

Original research article

A cross-sectional Study on Menstrual Problems among the Adolescence Girls in Warangal City, Telangana.

Dr. C. Sravana Deepthi¹, Dr. Dasari. Gayathry², Dr. Chittooru Chandra Sekhar³, *Dr. Pulluri Sadanandam^{4*} Dr. K. Bhavani⁵

Assistant Professor, Department of Community Medicine, Apollo Institute of Medical Sciences and Research, Chittoor, Andhra Pradesh, India.

Assistant Professor, Department of Community Medicine, Government Medical College, Siddipet, Telangana, India.

Assistant Professor, Department of Community Medicine, Apollo Institute of Medical Sciences and Research, Chittoor, Andhra Pradesh, India

Assistant Professor, Department of Community Medicine, Government Medical College, Siddipet, Telangana, India.

Professor, Department of Community Medicine, Osmania Medical College, Hyderabad, Telangana, India.

Corresponding Author: Dr. Pulluri Sadanandam

E-mail: dr.anandpulluri@gmail.com

Abstract

Introduction: Adolescent girls constitute a more vulnerable group, especially in the developing countries where they are traditionally married at an early age and are exposed to greater risk of reproductive morbidity and mortality. Menstruation is a phenomenon unique to all females and associated with various mental as well as physical morbidities like premenstrual syndrome. Hence the objective of present study is to assess the status of menstrual problems among adolescence girls of Warangal city.

Methods: A cross-sectional study was conducted during conducted during October 2014 to September 2015 among the all adolescent Girls of age between 10 to 19 years of age present in the study area. A semi-structured questionnaire was used for the collection of data by personal interviews method to 261 adolescent girls in study area.

Results: It has been observed that most of the study subjects (95.8%) had some or other symptoms during menstruation. The most common symptoms during menstruation were abdominal pain (76.6%), generalized weakness (39.5%), headache (27.2%) and other symptoms (50.2%) like irritability, back pain etc.10. It was found that around 73.6% subjects had dysmenorrhoea out of which only 45.4% were taking some form of treatment. About 78.2% of the subjects have experienced pre -menstrual symptoms. The most common pre -menstrual symptom was back pain (55.2%) and absenteeism was reported in 57.5% subjects due to these problems.

Conclusion: The Present study has found high prevalence of pre-menstrual as well as menstrual problems among adolescent girls. Hence health education should be imparted covering important menstrual problems among adolescents including advice regarding source of treatment and referral. At the same time, there should be regular visits by a female medical officer for specific advice on the management of menstrual problems including dysmenorrhoea.

Keywords: Adolescence girls, Menstruation, Menstrual problems, Pre-menstrual problems

Introduction

Adolescent is a critical period where females are preparing and adjusting themselves to manage their menstrual bleeding in safe and clean way.¹The adolescent girls constitute a more vulnerable group, especially in the developing countries where they are traditionally married at an early age and are exposed to greater risk of reproductive morbidity and mortality. In general, adolescent girls are the worst sufferers of the ravages of various forms of malnutrition because of their increased nutritional needs.² Adolescence among girls has been recognized as a special period in their life that requires specific and special attention. This period is marked with onset of menarche. Menstruation is a phenomenon unique to all females which represents the attainment of reproductive capacity by girl.³

Adolescence does not have access health services in the same manner as adults. The topic like 'menstruation' will be rarely discussed by the adolescent girls with their family due to embarrassment, shy, fear of disease and ignorance about the available services. Menstruation process is associated with various mental as well as physical morbidities like premenstrual syndrome. Menstruation can also predispose women to life threatening RTI (Reproductive Tract Infection) if hygiene is not maintained throughout menstruation. After menarche, the main problems faced by these adolescents are irregular menstruation, excessive bleeding and dysmenorrhea. Of these, dysmenorrhoea is one of the most common problems experienced by most of the adolescents. Though the correct incidence and prevalence rate of dysmenorrhoea is not clearly known, various studies in India showed that the prevalence rate around 33% to 79.67%⁴ due to dysmenorrhoeal disruption of social life and the qualities of life such as sickness absenteeism (28-48%), loss of physical activity, academic dissatisfaction, personal relationships, confidence and concentration are seen.⁵ A considerable portion of adolescents are undergoing some kind of cognitive and behavioural problems related to their menstruation called Pre-menstrual Syndrome (PMS), like breast tenderness, headache, mood swings, changes in bowel habits, irritability, aggressiveness, depression, anxiety etc.⁶

Menstruation integrates countless myths and mysteries with restriction to social and cultural practices. Various studies have shown that these deep rooted traditions and misbelieves creates a negative implication an adolescent's health particularly their menstrual hygiene. The adolescent may have poor understanding at what constitutes a normal menstruation; some may perceive normal menstruation as scanty menses while others with excessive menstrual flow may view it as normal which will result in anaemia eventually. Adolescent anemia is a long standing public health problem in India and is seen in more than 5 crore adolescents (15-19years). In girls, deficiency of iron is further aggravated with higher demands with the onset of menstruation and also due to the problem of adolescent pregnancy and conception.⁵

Prolonged menstrual bleeding can result in poor menstrual hygiene and many young girls may not be able to attend the classes because of pain during menstruation.⁷ Many may not be able to afford costly sanitary pads to take care of the 4 extra days. They may resort to use of toilet paper, cotton and old clothes or rugs resulting in poor menstrual hygiene and increased risk of infection.⁸ Girls who engage in strenuous physical activity are often amenorrhoeic and have recently been reported to be at a reduced risk of breast cancer.⁹ Recreation physical activity has been recommended as a method of reducing Pre-menstrual Syndrome occurrence and severity. Previous studies have indicated that 75% of women of reproductive age group suffer from menstrual problems like irregular cycles, premenstrual symptoms and dysmenorrhea.¹⁰ The prevalence of menstrual disorders has been recorded as high as 87 % in India.¹¹ According to WHO, the main health problems in adolescents are due to lack of education and information

on diet, exercise, healthy practices, stress and poor physical surroundings, sexuality and sexual activity.

Menstrual or reproductive tract problems neglected (untreated) in the adolescent period will have effect in the adulthood leading to infertility. Menstrual health problems are more common in (late) adolescent period but they are the most neglected group in the society as this age is considered to be the active and healthy. Adolescent group have lack of knowledge of menstrual problems whether normal or abnormal and where to go and whom to consult. In the light of the above observations, this present study is planned to be conducted among adolescent girls in Urban Warangal, as there are a few studies in this region regarding menstrual health problems and menstrual hygiene among adolescent girls. This study is expected to provide valuable information about the status of menstrual problems among the adolescent girls.

Methods

A cross-sectional analytical study was conducted during October 2014 to September 2015 among the all adolescent Girls of age between 10 to 19 years of age present in the study area, who had menarche for at least one year back were recruited for the study residing in the Warangal city. The sample size for this cross-sectional study was calculated to be 267 by using the formula $4pq / L^2$, considering the prevalence of assumed prevalence of a minimum of 60% problems during menstruation including dysmenorrhoea among adolescent girls as revealed in studies in Kadapa, Andhra Pradesh (65%)¹² and Maharashtra (67.2%)¹³, with allowable error (L) of 10%. The number of adolescent girls who attained menarche at least for 1 year and given consent to participate in the study, present in the study area was 261 was included in the study. The study protocol was approved by the Institutional Ethical Committee of Kakatiya Medical College, Warangal. The details of study were informed in detail and oral informed consent was obtained from all the parents of adolescent girls participating in the study.

The investigator had approached the Anganwadi centres present in the areas of Rangampet, Peddammagadda and Thummalakunta and collected the list of 30. Adolescent Girls present in the area from the list of Kishori Shakti Yogana. Accordingly, the number was 340. A pilot study was done initially, necessary corrections were made and the questionnaire was modified. A questionnaire specifically developed for the study purposes was employed for assessing the menstrual problems, treatment and pre-menstrual problems among the adolescent girls. The nature, purpose and objective of the study were explained beforehand to get maximum cooperation and informed consent was taken. The doubts of the participants regarding menstrual, reproductive and sexual health were clarified. Advice regarding necessary investigations and referral for treatment was given to those who required it. The data obtained through questionnaire was consolidated, analyzed and interpreted as per the requirement of objectives, using specific statistical tools like, percentage, mean, chi square analysis etc. The p – value of less than 0.05 was considered as statistically significant. MS excel and SPSS 16 version software was used for data analysis.

Results

In the present study, the table 1 shows the base-characteristics of the respondents. Majority 135(51.8%) out of 261 belongs to 14- 16 age group, 24.1% belongs to 11-13 years age group. The mean age of the study participants was 14.97 years. Majority 214(82%) of the study participants were Hindus. Followed by Muslims (11.5%) and Christians (6.5%).It was found that majority of the study participants belonged to nuclear families (85.4%) followed by joint and extended families (7.3%) equally. In the study, 73.2% of the study population resided in Pucca houses, followed by semi-Pucca (23.4%).

Table 1: Base line characteristics of respondents

Variables		Number	Percentage
Age	11-13	63	24.1%
	14-16	135	51.8%
	17-19	63	24.1%
Religion	Hindu	214	82%
	Muslim	30	11.5%
	Christian	17	6.5%
Type of family	Nuclear	223	85.4%
	Joint	19	7.3%
	Extended	19	7.3%
Type of housing	Pucca	191	73.2%
	Katcha	9	3.4%
	Semi-Pucca	61	23.4%
Total		261	100%

The table 2 shows distribution of respondents in relation to diet and physical activity. It was found that most of the respondents (78.9%) were having mixed diet (both vegetarian & non-vegetarian), while 21.1% of the subjects were vegetarians. 49.8% of the subjects were doing physical activity out of which walking was the commonest form followed by sports & games (32.3%), yoga was done only by 9.2% of the girls. Further, it was found that majority of the subjects were doing physical activity for half an hour to one hour (84.7%)

Table 2: Distribution of Diet and physical activity among respondents

Variables		Number	Percentage
Diet	Mixed	206	78.9%
	Vegetarian	55	21.1%
Physical activity	Yes	130	49.8%
	No	131	50.2%
Total		261	100%
Type of physical activity (n= 130) (multiple responses)	Walking	118	90.7%
	Sports & games	42	32.3%
	Yoga	12	9.2%
Duration of physical activity (n =130)	Less than half an hour	14	10.7%
	Half to one hour	110	84.7%
	More than one hour	6	4.6%

Table 3 represents distribution of respondents in relation to menstrual and pre-menstrual symptoms. Most of the study subjects (95.8%) had some or other symptoms during menstruation. The most common symptoms during menstruation were abdominal pain (73.6%), generalized weakness (39.5%), headache (27.2%) and other symptoms (20.3%) like irritability, back pain etc. In the present study, 78.2% of the subjects have experienced pre -menstrual symptoms. The most common pre -menstrual symptom was back pain (55.2%) followed by muscular tension/ fatigue (24.1%) and change of appetite (13.8%).

Table 3: Distribution of respondents in relation to menstrual & pre- menstrual symptoms

Variables		Number	Percentage
Menstrual symptoms	Yes	250	95.8%
	No	11	4.2%
Total		261	100%
Symptoms (Multiple responses)	Abdominal pain	192	73.6%
	Giddiness	24	9.2%
	Nausea & vomiting	21	8.0%
	Generalized weakness	103	39.5%
	White discharge	31	11.9%
	Fever	38	14.6%
	Headache	71	27.2%
Others	53	20.3%	
Pre-menstrual symptoms	Yes	204	78.2%
	No	57	21.8%
Total		261	100%
Symptoms (Multiple responses)	Backache/ Joint pain	144	55.2%
	Muscular tension/ Fatigue	63	24.1%
	Breast heaviness	6	2.3%
	Change of appetite	36	13.8%
	Poor concentration	47	18%

Table 4 depicts the distribution of dysmenorrhoea and treatment taken. It was found that around 73.6% subjects had dysmenorrhoea. The most common form of treatment was found to be home remedies (36.4%). About 38.6% of the subjects were not using any kind of treatment for dysmenorrhoea

Table 4: Distribution of Dysmenorrhoea and treatment given

Variables		Number	Percentage
Dysmenorrhoea	Yes	192	73.6%
	No	69	26.4%
Total		261	100%
Treatment taken (n=192)	Medication	48	25%
	Home remedies	70	36.4%
	Nil	74	38.6%

It was found from the table 5, in majority of respondents (89.3%) absenteeism was found to be for one day only. The most common reason for absenteeism was found to be lower abdominal pain (87.3%).

Table 5: Absenteeism and Reasons for Absenteeism among respondents

Variables		Number	Percentage
Absenteeism	Yes	150	57.5%
	No	111	42.5%
Total		261	100%
No. of days of Absenteeism	1 day	134	89.3%
	2-4 days	14	9.4%
	> 4 days	2	1.3%
Reasons for Absenteeism	Lower abdominal pain	131	87.3%
	Irregular cycles	6	4%
	Restriction imposed by elders	9	6%
	Fear of leaking	4	2.7%

Table 6 reveals the interval of cycles with age of respondents. Among the age group 11 – 13 yrs, 19% of the subjects were having Polymenorrhoea and 15.9% were having Oligomenorrhoea. In the age group of 17 –19 yrs, 4.8% were having Polymenorrhoea and 30.2% were having Oligomenorrhoea and the difference was found to be statistically significant.

Table 6: Interval of cycles with age of respondents

Age of Subjects in years	Interval of cycles				Total (%)
	<21 days (%) (Polymenorrhoea)	21-28 days (%) Normal	29-35 days (%) Normal	> 35 days (%) (Oligomenorrhoea)	
11-13	12(19%)	9(14.3%)	32(50.8%)	10(15.9%)	63 (100%)
14-16	8(5.9%)	14(10.4%)	88(65.2%)	25(18.5%)	135(100%)
17-19	3(4.8%)	5(7.9%)	36(57.1%)	19(30.2%)	63(100%)

$$X^2 = 16.48, p = 0.01, df = 6$$

Table 7 reflects the significance of association between menstrual and pre-menstrual symptoms and demographic, dietary, personal characteristics of the respondents. The overall prevalence of dysmenorrhoea was 73.6% while, it was almost seen equally in the age groups 11 – 13 years (79.4%) and 14 – 16 years (79.3%). In the age group of 17 – 19 years only 55.6% of the girls had dysmenorrhoea and the difference was found to be statistically significant. Dysmenorrhoea was almost equally seen in girls with age at menarche between 11 - 13 years (71.7%) and 14 – 16 years (79.3%). Dysmenorrhoea was almost seen equally in all the girls who had family history of dysmenorrhoea (77.1%), who did not have (71.2%) and who didn't know (73.6%) the history of dysmenorrhoea in their families. Dysmenorrhoea was seen almost the same in both the girls in whom absenteeism was present (75.8%) and not present (70.4%). In the girls with absenteeism for 1 day, 78.4% had dysmenorrhoea and in the girls with absenteeism for 2 - 4 days, 63.2% had dysmenorrhoea. Among the study subjects, dysmenorrhoea is seen in 86.7% of the girls who used new cloth, 79.3% of who used old washed cloth and 72.1% of the girls who used sanitary napkin and the difference was found to be statistically significant. The proportion of subjects with pre -menstrual symptoms was found to be common in 11-13 years age group (84.1%) and 14-16 years age group (81.5%) compared to 17-19 years age and the difference was statistically significant. The proportion of premenstrual problems were more in girls with absenteeism (85%) than with the girls without absenteeism (68.5%) and the difference was statistically significant. The proportion of subjects with pre -menstrual symptoms was found to be more common with mixed diet (81.6%) than with vegetarian diet

(65.5%) and the difference was found to be statistically significant ($P=0.0010$; S). The proportion of pre-menstrual symptoms was more in girls without physical activity (87.0%) than in girls with physical activity (69.2%) and the difference was found to be statistically significant.

Table 7: Association of Menstrual symptoms (dysmenorrhea) & pre-menstrual symptoms with demographic, dietary and personal characteristics of respondents

Menstrual symptoms (Dysmenorrhea)					
Variables		Present	Absent	Total	Chi-square
Age	11-13 years	50 (79.4%)	13(20.6%)	63(100%)	$X^2 = 13.84$ ($P= 0.001$, $df=2$)
	14-16 years	107 (79.3%)	28 (20.7%)	135(100%)	
	17-19 years	35 (55.6%)	28 (44.4%)	63(100%)	
Family history of dysmenorrhea	Present	74 (77.1%)	22(22.9%)	96(100%)	$X^2 = 0.988$ ($P= 0.610$, $df=2$)
	Absent	79(71.2%)	32(28.8%)	111(100%)	
	Don't know	39 (73.6%)	15(27.8%)	54(100%)	
Absenteeism	Yes	116(75.8%)	37(24.2%)	153(100%)	$X^2 = 0.996$ ($P= 0.32$, $df=1$)
	No	76(70.4%)	32(29.6%)	108(100%)	
Days of Absenteeism	1 day	105(78.4%)	29 (21.6%)	134(100%)	$X^2 = 1.102$ ($P= 0.29$, $df=1$) (2-4 days & > 4 days are combined)
	2-4 days	12(63.2%)	7 (36.8%)	19(100%)	
	> 4 days	3 (100%)	0 (0%)	3(100%)	
Type of Absorbent	Sanitary Napkin	137(72.1%)	53 (27.9%)	190(100%)	$X^2 = 14.756$ ($P= 0.002$, $df=3$)
	New cloth	39(86.7%)	6 (13.3%)	45(100%)	
	Old Washed cloth	23(79.3%)	6 (20.7%)	29 (100%)	
	Sanitary napkin + New cloth	6 (37.5%)	10 (62.5%)	16(100%)	
Total		192(73.6%)	69(26.4%)	261(100%)	
Pre-menstrual symptoms					
Age in years	11-13 years	53 (84.1%)	10 (15.9%)	63 (100%)	$X^2 = 8.502$ ($P= 0.014$, $df=2$)
	14-16 years	110 (81.5%)	25 (18.5%)	135(100%)	
	17-19 years	41 (65.1%)	22(34.9%)	63(100%)	
Absenteeism	Present	130 (85%)	23(15%)	153(100%)	$X^2 = 3.667$ ($P= 0.002$, $df=1$)
	Absent	74 (68.5%)	34 (31.5%)	108(100%)	
Diet	Mixed	168(81.6%)	18(18.4%)	206(100%)	$X^2 = 6.591$ ($P= 0.010$, $df=1$)
	Vegetarian	36(65.5%)	19(34.5%)	55(100%)	
Physical activity	Present	90 (69.2%)	40(30.8%)	130(100%)	$X^2 = 12.101$ ($P< 0.001$, $df=1$)
	Absent	114(87.0%)	17(13.0%)	131(100%)	
Total		204(78.2%)	57(21.8%)	261(100%)	

Discussion

In the present study, majority of the subjects were aged 15 years (25.7%) followed by 14 years (16.5%). 51.8% girls belonged to the age group 14 – 16 years. It was found that 82% were Hindu by religion and 11% were Muslims. A multi centric study by Dinesh P, Shantha GK in India reported that 68% of the adolescent girls were in the age group of 15-19 years, followed by girls' aged 10-14 years (32%).¹⁴ Similarly, a study by Sheetu MK et al on 268 unmarried adolescent girls who had attained menarche, in the age group of 10 to 19 years residing in an urban slum area of Government medical college, Miraj found that majority (67.2%) of them were in the age group of 15 to 19 years followed by 10 to 14 (32.8%) years.¹³ In a study by Khanna A on 199 adolescent girls in a rural area of Karnataka, majority of the respondents were in the age group 17 to 19 years of age. 94% of the girls interviewed were Hindus and 6% were Muslims.¹⁵ A study by Rani PS from Tirupati reported that 84% are Hindus, 14.5% are Muslims and 11.5% were Christians by religion.¹⁶ In the present study, majority of the subjects belonged to nuclear families (85.5%). Almost similar results were found in, two studies by Rani PS and Sushmita KM et al and done among adolescent girls in Nellore city and in Tirupati Andhra Pradesh; it was observed that 65.5% and 78.97% belonged to nuclear families respectively.^{16, 17} In the present study, most the study participants (73.2%) resided in pucca houses. 23.4% resided in semi-pucca houses. Only a few (3.4%) resided in Katcha houses. It was found that the subjects were taking mixed diet in their food habits (78.9%) in majority of cases. In the present study, it was found that around 49.8% subjects were doing physical exercise out of which walking was the commonest form followed by sports & games (32.3%), yoga was done only by 9.2% of the girls. Further, it was found that majority of the subjects were doing physical activity for half an hour to one hour (84.7%).

In the present study, the most common symptoms during menstruation among the subjects were found to be abdominal pain (73.6%) followed by generalized weakness (39.5%), headache (27.2%), giddiness (9.2%), nausea and vomiting (8.0%) and other symptoms (irritability, back pain, heaviness in breasts etc.) in 50.2%. A study by Agarwal AK, Agarwal K Gwalior study reported that the symptoms experienced on the day of start of menstruation were lethargy and tiredness (57.4%), nervousness and depression (48% each), inability to concentrate on work (44.4%), feeling of heaviness in lower abdomen (37.1%), loss of appetite (35.8%), irritability (32.9%), anorexia (2.4%), headache (28.1%) and sleeplessness (26.2%).¹⁸ A study by Kumbhar SK et al in Kadapa district reported that dysmenorrhic girls were experiencing disgust (81.5%), irritability (70.8%), emotional instability (44.5%), loss of interest in regular work (61.3%), disturbed sleep (55.5%) and reduced appetite (52.1%) during menstrual period, these experiences are significantly less in non dysmenorrhic girls. Dysmenorrhoea is associated with symptoms such as headache, vomiting and diarrhea (18.5%, 12.6% and 8.4%) respectively.¹²

In relation to pre-menstrual symptoms in the present study, those were seen in 78.2% of the respondents. The commonest premenstrual symptoms in the respondents were found to be back pain/joint pain (55.2%), followed by muscular tension/fatigue (24.1%), poor concentration (18%) change of appetite (13.8%) and breast heaviness (2.3%). Similarly, in a study by Reddy PJ from Tirupati, 86.2 % of study subjects reported problems before menstruation like calf muscle pain (29%).¹⁹ A study by Patil SN et al in Ratnagiri district reported that more than half of the study subjects had one or the other symptoms of premenstrual syndrome (PMS), namely; irregular menses (16.9%), irritation (21.7%), abdominal bloating (20.3%), malaise (9.5%), headache (14.2%), chest pain (8.2%), constipation (11.3%), tightness in chest (10.6%). and white discharge (38.3 %).²⁰ In a study by Agarwal AK, Agarwal K in Gwalior reported that subjects experienced before menstruation lethargy and tiredness (33.2%), irritability (30.9%),

inability to concentrate on work 29.5%, feeling of heaviness in 19.8%, lower abdomen 26.5%, nervousness 22.9%, depression 21.7%, anorexia 19.8%, loss of appetite 18.8%, sleeplessness 18.2%, and headache 17.2%.¹⁸ In another study by Brahmabhatt S et al it was found that all the participants suffered with PMS, among them 42% were found to be suffering regularly and 58% occasionally, The most common symptoms they suffered with were backache(68%), leg cramps (64%), fatigue (62%), breast tenderness (62%), anger (62%), anxiety (58%) and generalized body aches (58%).²¹

A study done by Sheetu MK et al in Miraj, Maharashtra reported that premenstrual syndrome in 51.5% of the subjects, common symptoms were headache (50%), depression (47.8%), tension (36.9%), abdominal cramps (35.5%) irritability (33.3%) and moodiness (30.4%).¹³ Studies by Nair P et al in East Delhi²² and by Khanna A et al in Bijapur reported premenstrual symptoms in two thirds of the respondents, 67% and 93.2% study subjects respectively.¹⁵ The variation of premenstrual symptoms may be due to subjective nature or perception of the symptoms.

Regarding dysmenorrhoea and its management among respondents, it was found that around 73.6% subjects had dysmenorrhoea out of which 61.4% were taking some form of treatment. The most common treatment was found to be home remedies (36.4%) followed by medication (25%). Poor health care seeking behavior of adolescents was evident from this study. A study by Kumbhar SK et al in Kadapa district Andhra Pradesh on 14 to 19 years old adolescent girls in urban and rural areas observed that overall 65% were dysmenorrheic, 68.4% and 61.2% in the urban and rural areas respectively and in subjects with family history of dysmenorrhea, 74.1% adolescent girls were dysmenorrheic. 73.1% of rural girls rely on self-help technique only 26.9% of rural girls are using medication.¹² In studies by Anandha Lakshmi SPM from Kancheepuram, Tamil Nadu & a comparative cross sectional study by Avasarala AK, and a community based study by Sharma A et al from Delhi the prevalence of dysmenorrhoea was 51%, 54%, and 61% respectively.^{23,24,25} A study by Sharma A et al from Delhi reported that 33% of the subjects had dysmenorrhea and that 60% of the study subjects opted for allopathic treatment for their menstrual problems.²⁵ A study by Kavitha VRS in Coimbatore reported that 45.83% of the adolescents had painful menstruation for which only 9.02%, 6.94% are under treatments like allopathy and ayurveda respectively. While the others take rest, eat fenugreek, oil massage or press lower abdomen, take hot bath, sleep, whereas 54.16% of them do not experience the pain.²⁶

A study by Sheetu MK et al in Miraj, Maharashtra reported that 67.2% of adolescent girls had dysmenorrhea as the most common symptom and 31.2% had some consultation of which 45.2% consulted doctors and 35.5% consulted their mothers.¹³ Similar results were seen in, a study by Christina John in Chengaroor of Pathanamthitta district reported that 70.1% of the study subjects had various menstrual problems of which dysmenorrhoea (88.8%) were the major ones. Only a very few (1.9%) students were using painkillers. Only one student discussed her problem with a doctor. Others were taking painkillers from local pharmacists. All of them discussed their problems with parents.²⁷ In a study by Cakir M et al Tripura it was found that of the total 200 respondents between the ages 10 to 19 years, 59.5% had dysmenorrhoea, 37% respondents in the study population used herbs/home remedies, while analgesics/non-steroidal anti-inflammatory drugs/ antispasmodics were used by 8%. Only 7% of the respondents consulted a government physician and only 1% of the respondents consulted a private doctor, 4% sought help from traditional healer. Only five (2.5%) respondents with dysmenorrhoea had not taken any medication.²⁸ In a study done by Patil SN et al in Ratnagiri district, it was found that dysmenorrhoea (44.2%) was the commonest problem faced by adolescent girls.²⁰

Barriers relating to availability, accessibility and acceptability of services influence the health care seeking behavior of adolescents. Treatment seeking behavior will help in planning interventions for this vulnerable group. Emphasis should be given to make them aware about the importance of seeking of health care by breaking the silence.

In the present study, it was found that absenteeism due to any form of menstrual problems before or during menstruation including dysmenorrhoea was reported by 57.5% subjects and in majority of cases, the absenteeism was found to be one day only (89.3%). The most common reason for absenteeism was lower abdominal pain (87.3%) followed by restriction imposed by elders (6%), irregular cycles (4%) and fear of leaking (2.7%). A study conducted by Christia John in Pathanamthitta reported that school absenteeism related to dysmenorrhoea and PMS was found to be for one day in majority of students (62.5%) while 35.4% and 2.1% were absent for 2-3 days and more than 3 days respectively.²⁷ Similarly, Studies by Kumbhar SK et al in Kadapa district¹³ and by Reddy PJ et al in Tirupati reported that 47.9%, and 73.7% of the adolescent girls respectively were not in favor of attending the school during menstruation.¹⁹ In context of prevalence of problems during menstruation by age, the study revealed that among the age group 11 – 13 yrs, 19% of the subjects were having polymenorrhoea and 5.9% were having oligomenorrhoea. In the age group of 17 – 19 yrs, 4.8% were having polymenorrhoea and 30.2% were having oligomenorrhoea and the difference was found to be statistically significant ($P=0.01$). The overall prevalence of dysmenorrhoea was 73.6% while, it was almost seen equally in the age groups 11 – 13 years (79.4%) and 14 – 16 years (79.3%). In the age group of 17 – 19 years only 55.6% of the girls had dysmenorrhoea and the difference was found to be statistically significant. But, a study by Christina John in Chengaroor of Pathanamthitta reported that the percentage of dysmenorrhoea increases as age advances and it was commonly seen among 14 years age group.²⁷

It was found in the present study, that dysmenorrhoea was almost equally seen in girls with age at menarche between 11 - 13 years (71.7%) and 14 – 16 years (79.3%). Dysmenorrhoea was almost seen equally in all the girls who had family history of dysmenorrhoea (77.1%), who did not have (71.2%) and who didn't know (73.6%) the history of dysmenorrhoea in their families. Dysmenorrhoea was seen almost the same in both the girls in whom absenteeism was present (75.8%) and not present (70.4%). In the girls with absenteeism for 1 day, 78.4% had dysmenorrhoea and in the girls with absenteeism for 2 – 4 days, 63.2% had dysmenorrhoea. Among the study subjects, dysmenorrhoea is seen in 86.7% of the girls who used new cloth, 79.3% of who used old washed cloth and 72.1% of the girls who used sanitary napkin and the difference was found to be statistically significant. In a study done by Andersch B, Milsom I, in Morocco, menstrual pain was often cited as the single main cause of school absenteeism among adolescent girls.²⁹ In a study done by M ALSP, Saraswathi I et al, at Kanchipuram showed the prevalence of dysmenorrhoea as 51% and that was strongly associated with school absenteeism.³⁰

The present study showed that the proportion of subjects with pre -menstrual symptoms was found to be common in 11 – 13 years age group (84.1%) and 14 – 16 years age group (81.5%) compared to 17 – 19 years age and the difference was statistically significant. The proportion of premenstrual problems were more in girls with absenteeism (85%) than with the girls without absenteeism (68.5%) and the difference was statistically significant. In a study on 50 young and 50 middle aged women of S.B.K.S Medical Institute and Research Centre by Brahmabatt S et al it was found that irrespective of the age PMS is a common problem faced by women. Acne (54%) and food cravings (38%) were significantly more in young women, while mood swings (48%) were more significant with middle age. Although premenstrual

symptoms are described in women from menarche to menopause, it is unclear whether symptoms would remain stable or increase in severity with age. The characteristics of menstrual cycle, age, cognitive attributions, socio-economic variables, number of children and life style variables have not been identified as influencing factors for PMS.²¹ In a study by Christina John in Chengaroor in Pathanamthitta, out of 338 students who attained menarche, 45.8% had one or more symptoms of PMS. Headache (42.5%) and irritability (40%) was the commonest PMS noticed in this study population. School absenteeism related to dysmenorrhoea and PMS (23%) were reported to miss 2-3 days of class.²⁷ In the present study, the proportion of subjects with pre-menstrual symptoms was found to be more common with mixed diet (81.6%) than with vegetarian diet (65.5%) and the difference was found to be statistically significant ($P=0.0010$; S). The proportion of pre-menstrual symptoms was more in girls without physical activity (87.0%) than in girls with physical activity (69.2%) and the difference was found to be statistically significant. As per Monika Bansal Review article aerobic exercises, stress management, psychological intervention including cognitive behavioral relaxation therapy, dietary changes like restriction of sodium and caffeine intake maintaining a daily symptom record, complementary approaches like acupuncture were effective in reducing PMS which indicates that PMS is related to food habits, physical activity etc.³¹

A study by Rupa Vani K et al in Pondicherry reported that premenstrual symptoms were significantly more common among girls who were overweight, in girls who were eating junk food regularly (60.37%), who are eating less food (dieting - 30%) in order to lose weight. Consumption of junk food results in consuming excess of energy, protein and fat but inadequate micronutrients like iron and beta-carotene.³² A study by Steege JF, Blumenthal JA on the effect of aerobic exercises on premenstrual symptoms on middle aged women concluded that after 3 months of aerobic exercises improvement in premenstrual symptoms especially premenstrual depression.³³ A randomized trial on the role of exercise in the treatment of menstrual problems, has assessed the effects of two exercise intervention (strength training versus aerobic exercise) found that PMS scores were significantly improved at follow up.³³ A study by Rupa Vani K et al in Pondicherry reported that premenstrual symptoms were significantly high in those girls who were not doing regular physical activity.³²

Conclusion and Recommendations

The Present study has found high prevalence of pre-menstrual as well as menstrual problems among adolescents. It was found that around 73.6% subjects had dysmenorrhoea out of which only 45.4% were taking some form of treatment. The most common form of treatment was found to be home remedies (26.8%). In the present study, 78.2% of the subjects have experienced pre-menstrual symptoms. The most common pre-menstrual symptom was back pain (55.2%) and it was found that absenteeism was reported in 57.5% subjects. The overall prevalence of dysmenorrhoea was 73.6% while, it was almost seen equally in the age groups 11 – 13 years (79.4%) and 14 – 16 years (79.3%). In the age group of 17 – 19 years only 55.6% of the girls had dysmenorrhoea and the difference was found to be statistically significant. The proportion of premenstrual problems were more in girls with absenteeism (85%) than with the girls without absenteeism (68.5%) and the difference was statistically significant. The proportion of subjects with pre-menstrual symptoms was found to be more common with mixed diet (81.6%) than with vegetarian diet (65.5%) and the difference was found to be statistically significant ($P=0.0010$; S). The proportion of pre-menstrual symptoms was more in girls with physical activity (83.1%) than in girls without physical activity (73.3%). Hence health education should be imparted covering important menstrual problems among adolescents including advice regarding source of treatment and referral. At the same time, there should be

regular visits by a female medical officer for specific advice on the management of menstrual problems including dysmenorrhoea. Ongoing services like Adolescent Reproductive and Sexual Health (ARSH) clinics can be strengthened at health centers and counseling procedures at schools, so as to impart knowledge and raise awareness regarding reproductive and sexual health. PMS can be restructured by education about the nature of the disorder, dietary modifications, performing exercise and reducing stress.

References

1. T Ayele E, Berhan Y. Age at menarche among in-school adolescents in Sawla town, South Ethiopia. *Ethiop J Health Sci.* 2013; 23(3):189–200.)
1. 2. Choudhary S, Mishra CP, Shukla KP. Correlates of nutritional status of adolescent girls in the rural areas of Varanasi. *The Internet Journal of Nutrition and Wellness (Internet)* 2009 (cited 2014 Feb 25); 7(2).
2. American College of Obstetrics and Gynecology: premenstrual syndrome. *ACOG practice bulletin.* Washington DC: 2000:15.
3. Sharma P, Malhotra C, Taneja DK SR. Problems related to menstruation amongst adolescent girls. *Indian J Pediatr.* 2008; Feb; 75 (2):125-9.
4. A strategic Approach to Reproductive, Maternal, Newborn Child and Adolescent Health (RMNCH+A) in India. Ministry Of Health & Family Welfare, Government of India; 2013.
5. Andrea J. Rapkin SAW. Premenstrual Syndrome and Premenstrual Dysphoric Disorder: Quality of Life. *Expert Rev Pharmacoeconomics Outcomes Res [internet].* 2009 [cited 2014 Nov 4]; 9(2):157-70.
6. Zukov I, Pta R, Raboch J, Domluvilova D, and Kuzelova H. Premenstrual Dysphoric Disorder - review of actual findings about mental disorders related to menstrual cycle and possibilities of their therapy. 2010; 111(1):12-24
7. Chandraratne NK, Gunawardene NS. Premenstrual syndrome: the experience from a sample of Sri Lankan adolescents. *J Pediatr Adolesc Gynecol [Internet].* 2011 Oct [cited 2014 Nov 4]; 24(5):304-10. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21872774>
8. Bernstein L, Ross R, Lobo R, Hanish R, Krailo M, Henderson B. The efforts of moderate physical activity on menstrual cycle patterns in adolescence: Implications for breast cancer prevention. *Br J Cancer [Internet].* 1987 Jun; 55(6):681-5.
9. Dawood MY. Primary dysmenorrhea: Advances in Pathogenesis and management. *Obstet Gynecol* 2006; 108: 428-41.
10. Verma PB, Pandya CM, Ramanuj VA, Singh MP. Menstrual pattern of adolescent school girls of Bhavnagar, Gujarat. *NJIRM* 2011; 2(1):38-40.
11. Kumbhar SK, Reddy M, Sujana B, Roja RK, Divya BK, Balkrishna C. Prevalence of dysmenorrhea among adolescent girls (14-19 yrs) of Kadapa District and its impact on quality of life: a cross sectional study. *Nati J Community Medicine* 2011; 2(3):265-8.
12. Sheetu M K, Jaikhani, Naik J D, Thakur M S, Langre S D, Pandey O. Patterns and problems of menstruation amongst the adolescent girls residing in the urban slum. *Sch J App Med Sci* 2014; 2(2A):529-34.
13. Dinesh P, Shantha GK. Knowledge and practices of adolescent girls regarding reproductive health with special emphasis on hygiene during menstruation. *National Institute of Public Cooperation and Child Development.* 2006; 172-3.
14. Khanna A, Goyal RS, Bhawsar R. Menstrual practices and reproductive problems: a study of adolescent girls in Rajasthan. *J Health Manag* 2005; 7(1):91-107.
15. Rani PS. Knowledge and practices of menstrual hygiene among married adolescents and young women in Chittoor District of Andhra Pradesh, India. *IOSR Journal of Nursing and Health Sciences* 2014; 3(2):6-15.

16. Susmitha KM, Jyothi C, Prabakaran J. Morbidity pattern among the adolescent girls: A study in the social welfare hostels for scheduled castes, Nellore city, A.P., India. *Nat J Res Corn Med* 2012; 1(1):35-40.
17. Anil. K. Agarwal and Anju Agarwal. A study of dysmenorrhea during menstruation in adolescent girls. *Indian J Community Med.* 2010 Jan; 35(1): 159–164.
18. Reddy PJ, Usha Rani D, Reddy GB, Reddy K. Reproductive health constraints of adolescent school girls. *Indian J Soc Work* 2005; 66(4).
19. Patil SN, Wasnik V, Wadke ft Health problems amongst adolescent girls in the rural areas of Ratnagiri District of Maharashtra, India. *J Clin Diag. nost Res* 2009; 3:1784-90.
20. Brahmhbhatt S, Sattigeri BM, Shah H, Kumar A, Parikh D. A prospective survey study on premenstrual syndrome in young and middle aged women with an emphasis on its management. *Int J Res Med Sci.* 2013; 1(2):69-72.
21. Nair P, Grover VL, Kannan AT, Awareness and practices of menstruation and pubertal changes amongst unmarried female adolescents in a rural area of East Delhi. *Indian J Community Med* 2007; 32:156-7.
22. Anandha Lakshmi SPM, Saraswathi I, Saravanan A, Ramamchandran C. Prevalence of premenstrual syndrome and dysmenorrhoea among female medical students and its association with college absenteeism. *Int J Biol Med Res* 2011; 2(4):1011 -6.
23. Avasarala AK PS. Dysmenorrhea in different settings: are the rural and urban adolescent girls perceiving and managing the dysmenorrhoea problem differently? *Indian J Community Med.* 2008; Oct; 33(4):246-9.
24. Sharma A, Taneja DK, Sharma P SR. Problems related to menstruation and their effect on daily routine of students of a medical college in Delhi, India. 2008; 20(3):234-41. *Asia Pac J Public Health.*
25. Kavitha VRS. Reproductive health and hygiene among adolescents. *Language in India* 2012; 12(2):293-301.
26. Christina John. A Study of Menstrual Problems in Adolescent Girls [Internet]. 2007 [cited 2014 Feb 26]:7-10. Available from: URL: [www.imakmj.com / articles / original.pdf](http://www.imakmj.com/articles/original.pdf).
27. Cakir M, Mungan I, KarakasT, Girisken I, Okten A. Menstrual pattern and common menstrual disorders among university students in Turkey. *Pediatrics International* 2007; 49(6):938-942.
28. Andersch B, Milsom I. an epidemiologic study of young women with dysmenorrhoea. *Am J Obstet Gynecol* [internet]. 1982 Nov 15 [cited 2014 Nov 4]; 144(6):655-60. Available from: <http://www.ncbi.nih.gov/pubmed/7137249>
29. M ALSP, Saraswathi I, Saravanan A, Ramachandran C. prevalence of Premenstrual syndrome and Dysmenorrhoea among female medical students and its association with college absenteeism. 2011; 2(4):1011-6
30. Monika Bansal, Manoj Goyal, Shallesh Yadav, Wender Singh. Premenstrual syndrome - a monthly menace. *Indian Journal of Clinical Practice* 2012; 22(10):491-4.
31. Rupa Vani K, Veena KS, Subitha L, Hemanth Kumar VR, Bupathy A. Menstrual abnormalities in school going girls—are they related to dietary and exercise pattern? *J Clin Diag Res* 2013; 1-4.
32. Steege JF, Blumenthal JA. The effects of aerobic exercise on premenstrual symptoms in middle-aged women: a preliminary study. *J Psychosomatic Res* 1993; 37(2):127-33.