

Correlates of the menstrual problems among rural college students of Satara district

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Abstract: *Background:* Menstruation, an important part of female reproductive cycle but menstrual dysfunction in adolescent girls may affect normal life of adolescent and young adult women. *Objectives:* To study the frequency of common menstrual problems and to determine the association between patterns of menstrual cycles with common menstrual problems, nutritional and economic status of rural college girls. *Methodology:* Cross Sectional study was conducted among college girls of rural area of Satara district, western Maharashtra, India during month of Jan- February 2011. 107, age between 17-20 years from educational course of first year B.A. & B.COM. Data was collected by personal interview method and clinical examination of respondents with the help of pretested structured proforma, Weighing machine, Height measuring scale, Haemoglobin assessment strips. *Results:* Out of 107 girls, 79 girls (73.8%) had regular menstrual cycles whereas 28 (26.1%) had irregular menstruation cycles with mean age at menarche 14.1 yrs. 40(37.3%) girls had normal (average) menstrual bleeding whereas scanty and heavy bleeding was seen in 61(57%) and 6(5.6%) girls. Duration of menstrual bleeding for 1-2 days was seen in 75(70%) girls whereas >5 days in 7(6.5%) girls. Dysmenorrhoea observed in 24(22.4%) girls, Anemia seen in 62(57.9%) girls, Under nutrition in 52(48.5%) girls, Obesity in 7(6.5%) while 42(39.2%) girls belonged to lower socioeconomic class. Significant statistical association existed between type of menstrual cycle and anemia, nutritional status, amount of bleeding and dysmenorrhoea. *Conclusion:* Menstrual health is fundamental to women's sexual and reproductive health. The present study has established mean age at menarche 14.1 year. Poor nutritional status, anemia, low socioeconomic status often associated with menstrual problems, menstrual cycle regularity and mean age at menarche.

Keywords: Menstrual problems, BMI, Anaemia

Introduction

Menstrual problems are generally perceived as only minor health concern and thus irrelevant to the public health agenda particularly for women in developing countries who may face life threatening condition. Menstrual cycle is normal physiological process that characterized by periodic and cyclic shedding of progestational endometrium accompanied by loss of blood which is additional vital sign adds a powerful tool to the assessment of normal development and the exclusion of pathological conditions in adolescent and young girls. The duration of menstrual cycle is usually of $28 \pm 2-3$ days quite common. The duration of bleeding is about 3-5 days and estimated blood loss is between 50 - 200ml implies changing of three to five pads per day indicates normal flow [1]. Some variety of menstrual dysfunction occurs in adolescent girls which may affect normal life of adolescent and

young adult women. Physical, Mental, Social, Psychological, Reproductive problems are often associated with menstrual irregularities and menstrual problems. Due to change in life style, habits, diet, the prevalence of obesity increased in developed world which results in decreased age at menarche [2].

Considering Indian context, 70% health care services located in urban area and only 30% in rural area. Due to lack of knowledge, education, cultural taboos, male dominance majority of adolescent girl and young women does not seek the health care services, at the same time high prevalence of malnutrition among adolescent girls results in increased reproductive problems in young women. Problems with menstrual pattern may affect 75% girls, and are the major cause of recurrent short term school absenteeism in

female college students [3]. A number of medical conditions can cause irregular or missed menses which are diagnosable and treatable even at peripheral level in early stage but this part of women's health was neglected by primary health care. More than 90% menstrual problems are preventable which need early detection and early treatment by appropriate methods. Effectiveness of any health programme evaluated on the basis of improvement in general health of community. Majority of the study related to menstrual problems conducted all over India and outside India highlights adolescent girls only but very few studies highlight young college girls. Till date, data concerned with menstrual problems among adolescent and young women not available in Satara district. So main aim of this study is to determine age at menarche, frequency of common menstrual problems faced by rural college students and also to determine the association between regularity of menstrual cycle with common menstrual problems, nutritional, economical status of college girls from rural area.

The information obtained from the present study will be useful in modifying health problems & education activities for young females with a view to improving reproductive health activities.

Material and Methods

A Cross Sectional study was conducted in Karad, the rural area of Satara district, Western Maharashtra where more than 90% population residing in rural area and mainly depends upon agriculture as main source of income with male and female literacy rate 78% and 65% respectively. By purposive sampling technique a Mahila college was selected from karad city where in maximum girls from rural community took admission for their graduation course. The study subjects were 1st year students of B.A. & B.COM course in age group 17-20 yrs. 2nd & 3rd year B.A and B.COM students were not available for the study due to academic reasons and Science course students were not enrolled because they may have knowledge about reproductive system as educational part during higher secondary. Study was conducted during month of Jan- February 2011.

Pretested structured proforma, Weighing machine, Height measuring scale, Hemoglobin assessment strips used to collect data. After

obtaining the permission from principal of the college and informed consent from students, data was collected by four M.B.B.S. female intern doctors from dept. of community medicine, who were trained by principle investigator and Gynecologist in Krishna hospital Karad. Data collection was done under the supervision of principle investigator by face to face personal interview method with the help self developed structured questionnaire which was tested for validity and reliability by experts from OB/GY and Community medicine. Pilot study was conducted to assess any ambuassions.

Questionnaire included close ended questions regarding regularity of menstrual cycle, common menstrual problems as well as physical/clinical examination of study respondents with the help of study tools. All eligible participants were subjected to anthropometric measurements which included height and weight. The weight was measured in kilogram, without foot wear using a regularly standardized weighing machine during study period having a precision of 0.1kg. Checks on the scale were made routinely before recording the weight of each student. The height was also taken barefooted in centimeter using standard measuring tape fixed vertically and care was taken to see that there was no fold or tilting to any side. Height was recorded to the nearest 1 cm. According to WHO, body mass index (BMI) [4] is an important tool to assess the nutritional status of adults and is calculated as weight in kg/height in m². According to BMI, nutritional status classified as normal, overweight and undernourished as BMI more > 25, 18.5-24.99 and < 18.5 kg/height in m² respectively.

Haemoglobin was estimated by using Whatman filter paper strips (10 x 2) and the haemoglobin assessment coloured comparison table provided by manufacturer. It is simple, reliable, inexpensive and effective medical device recommended by World Health Organization (WHO) for accurate estimation of haemoglobin levels in blood [5]. The blood samples were collected by trained UTHC laboratory technician by a pin prick method and a drop of blood was collected on Whatman filter paper. This was then

compared with a haemoglobin assessment coloured table and haemoglobin was noted down. According to WHO, anemia classified as mild, moderate and severe as hemoglobin concentration range between 10-12, 7-10 and less than 7gm% respectively. Modified B. J Prasad classification was used to classify socio-economic status of respondents. Class I, II & III were considered as Upper class whereas class IV, V & VI were considered as Lower class [6].

Cases were treated adequately at Urban Training Health Centre (UTHC) Karad under field practice area of dept of Community Medicine KIMS, Karad by Principle investigator & Medical Officer female.

Analysis: The data so collected were compiled in MS Excel and analyzed into tabular and graphical form. Chi-square test was used to assess the statistical association between pattern of menstrual cycles and study variables.

The criterion for Inclusion of girls in the study was: Permanent Resident of Karad taluka, Unmarried girls, Present during and throughout the study period, Absence of any other health problems (supercedent or antecedent).

The criterion for exclusion of girls in study was: Total 140 girls were studying in 1st year B.A. & B.COM. Course, out of these 10 girls were not permanent residents of Karad taluka, 8 girls were married, 12 girls were absent during course of study, 3 girls were suffering from other health problems. Thus 107 college girls included in study were interviewed and examined in the present study. Menstrual problem definitions used to collect data [7] as;

Regular menstrual cycle: Cycle that occurs every $28 \pm 2-3$ days in which the menstrual flow lasts for 3-5 days with an average flow of 50-200 ml.

Irregular menstrual cycle: any deviation from cyclic occurrence of menstrual cycle, flow and duration of flow as above.

The common menstrual problems are:

Menorrhagia(Heavy): Denotes regularly timed episodes of bleeding, which are either, excessive in amount (>500ml) &/or, in duration of flow (>5 days),

Hypomenorrhoea: Duration of menstrual flow which last for 1-2 days.

Polymenorrhoea: Duration of menstrual flow which may last for more than five days.

Hypomenorrhoea (scanty): Denotes regularly timed bleeding but scanty in amount.

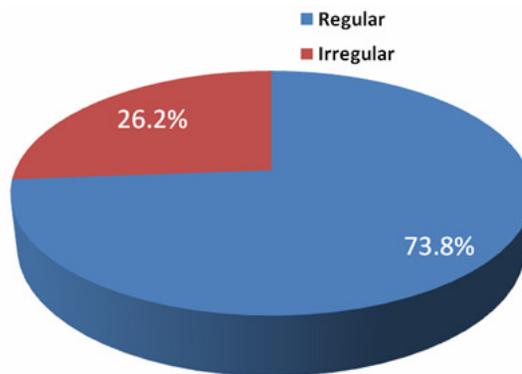
Dysmenorrhoea: refers to the lower abdomen pain accompanying the menstrual cycle.

Ethical consideration: Study design was approved by the relevant ethical committee of Krishna Institute of Medical Sciences University. All participants gave informed consent.

Results

Total 107 girls were interviewed and examined. All respondents were between 17-20 years of age with mean age of 18.5 years. Lowest age at menarche was 12 years and highest 17 years with mean age at menarche 14.1 years. Figure I show that 79 girls (73.8%) had regular menstruation cycles, whereas 28 girls (26.2%) had irregular cycles.

Fig-I: Pattern of Menstrual cycle.



Menstrual problems		Pattern of Menstrual cycle			χ^2	P
		Regular	Irregular	Total		
Amount of bleeding	Scanty	45 (73.7%)	16 (26.2%)	61 (57%)	5.88	<0.05*
	Average	32 (80%)	08 (20%)	40(37.3%)		
	Heavy	02 (33.3%)	04 (66.6%)	06 (5.7%)		
Dysmenorrhoea	Present	14 (58.3%)	10 (41.6%)	24(22.4%)	3.84	<0.05*
	Absent	65 (78.3%)	18 (21.6%)	83(77.6%)		
Duration of bleeding	1-2 days	59 (78.6%)	16 (21.3%)	75 (70%)	4.48	>0.05
	3-5 days	17 (68%)	08 (32%)	25(23.3%)		
	>5 days	03 (42.8%)	04 (57.1%)	07 (6.7%)		

* significant

Menstrual flow was considered as scanty, average(normal) and heavy, based on the number of sanitary napkins used per day (1-2, 3-5, >5 pads). It was observed from table I, 61 girls had scanty flow, 40 girls had average menstrual flow of which most of them had regular cycles whereas 6 girls had heavy menstrual flow of which maximum had irregular menstrual cycle and significant association was found between pattern of menstrual cycle & amount of bleeding flow. 24 (22.4%) girls had dysmenorrhoea however 14 (58.3%) had regular and 10(41.6%) had irregular menstrual cycles. Girls without

dysmenorrhoea, 18(21.6%) had irregular menstrual cycles. The significant association existed between type of menstrual cycles and dysmenorrhoea.

Majority of the respondents (76%) with duration of bleeding less than 5 days had regular cycles whereas 7 (6.7%) girls had bleeding for more than 5days out of which 4 (57.1%) had irregular cycles but no statistical significance was obtained between duration of bleeding & pattern of menstrual cycle.

Nutrition & socio-economic status		Pattern of Menstrual cycle			χ^2	P
		Regular	Irregular	Total		
BMI	<18.5	43 (82.6%)	09 (17.3%)	52(48.5%)	6.23	<0.05*
	18.5 – 24.99	33 (68.7%)	15 (31.2%)	48(44.8%)		
	>25	03 (42.8%)	04 (12.5%)	07(6.7%)		
Anaemia (gm%)	<7	03 (50%)	03 (50%)	06 (5.7%)	5.41	<0.05*
	7 – 10	20 (83.3%)	04 (16.6%)	24(22.4%)		
	10 – 12	28 (87.5%)	04 (12.5%)	32(29.9%)		
	>12	28 (62.2%)	17(37.8%)	45 (42%)		
Socio-Economic Class	Lower class	32 (76.1%)	10 (23.8%)	42(39.3%)	0.19	>0.05
	Upper class	47 (72.3%)	18 (27.6%)	65(60.7%)		

* significant

Table II showed, 52 girls were undernourished of which 9 (17.3%) had irregular cycles, those who were having normal BMI (44.8%) among them 15 (31.2%) had irregular cycles however 7(6.5%)

girls were overweight of whom 4(57.1%) had irregular menstrual cycle. Significant statistical association existed between pattern of menstrual cycle and BMI. Also 62(57.9%)

girls were anemic of which 51(83.6%) had regular and 11 (17.7%) had irregular cycles and out of 45 (42%) non-anaemic girls of which 28(62.2%) had regular and 17(37.7%) had irregular menstrual cycle. Significant statistical association existed between pattern of menstrual cycle and anemia.

Among the girls belongs to lower socioeconomic class of which 32(76.1%) had regular and 10 (23.8%) had irregular cycles whereas among those girls who belonged to upper socioeconomic class 47(72.3%) had regular and 18(27.6%) had irregular menstrual cycles. But no statistical significance was existed between socio-economic status & pattern of menstrual cycle.

Discussion

Menstruation being an inevitable part of a girl's life and more so, an important indicator of normal physical, physiological and functional well being. This study revealed mean age at menarche was 14.1 years which was mainly due to rural residence, poor nutritional status, low socioeconomic status and low general health of study subjects. A study conducted by Patil SN [8] in rural area of Ratnagiri, Kokan- Maharashtra observed mean age at menarche, 13.7 years. Study conducted in Nigeria by Ouj Umeora [9] observed mean age at menarche 15 years. The age of menarche is determined by general health, genetic factors, socioeconomic and nutritional status. But with improvement in the nutritional status and general health, it has declined in many populations. A study conducted by Amita Singh [10] among medical students in Madhya Pradesh observed mean age at menarche 12.5 years. A Study of conducted by Dr. Christina John [11], at St. Theresa's girls Higher Secondary School at Chengaroor of Pathanamthitta district of British population, mean age at menarche 12.2 years. According to Murat Cakir et al [12], from Turkey, mean age at menarche 12.8 years. According to Begum J [1], among medical students of Dinajpur Medical College, Bangladesh observed mean age at menarche 12.6 years. The difference in results was mainly due to the difference in socio-economic status, poor nutritional status & rural area of present study population.

Our study revealed, 79 girls (73.8%) had regular menstruation cycles, whereas 28 girls (26.1%)

had irregular cycles. A study conducted by Patil SN [8] observed that 83.1% girls had regular and 16.9% had irregular cycles. Study conducted in Nigeria by Ouj Umeora [9] found that 63.5% respondents had regular and 36.5% had irregular menstrual cycles. According to Begum J [1], 152 (87.4%) respondents had regular cycles, whereas 22 (12.7%) had irregular cycles. Difference was mainly due to environmental, racial, nutritional factors. Our study revealed, 22 (20.5%) girls complaint of dysmenorrhoea whereas study conducted by Patil SN [8] showed that 44.2% girls had dysmenorrhoea, by Anamika [13] among medical college students of Delhi showed 33% girls, a study conducted by Gijs Walraven et al [14], in rural area of Gambia showed that 14 % girls, study conducted by Begum J [1], observed that 60.9% and a study conducted by Pragya Sharm et al [15] in New Delhi showed 67.2% girls had dysmenorrhoea. The difference in results might be due to either more tolerance in rural girls or neglect of their complaints or better acceptance of symptoms.

Our study showed, 61 (57%) girls had scanty bleeding, 40(37.3%) had average bleeding while 6 girls (5.6%) had heavy bleeding. According to Begum J [1], 100 (57.5%) respondents menstrual flow was average, while in 72 (43.4%) had scanty and heavy in 2 (1.1%) respondents whereas a study conducted by Gijs Walraven et al [14], in rural area of Gambia showed that 4% girls had heavy bleeding. The difference in results was observed mainly due to majority girls had anemia also low nutritional status.

Our study showed, 62 (57.9%) girls were anemic and there was association existed between anemia and menstrual problems. Low level of blood hemoglobin concentration often associated with irregularities of menstrual and reproductive problems. A study conducted by Goel S [16] in Boileangang, Shimla showed 63.5% girls were anemic and found that anemic girls had menstrual problems like menorrhagia, polymenorrhoea, irregular menstrual cycle as compared to non anemic girls. 42 (39.2%) girls were belongs to lower socioeconomic status but there was no association observed between menstrual

problems and socioeconomic status of respondents, similar observations also noted by Ersoy B [17] et al among female students of Turkish population. A study conducted by Afrin S [18] in Mirpur Dhaka showed no association between socioeconomic status and menstrual problems. Present study showed 52 (48.5%) girls were undernourished while 7(6.5%) were obese and there was association between malnutrition and menstrual cycle. It indicates that nutrition status play important role in regularity of menstrual cycle. A similar findings also noted by Dr. Christina John [11] in British girls between body mass index and menstrual cycles.

Poor environmental stimulants, poor diet, nutritional anemia, low socioeconomic status, geographical distribution, psychosocial factors often associated with menstrual problems and age at menarche in present study population. Majority of factors are preventable, need positive attitude

towards the health of adolescent and women at reproductive age groups in rural area of India through primary health care approach mainly emphasis on adolescent health.

Limitations:

- Present study includes age group 17-20 yrs girls.
- Limited sample size of study population.

Conclusion

Menstrual health is fundamental to women's sexual and reproductive health. Changes in the normal menstrual patterns of women in reproductive age group may affect physical and psychological well being. The present study has established Poor nutritional status, anemia, low socioeconomic status often associated with menstrual problems, pattern of menstrual cycle and mean age at menarche.

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