas. [10] The use of sanitary pads and adequate cleaning of the genital area are essential during menstruation to prevent reproductive tract infections. [11] These infections have an impact on the health status and fertility of women in later life. But awareness regarding menstruation and management of hygiene during those days are lacking among adolescent girls in rural areas due to a lack of mother's education, cultural taboos, lack of availability of absorbents, and poor water and sanitation facilities. [12] These problems are considerably high in rural areas due to low economic conditions, low literacy rates, and less awareness about nutrition and diseases. [13] along with lack of health care facilities or inaccessibility to available health services. In such areas, those families with limited resources tend to neglect their children. This has a deleterious effect on their health leading to malnutrition and predisposition to other diseases. This also adds to the economic burden of the family to care for their sick children which could have been prevented if they were educated and had adequate knowledge of health and hygiene. Hence, this study is an attempt to assess the physical health profile of adolescents and different variables affecting their physical health and menstrual health, and hygiene in adolescent girls in Warangal urban studying in socio welfare residential school.

Material and Methods

This community-based cross-sectional study was conducted on adolescent girls studying in socio-welfare girls' residential schools of Warangal urban area, Telangana State. Institutional Ethical approval was obtained for the study. The included social welfare girls' residential

school permission was obtained before the start of the study. The duration of the study was 24 months from Nov 2019 to Oct 2021.

Inclusion Criteria

1. Adolescents girls 10-17 years of age
2. Residing in the social welfare girls' residential schools of Warangal Urban

Exclusion Criteria

1. Girls less than 10 years and more than 17 years.
2. Intellectual challenged girls.

Sample size calculation

$n=4pq/d^2$

Where n = sample size, p = prevalence taken as

P = 50, q =50, d=5

n= 4*50*50/25 = 320

The minimum population size required was n=320 we have included n=500 subjects in the study. The selected females were explained about the protocol and the purpose of the study and were requested to complete the pre-test and a validated semi-structured questionnaire was used. The questionnaire comprised of sociodemographic characteristics, knowledge of menstruation, menstrual patterns and habits, cleanliness followed, and lastly, any limits followed during menstruation. Before the interview, a verbal informed agreement was received from the parent or guardian of the adolescent girl. All the respondents were assured that the information collected would be confidential throughout the study. At the end of the interview, the girls were educated about the facts of menstruation and explained about cleanliness during menses. In addition, all their related queries were answered satisfactorily.

Statistical analysis: The data were analyzed using SPSS for Windows version 19 (SPSS Inc., Chicago, IL). Descriptive statistics were used to determine mean and percentages wherever applicable. The categorical data were analyzed using Chi-square or Fisher's exact test the p-value of <0.05 was considered significant.

Results

In the present study out of n=500 participants majority were 15 years (26%) followed by 14 years (20%), 12 years (13%), 17 years (11%), 13 years (10%), 16 years (9%), 10 years and 11 years (5%), 18 years (1%) respectively. The details have been depicted in table 1. Based on the religious findings out of a total of n=500 cases n=415(83.0%) were Hindus, n=60(12.0%) were Muslims, and n=25(5.0%) were Christians.

Table 1: Distribution of Study Subjects according to the age

Age (Years)	*Frequency*	*Percent*
10	25	5.0
11	25	5.0
12	65	13.0
13	50	10.0
14	100	20.0
15	130	26.0
16	45	9.0
17	55	11.0
18	5	1.0

In the present study, the majority of participants were 9th class 130 (26%) members, followed by 10th class-105 members (21%) and 6th class 105(21%) members, 7th class 70 (14%) members, 8th class 50 (10%) members, 5th class 40(8%) members respectively depicted in figure 1.

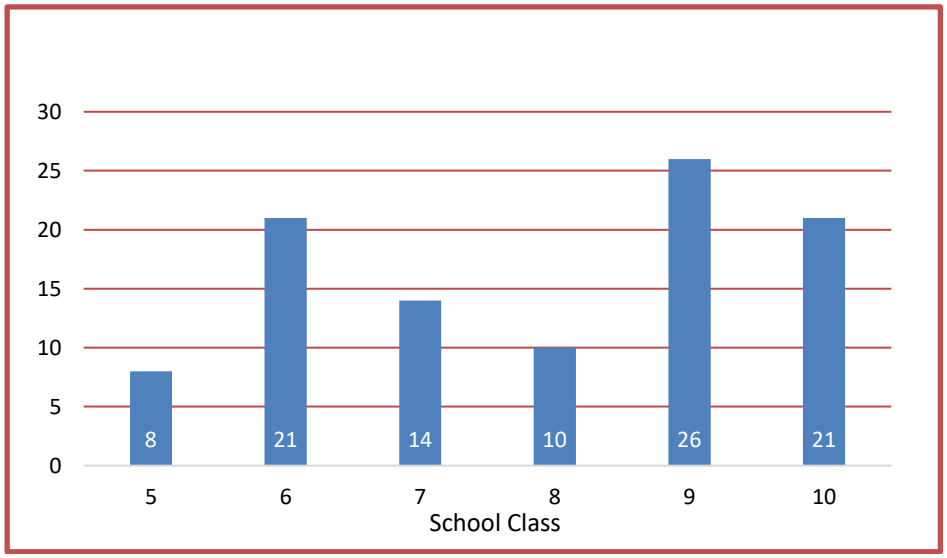

Figure 1: Showing the distribution of subjects based on the school grade

Among n=500 Girls n=453(90.6%) belongs to the nuclear family, n=18(3.6%) belong to the joint family, and n=29 (5.8%) belong to a 3-generation family. Among the study subjects 5(1%) members belong to the upper-middle class, 120(24%) members belong to a lower middle class, 305(61%) members belong to the upper-lower; 70(14%) members belong to the lower class given in table 2.

Table 2: Distribution of study subjects according to the socio-economic class

Socio-economic class	*Frequency*	*Percent*
Upper Middle	5	1.0
Lower Middle	120	24.0
Upper Lower	305	61.0
Lower	70	14.0

Among the study subjects based on the BMI calculations n=155(31%) members belong to Underweight, n=300(60%) belong to normal weight, and n=45(9%) members belong to Overweight. Among study subjects n=405(81%) members don't have Pallor, n=90 (18%) members have some pallor, and n=5 (1%) members have severe pallor.

Table 3: General examination of subjects in the study

Examination	**Frequency**	**Percent**
Ophthalmic Examination		
Refractive Errors	25	5.0
Squint	5	1.0
ENT Examination		
Tonsillitis	15	3.0
DNS	5	1.0

Sinusitis	5	1.0
None	475	95.0
Dermatological Examination		
Acne	25	5.0
Vitiligo	5	1.0
Tinea	5	1.0
None	465	93.0
Dental Examination		
Yes	25	5.0
No	475	95.0

A General Examination of the study subjects found that n=25(5%) members have refractory errors, and n=5 (1%) members have a squint. Among study subjects n=15 (3%) members have Tonsillitis, n=5(1%) members have DNS, and n=5(1%) members have Sinusitis. Among study subjects n=25(5%) members Acne, n=5(1%) members have Vitiligo, n= 5(1%) members Tinea given in table 3.

Among study subjects n=80 (16%) members attain menarche at 11 years of age, n=195 (39%) members attained at age of 12 years, n=140(28%) members attained at 13 years, n=20 (4%) members at 14 years, n=65 (13%) members not attained yet. Among study subjects, n=25 (5%) members have dental caries (figure 2). The mean age of menarche was 13.5 ± 1.5 years.

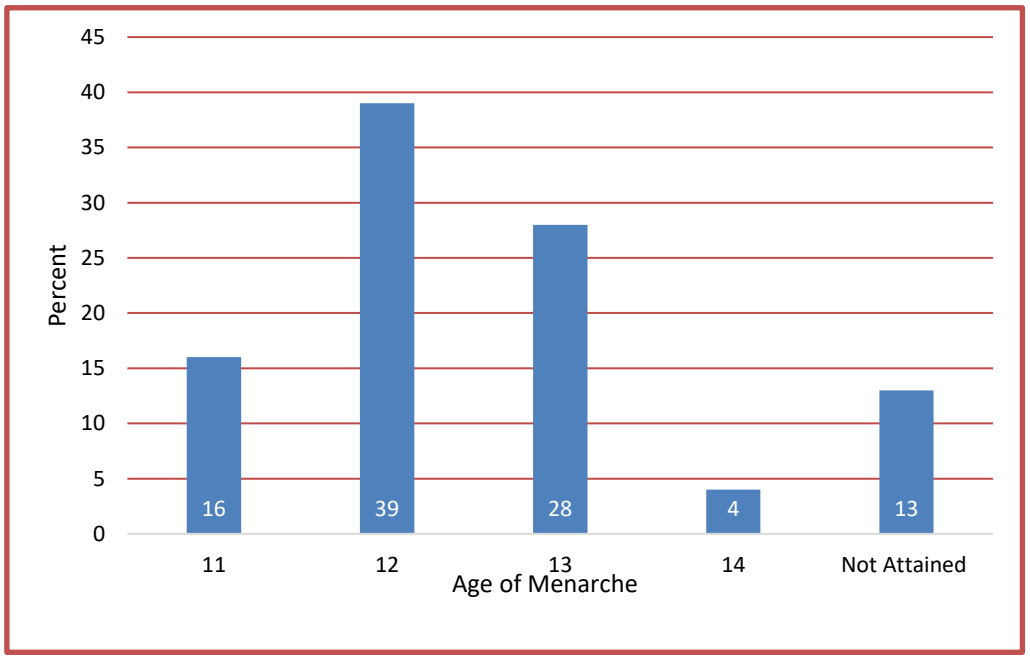

Figure 2: Age distribution of the cases at menarche

Among study subjects n=295(59%) members the source of information about menarche and menstrual issues were from mother, n=140(28%) members from a friend, n=35 (7%) members relative, n=10(2%) members from media, n=20 (4%) members from others. Among study subjects n=415(95.4%) members used pads, n=15 (3.4%) members new cloth, n= 5(1.1%) members old cloth (table 4).

Table 4: Distribution of study subjects according to the material used

Material Used	Frequency	Percent
Pads	415	95.4
New Cloth	15	3.4
Old Cloth	5	1.1

In the study subjects n=260(59.8%) members change pads twice a day, n=165(37.9%) members thrice a day and n=10 (2.3%) members four times a day. Among study subjects n=400(93%) members dispose of pads by dustbin, n=30(7%) members by open disposal. Among study subjects n=15(75%) members dispose of cloth, and n=5(25%) members reuse cloth.

Table 5: Distribution of study subjects according to the menstrual problems

Menstrual Problems	Frequency	Percent
None	380	87.4
Oligo	5	1.1
Poly	10	2.3
Menorrhagia	15	3.4
Dysmenorrhea	25	5.7

In the study subjects, n=5(1.1%) members have oligo, n=10(2.3%) members have polymenorrhea, n=15(3.4%) members have menorrhagia, n=25(5.7%) members dysmenorrhea (table 5). Among study subjects, n=30 (6.9%) members clean their genitalia with soap, n=380 (87.4%) members with water and soap.

In the study, it was found that younger aged females 11-13 years exclusively used sanitary pads whereas older females 15 -17 tend to use new cloth and old cloth. The association between age and material used is significant (P-value <0.001). The association of age with the frequency of changing of pads revealed younger females tend to change pads less frequently (2-3 times) as compared to older females 16-17 years changed up to four times. The p values were <0.01 hence considered significant. Among the study subjects association between age and menstrual problems is significant (p-value <0.001) table 6. In the study subjects association between age and cleaning of genitalia showed younger females preferred soap and water for cleaning whereas the older females used water more often and other substances for cleaning significant (p-value <0.001).

Table 6: Association between Age and Menstrual Problems

Age (Years)	***None***	***Oligo menorrhea***	***Poly menorrhea***	***Menorrhagia***	***Dysmenorrhea***
11					5 (100.0)
12	50 (90.9)				5 (9.1)
13	30 (75.0)			5 (12.5)	5 (12.5)
14	95 (95.0)		5 (5.0)		
15	120 (92.3)			5 (3.8)	5 (3.8)
16	35 (77.8)		5 (11.1)	5 (11.1)	
17	45 (81.8)	5 (9.1)			5 (9.1)
18	5 (100.0)				
Chi-Square Test, P-Value <0.001, Significant					

Discussion

Adolescents comprise nearly one-fifth (22%) of India's total population. The country also has the world's largest adolescent girl population (20%). [14] Many women have menstruation and menstrual health difficulties throughout their reproductive lives beginning in adolescence, which is one of the key areas of concern in reproductive health. In the present study, a total of n=500 adolescent girls participated from different Government social welfare Residential schools in the Warangal Urban area. In this study, we found the mean age of menarche was 13.5 ± 1.5 years which is similar to the observations done by other studies on females across India. [15, 16] Menarche age is the most widely used indicator of sexual maturation and is influenced by many variables including genetic and environmental factors, family size, body mass index, SES, and educational attainment. [17, 18]

The menarcheal age, which is a marker of a woman's reproductive qualities, is strongly influenced by her body composition as shown by female anthropometry. [19] Breast cancer, obesity, endometrial cancer, and uterine leiomyomas are all linked to an earlier menarcheal age. [20, 21] Furthermore, several studies have suggested that the age of menarche may be related to reproductive outcomes in the future, including age at first sexual activity, age at first pregnancy, and risk of a second miscarriage. [22] The incidence of menstrual problems found in this study included oligomenorrhea in 1% of cases, polymenorrhea in 2% of cases, Menorrhagia in 3% of cases, and dysmenorrhea in 5% of cases (Table 6). L Varghese et al., [23] in a similar study found irregular menstruation (24%), polymenorrhea (12.6%), scanty menstruation (6.3%), and menorrhagia (4%). Dysmenorrhea was experienced by 78.9% of the adolescent girls and 84% of the study subjects had one or more premenstrual symptoms. According to several additional research, the incidence among women and teenage girls might range from 25% to 90%. [24] Although individuals in the early adolescent era had a greater percentage of dysmenorrhea, the difference was not statistically significant. More than three-quarters of the individuals reported mild to severe discomfort, yet most of them had dysmenorrhea throughout their periods. However, nearly 30% of them reported severe pain. In this study, 61% of the total females belonged to the upper lower class based on the socioeconomic status followed by lower-class 24%, lower-class 14%, and upper-middle 1%. In a similar study by D Kalita et al., [25] most of the females were from the upper-middle-class 50.5% followed by the lower middle 22% and upper-lower 10%, and lower 5.55% Upper class were 12%. In our study, we found that younger aged females 11-13 years exclusively used sanitary pads whereas older females 15 -17 tend to use new cloth and old cloth. The association between age and material used is significant (P-value <0.001). El-Gilany et al., [26] on menstrual hygiene among n=664 adolescent girls in Egypt, showed that 62% were using sanitary pads during menstruation and only 0.9% were using only cloths during menstruation. The association of age with the frequency of changing of pads revealed younger females tend to change pads less frequently (2-3 times) as compared to older females 16-17 years changed up to four times. Older females were practicing good menstrual practice with a greater number of females changing the absorbents more than two times a day. In the study subjects association between age and cleaning of genitalia showed younger females preferred soap and water for cleaning whereas the older females used water more often and other substances for cleaning significantly. The source of information about menarche and menstrual issues were from mothers, n=140(28%) members from a friend, n=35 (7%) members relative, n=10(2%) members from media, and n=20 (4%) members from others. Most of the study participants in the current study agreed that they needed more information about menstrual issues.

Conclusion

The present study found that dysmenorrhea is a common problem faced by adolescent females. The incidence of dysmenorrhea is increasing in the population. Although the majority of females in the study were satisfactory as far as menstrual hygiene practices are concerned. However, false perceptions, ignorance and unsafe practices during menstruation are still prevailing in a small proportion of respondents. Most of the females agreed that they wanted additional information. Therefore, a comprehensive school education program on menarche and menstrual problems could lead to a better understanding of the subject by young females and seek medical assistance when required.

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