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MENSTRUAL PROBLEMS AMONG ADOLESCENT GIRLS (10-19YEARS) IN THE PRIMARY CARE SETTING

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ABSTRACT **Background:** Menstrual problems are common among adolescent girls which can affect their daily routine and quality of life. Early detection and intervention for the menstrual problems can improve future reproductive health**. Aims:** To find the prevalence and type of menstrual disorders, premenstrual syndrome and premenstrual dysphoric disorder among adolescents in the primary care setting. **Materials and methods:** This was a community based cross sectional survey done covering the whole of Thiruvananthapuram district, Kerala..Anganwadis were the primary data collecting units, selected by systematic random sampling. Data was collected using pretested structured questionnaire and validated premenstrual symptoms screening tool. Mean, standard deviation and simple percentage were used. Chi square test was used for finding associations and significance level. P value <0.05 was taken as significant. **Results:** The most common reported problems during menstruation were dysmenorrhoea (73.6%), moderate to severe premenstrual syndrome (13.5%), oligomenorrhoea (12.5%), menorrhagia (8.4%) and premenstrual dysphoric disorder (6.2%).The prevalence of menstrual problems increased as the age increased **Conclusions:** Majority of adolescents suffer from one or other menstrual problem which can affect their academic and social life. It can also affect their future reproductive health. So school health programs should give emphasis on adolescent menstrual health for a healthy future generation**.**

KEYWORDS : dysmenorrhoea, oligomenorrhoea, menorrhagia, premenstrual syndrome, premenstrual dysphoric disorder

INTRODUCTION

Normal menstrual cycle is an important determinant of a woman's reproductive health and endocrine function. The mean age of menarche is between 12-13 years (WHO,1986). Normal menstruation occurs every 28±7 days, flow lasting for 2-7 days with mean blood loss of 30 ml (Flug D et al.,1984). The prevalence of adolescent menstrual problems has been recorded as high as 87% (Adams Hillard.,2002). Due to prevailing social stigma and lack of knowledge, most of the young girls silently suffer without seeking health care.

Dysmenorrhoea and other related problems during menstruation might adversely affect their academic performance and other life activities. Polycystic ovary syndrome (PCOS), a common endocrine disorder in females with long term consequences starts during adolescence as irregular periods. Therefore clinicians can use menstrual cycle as a vital sign in adolescents for the assessment of reproductive health and to detect menstrual problems early enough to minimize their possible consequences (ACOG.,2006).

Existing studies are mostly based on the self-reported symptoms and may not be showing correct prevalence, due to reluctance of adolescents to seek help. The present community study therefore aims to determine the age at menarche, prevalence and type of menstrual disorders, Pre Menstrual Syndrome (PMS) and premenstrual dysphoric disorder (PMDD) among adolescent girls and explore their variation across different age groups. This would highlight the need for intervention programmes which can attract and serve young clients for improving their reproductive health.

SUBJECTS AND METHODS

This was a community based cross-sectional study conducted in the whole of Thiruvanathapuram district, Kerala, giving adequate representation to rural, urban, coastal, slum and tribal areas. Anganwadi centres were the primary data collecting units. Sample size was calculated as 2720 using the formula $4PQ/d^2$ taking prevalence as 7.33% (lowest prevalent menstrual problem - PMDD 7.33% in a study by Swami M et al.,2017) and precision as one.[5]To get this sample, eighty anganwadis were selected from the total list of anganwadis in Thiruvananthapuram district by systematic random sampling design. One day orientation programme was conducted for the Anganwadi Workers (AWW) from the selected areas. They were briefed about the program and asked to mobilize all unmarried adolescent girls in the age group of 10-19 years, who had attained menarche accompanied by their mothers to the anganwadi centre. Appointments for conducting awareness programme and medical camp were given for all AWWs as per their convenience. To ensure maximum participation, medical camps were conducted on holidays.

A team comprising of female gynaecologist and female social scientist attended all camps and an open discussion followed by health education was given to the adolescents regarding menstrual cycle, menstrual disorders and myths and misconceptions related to it. Rapport was established with the girls and their mothers. Then the respondents were interviewed individually in local language ensuring privacy. A pre-tested, structured questionnaire developed for this purpose was used to collect data from adolescent girls. This was done after getting informed consent from the participant or the parent depending on the age of the girl. The questionnaire contained personal data, socio-demographic data, menstrual history, details of menstrual problems and a validated premenstrual symptom screening tool. The adolescent girls who were found to have any problem was given consultation of the gynaecologist and those who needed more services were referred to medical college. The data collected was analysed using SPSS version 25.0. Descriptive statistics were applied and Chi-square test was used for understanding associations and significance level. P value less than 0.05 was considered statistically significant.

In this study the term dysmenorrhoea was defined as painful abdominal cramps associated with menstruation. Oligomenorrhoea was diagnosed when the menstrual cycle was longer than 45days and secondary amenorrhoea when there was no periods for more than six months in girls who were already menstruating (Carmina E etal.,2010). Pre-menstrual syndrome (PMS) refers to recurrent variable cluster of troublesome physical and emotional symptoms that develop 7-14 days before the onset of menstruation and subsides when menstruation occurs. PMDD is a severe form of PMS with physical and psychological symptoms. In this study we used the validated Premenstrual Symptoms Screening Tool (PSST) which included fourteen symptoms, their severity and their interference with work and family (A to E) (Steiner M et al.,2011).

A diagnosis of moderate to severe PMS was made if at least one of the first four symptoms; (I) anger/irritability, (ii) anxiety/tension, (iii) tearful/increased sensitivity to rejection and (iv) depressed mood or hopelessness) is moderate to severe, in addition at least four of 1-14 symptoms are moderate to severe, at least one of A, B, C, D, E is moderate to severe. Diagnosis of PMDD was made if at least one of the first four symptoms are severe, in addition at least four of 1-14 are moderate to severe , at least one of A,B,C,D,E is severe (Steiner M et al ,2011).

RESULTS

In our study, a total of 2793 adolescent girls in the age group of 10-19years who had attained menarche and were willing to participate in the study were included. Among them 661 girls (23.66%) were in 10-13 years age group, 1351 (48.37%) in 14-16 years age group and 781 (27.9%) in 17-19 years age group. As per modified Kuppuswamy score, 56.5% belonged to upper lower class, 33.7% to lower middle, 9.1% to upper middle, 0.4% to upper and 0.3% to lower socioeconomic class. In this study, the mean age of menarche was 12.48 (SD 1.23).

Table 1 Menstrual Problems Among Adolescent Girls

Age	10-13years N=661	14-16 years N=1351	17-19years N=781	Total N=2793	P-value
Menstrual cycle					
<21 days	17(2.6%)	22(1.6%)	17(2.2%)	56(2.0%)	0.363
21-35 days	542(82%)	1115(82.5%)	627(80.3%)	2284(81.8%)	
36-45 days	24(3.6%)	48(3.6%)	31(4%)	103(3.7%)	
46-60 days	33(5.0%)	81(6.0%)	48(6.1%)	162(5.8%)	
>60 days	33(5.0%)	71(5.3%)	53(6.8%)	157(5.6%)	
>6 months **(sec.amenorrhoea)**	12(1.8%)	14(1%)	5(0.6%)	31(1.1%)	
Oligomenorrhoea (>45 days)	*78 (11.8%)*	*166 (12.3%)*	*106(13.5%)*	*350 (12.5%)*	
Duration of menstrual flow					
<3 days	39(5.9%)	50(3.7%)	37(4.7%)	126(4.5%)	0.011
3-7 days	575(87%)	1239(91.7%)	703(90%)	2517(90.1%)	
>7days **(menorrhagia)**	47(7.1%)	62(4.6%)	39(5%)	148(5.3%)	
Amount of menstrual flow					
Normal	597(90.3%)	1227(90.8%)	696(89.1%)	2520(90.2%)	0.322
Scanty	19(2.9%)	27(2%)	23(2.9%)	69(2.5%)	
Excess **(menorrhagia)**	38(5.7%)	81(6%)	58(7.4%)	177(6.3%)	
Excess with clots **(menorrhagia)**	7(1.1%)	16(1.2%)	4(0.5%)	27(1.0%)	
Dysmenorrhea	413(62.4%)	986 (72.9%)	657(84.1%)	2056(73.6%)	
Mild	214(32.4%)	432(32%)	248(31.8%)	894(32.0%)	<0.0
Moderate	104(15.7%)	243(18%)	143(18.3%)	490(17.5%)	01
Severe	95(14.4%)	311(23%)	266(34.1%)	672(24.1%)	
Nil	248(37.5%)	365(27%)	124(15.9%)	737(26.4%)	
Type of dysmenorrhea					
Spasmodic	387(58.5%)	903(66.8%)	598(76.6%)	1888(67.6%)	<0.0
Congestive	25(3.8%)	77(5.7%)	53(6.8%)	155(5.5%)	01
Membranous	1(0.2%)	6(0.4%)	6(0.8%)	13(0.5%)	
Nil	248(37.5%)	365(27.0%)	124(15.9%)	737(26.4%)	
Premenstrual syndrome					
Mod to sev PMS*	64(9.7%)	165(12.2%)	148(19%)	377(13.5%)	<0.0
PMDD†	25(3.8%)	86(6.4%)	63(8.1%)	174(6.2%)	01
Nil	597(90.3%)	1186(87.8%)	633(81%)	2416(86.5%)	

PMS-Premenstrual syndrome, †PMDD- premenstrual dysphoric disorder

Table 1 shows that 81.8% of the girls had a normal menstrual cycle length of 21-35 days. The remaining 18.2% had abnormal cycle length, of which 12.5% had oligomenorrhoea of which 1.1% had secondary amenorrhoea. No significant association was found between age and the menstrual cycle in this study (p value 0.363).Regarding the duration 90.1% had normal 3-7 days menstrual flow, 5.3% had flow for more than 7 days, out of which majority were in 10-13 years age group (7.1%). Significant association was observed between age and the duration of blood flow (p value - 0.011). It was also observed that 90.2% girls had normal amount of flow, 7.3% had excess bleeding and 2.5% had scanty flow. There was no significant association observed between age and the amount of menstrual blood flow (p value – 0.322).

The most common problem associated with menstruation was dysmenorrhoea (73.6%), 32% girls experiencing mild dysmenorrhoea, 17.5% moderate dysmenorrhoea and 24.1% girls had severe dysmenorrhoea. There was significant association observed between age and severity of dysmenorrhoea (p value <0.001).Whereas 67.6% of girls had spasmodic type dysmenorrhea, 5.5% had congestive type.

Table 2. Item Wise Distribution Of Premenstrual Symptoms Screening Tool

N=2793

PSST items	Not at all	Mild	Moderate	Severe	Prevalence of PSST symptoms
1.Anger/ irritability	1906 (68.2%)	670 (24%)	118 (4.2%)	99 (3.5%)	887 (31.7%)
2.Anxiety/tension	2340 (83.8%)	373 (13.4%)	56(2.0%)	24 (0.8%)	453 (16.2%)
3.Tearful/increased sensitivity to rejection	2444 (87.5%)	237 (8.5%)	65(2.3%)	47 (1.6%)	349 (12.5%)
4.Depressed mood/ hopelessness	2338 (83.7%)	344(12.3%)	73(2.6%)	38 (1.4%)	455 (16.2%)
5.Decreased interest in work activities	2055 (73.6%)	668(23.9%)	33(1.2%)	37 (1.3%)	738 (26.4%)
6.Decreased interest in home activities	2086(74.6%)	658(23.6%)	22(0.8%)	27(0.9%)	707 (25.3%)
7.Decreased interest in social activities	2301(82.3%)	457(16.4%)	16(0.6%)	19(0.6%)	492 (17.6%)
8.Difficulty in concentrating	2104(75.3%)	620(22.2%)	33(1.2%)	36(1.3%)	689 (24.7%)
9.Fatigue/lack of energy	1464 (52.4%)	1098 (39.3%)	114 (4.1%)	117 (4.2%)	1329 (47.6%)
10.Overeating/food craving/less eating	1788 (64.0%)	683 (24.5%)	159 (5.7%)	163 (5.8%)	1005 (36.0%)
11.Insomnia	2453 (87.8%)	290 (10.4%)	25(0.9%)	25 (0.9%)	340 (12.2%)
12.Hypersomnia (needing more sleep)	2408 (86.2%)	300 (10.7%)	42(1.5%)	43 (1.5%)	385 (13.7%)
13.Feeling over whelmed or out of control	2729 (97.7%)	52 (1.9%)	6(0.2%)	6(0.2%)	64(2.3%)
14.Physical symptoms(breast tenderness, headache, joint or muscle pain, bloating, weight gain, abdomen pain, back pain, etc.	721 (25.8%)	1346 (48.2%)	260 (9.3%)	466 (16.7%)	2072 (74.2%)
A. Symptom interfere work efficiency	1816 (65.0%)	660 (23.6%)	148 (5.3%)	169 (6.1%)	977 (34.98%)

B. Symptom interfere relationship with co-workers	2702 (96.7 %)	61 (2.2%)	12(0.4%)	18 (0.6%)	91(3.2%)
C. Symptom interfere relation with family	2691 (96.3 %)	80 (2.9%)	13(0.5%)	9 (0.3%)	102(3.7%)
D. Symptom interfere social activities	2339 (83.7 %)	398 (14.2%)	39(1.4%)	17(0.6 %)	454 (16.3%)
E. Symptom interfere home responsibilities	1734 (62.1 %)	865 (31%)	172 (6.2%)	22 (0.8%)	1059 (37.9%)

Table 2 shows item wise distribution of symptoms according to Premenstrual Symptoms Screening Tool. According to the criteria for the diagnosis of PMS and PMDD using the premenstrual symptoms screening tool (PSST), 2416 girls (86.5%) had no PMS/PMDD. Moderate to severe premenstrual syndrome was diagnosed in 377girls (13.5%) of which 174 girls (6.2%) satisfied the PMDD criteria. There was significant association observed between age and premenstrual syndrome (p value < 0.001). Majority of the girls (74.2%) experienced premenstrual (i) physical symptoms like breast tenderness, headaches, joint/muscle pain, bloating, weight gain, abdomen pain, back pain, etc. of which in 16.7% cases physical symptoms were severe and (ii) other symptoms like fatigue (47.6%), anger (31.7%), decreased interest in home (25.3%), work (26.4%) and social activities (17.6%), thereby affecting work, family and social life.

DISCUSSION

Menstruation is a normal physiological phenomenon for females indicating her capability of procreation. Adolescent girls constitute a vulnerable group for menstrual problems particularly and hence the importance of this study. The observation in this study that the mean age of menarche was 12.48 is consistent with the results of Rigon F et al (2012) where 4892 subjects were analysed and found that the mean age of menarche was 12.4(±1.3) years. Almost similar results were reported from the study by Nair MKC et al(2012) among higher secondary school girls in Thiruvananthapuram district where the mean age of menarche was 13 years. Another study by Sheetu MK et al (2014) found in their study that the mean age of menarche was 13.43± 1.01 years which was higher compared to our study.

In our study 18.2% of the girls had abnormal cycle length of which 12.5% had oligomenorrhoea (cycle length more than 45 days) or secondary amenorrhoea. Similar results were found by Nair MKC et al (2012) where 11.3 % girls had oligomenorrhoea. Rigon F et al (2012) found that 81 % of girls at 14 years of age had cycle length of 21-35 days, which was consistent with our study. They also found that only 3.4% had cycles more than 35 days which was much less compared to 16.2% in our study. In a study by Dambhare DG et al (2012), 69.52% girls were having cycle length of 21-35 days, 8.38% had cycles shorter than 21 days and 22.1% had cycles longer than 35 days. Sheetu MK et al (2014) also found in their study that 78.7% girls had normal cycles of 21-35 days, 13.6% had 36-45 days cycle, 4.9% had less than 21 days cycle and 3% had more than 45 days cycle.

Regarding the duration of menstrual flow, in our study, 90.1% had 3-7 days menstrual flow which was normal and 5.3% had bleeding for more than 7 days, out of which majority were in 10-13 years age group (7.1%). In a study by Verma PB et al (2011) 68.4% had 3-5 days bleeding, 23.7% had 5- 7 days bleeding which together constituted 92.1% for 3-7 days flow which was similar to our study. Dambhare DG et al (2012)found that the mean duration of blood flow in their study was 4 days. In the study by Rigon F et al (2012), short bleeding periods (<4 days) were reported in 3.2% of the sample population and long periods (>6 days) in 19%, but in our study only 5.3% of the girls reported having bleeding for more than 7 days.

The most common problem associated with menstruation in our study was dysmenorrhoea (73.6%), which is similar to the 72.4% reported by Nair MKC et al (2012), but higher than 67.2% by Sheetu MK et al (2014) and 53.6% by Meenal V Kulkarni and Durge PM (2011), who also found that prevalence was higher in girls more than 14 years which is comparable to our study findings.

The prevalence of 13.5% moderate to severe PMS and 6.2% PMDD in our study was comparable to the finding by Swami N et al(2017) of 14% and 7.33% respectively.[5] But the result was much less as compared to 29.6% severe PMS and PMDD reported by Steiner M et al (2011) and 51.5% PMS reported by Sheetu MK et al (2014). However, Kamat SV et al (2012) had reported a more conservatory figure of 17.3% PMS and 4.7% PMDD with 95.0% girls having at least one PMS symptom, 68.8% at least one moderate to severe PMS symptom, 49.9% one or more physical symptoms and 89.8% more than one PMS symptom. In 37.9% of girls in our study these symptoms interfered with home responsibilities, in 34.8% girls these symptoms interfered with work efficiency which was comparable to the finding by Kamat SV et al(2012). Among the premenstrual symptoms, 74.2% girls in our study experienced physical symptoms, in 16.7% girls these symptoms were severe. 47.6% of the adolescent girls had fatigue associated with menstruation. The main emotional symptoms reported were overeating or less eating(36%), anger (31.7%), decreased interest in work(26.4%), decreased interest in home activities (25.3%), difficulty in concentrating (24.7%), decreased interest in social activities (17.6%), anxiety(16.2%), depression(16.2%), hypersomnia (13.7%) and insomnia (12.2%).

CONCLUSION

The mean age of menarche in our study was 12.48 with a Standard deviation of 1.23. Among the menstrual problems, dysmenorrhoea was the most common problem among adolescents (73.6%) and the severity gradually increased with age. 12.5% girls had cycle length more than 45 days and prolonged bleeding was found in 5.3% girls. Moderate to severe PMS was seen in 13.5% girls and PMDD in 6.2% girls.

The findings suggest that health and educational authorities need to recognize the problem and provide appropriate, tangible and emotional support for female students with menstrual disorders at schools especially for those who suffer from PMDD. In addition, there is need to strengthen school-based reproductive health education programmes to enable female students to deal with these disturbing problems. Clinicians need to identify and treat menstrual abnormalities as early as possible in order to minimize their possible consequences.

We recommend that adolescents should be encouraged to chart their menstrual cycles prospectively from menarche onwards to take responsibility of their own reproductive health and detect any menstrual problem at the earliest. The American College of Obstetricians and Gynaecologists (Committee opinion,2016) recommend preventive health visits from adolescence onwards to maintain reproductive health. School health education programmes on menstrual problems involving adolescent girls and their mothers and routine screening for menstrual problems by health care providers can prevent future reproductive morbidity to a great extent.

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