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Original Research Article

Burden of Menstrual Disorders in Adolescent Girls: A Comparative Study Among Rural and Urban Population

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Abstract: Boys and girls in Indian scenario have different experience during growing years including adolescence due to vast social and cultural differences in their conduct. The present study is aimed to compare the growth standard parameters, among rural and urban adolescent girls and its relationship to various menstrual burdens in term of irregularities, hygiene, awareness to contraception and diseases etc. In the study 500 adolescent girls with age range from10 yrs to 19 years were taken (250 from rural and 250 from urban population). It is seen that most of the urban girls belong to high socioeconomic category with high growth parameter as compared to rural girls. As per the BMI the urban girls are little high overweight than rural girls. The urban girls show early development of secondary sexual character compared to rural girls. It is observed that early menarche is seen in high SES, while late menarche is seen in low SES. In urban population there is high burden of menstrual abnormalities, accounting to 45%, but in rural it is only 30%. All most all types of menstrual disorder pattern is seen in both groups. Dysmenorrhea is the leading disorder in both groups, accounting from 28% to 36% of girls, but it is high in urban girls. In urban, usually hyper menorrhea (20%), oligomenorrhea(19%) and no hypo menorrhea is seen. But in rural it is oligomenorrhea (20%), Hyper menorrhea(17%) and hypomenorrhea (10%).PCOD pattern is high in urban(3%) vs. in rural (1%).The cycle length pattern was almost same in both the groups (rural 88%) vs.(urban 85%). The average duration of flow pattern is almost same in both groups 93%(rural) and 92% (urban). But the amount of flow pattern (by considering the no. of pad used) is seen to be high in urban (90%), than rural (79%).There was a great difference in menstrual hygiene practice in both groups. Vaginal infection is also high in rural (17%) as compared to urban i.e. 5%. Gynecological health consciousness and accessibility to health also vary in groups. Consultation with health personnel is18% in urban and 2% in rural adolescent girls. Menstrual abnormality is seen to be associated with regular exercise. But it is statistically insignificant. Extensive study taking large population is needed to establish further the relationship of various factors to menstrual disorders.
Keywords: Menstrual disorders, Adolescent girls, rural, urban.

INTRODUCTION

In the lifestyle of a Homo sapiens organism adolescence is the period of transition from childhood to adulthood. Boys and girls in Indian scenario have different experience during growing years including adolescence due to vast social and cultural differences in their conduct. A female child is usually lesser privileged and is regarded as an inferior status. For a girl the onset of puberty implies more restriction in movement, less interaction with boys and men and more active participation in household chores. On the contrary boys at the onset of puberty exercise more freedom to move about and are expected to seek educational and vocational pursuits as a priority and play adult roles. Besides the gender discrimination there is also exist a gross variation in urban and rural boys and girls in life style, education, interaction with society. Urban Adolescents from lower class have to struggle for survival and grow in impoverished, disadvantaged environment making them vulnerable to several risks. The picture of rural adolescents is different; the disparity between boys and girls is even greater among them. Less emphasis on formal

education makes boys and girls participate in adult activities at home and outside at an early age. The routine of a pre-adolescent/adolescent rural girl is demanding-cleaning the house, cooking, washing, fetching water, bathing younger siblings. Rural girls rarely pursue education beyond primary school level. Early marriage as a trend is common even now both for boys and girls in rural India. The traditionalism and familiarization are evident in various facets of family life both in rural and urban settings. Parental involvement and control is high. Adolescent girls are groomed to become good wives and mothers having sacrifice, tolerance and dependences as an integral part of their disposition. It is also a sensitive area due to socio-cultural taboo of discussion about sexuality and reproduction in the Indian society. In such circumstances, it is even more difficult to assess the reproductive health needs, reproductive health problems. Assessment of unmet needs of adolescent girls during past five years revealed needs related to personal hygiene, nutrition, improving self-awareness about self-care practices. The normal menstrual cycle is often considered as a burden to these growing girls. Hence the aim of the present study is to compare the growth standard parameters , among rural and urban adolescent girls and its relationship to various menstrual disorders, to know the normal menstrual pattern of adolescent girls and compare it to derive whether there is some gross discrepancy, to derive whether there is some secular trend change in menarche, to assess the magnitude of menstrual problems, to know the type and variation of menstrual disorders, to derive various factors that influences the menstrual pattern and comparison of these factors, to derive its relationship to menstrual disorders, to know the burden of PCOS and related menstrual problems in urban adolescent girls and compare it with rural adolescent girls, to know the underlying knowledge of adolescent girls related to menstruation and reproductive health and comparison of both the groups, to know the accessibility to health care providers for their menstrual disorders both in rural and urban adolescent girls.

MATERIAL & METHODS

The study is a prospective study on menstrual problems in adolescent girls and was conducted both in Rural areas in a village and in Urban areas taking the students from four English medium schools in a town. The study was conducted by a specially designed questionnaire and physical examination with extreme confidentiality. Five hundred girls were taken in the study, two hundred fifty (250) adolescent girls from Rural and another 250 from urban areas. The inclusion criteria were any girl between age group of 10 to 19 years. The exclusion criteria are married girls, girls suffering from major health problems and girls on any type of regular medication. A detailed history including age education, academic performance, type of family, number of siblings, socioeconomic status were taken. Special attention was given to menstrual history including menarche, type of cycle, and duration of flow. A calendar format was given to girls and asked to maintain it. In rural setups assistance of female health workers was taken. In urban setups the assistance of the favorite female teacher was taken. The secondary sexual character was assessed by help of charts and high level of secrecy was assured. The Tanner's staging of breast and pubic hair development was followed as visual aids. The cases were divided to three groups i.e. early adolescent, middle adolescent and late adolescent. The socioeconomic status was assessed from the BPL (below poverty line) or APL (above poverty line) cards issued to the parents. Use of sanitary napkins or other methods were assessed by help of the teachers or health workers. The data collected are placed in figures and tables.

RESULT

Table-1: Socioeconomic status and age group classification

	APL	BPL
Population		
Rural (n= 250)	36(14%)	214(86%)
Urban (n=250)	236(94%)	14(6%)
Group		
Early (10-13yrs)	92(37%)	70(28%)
Middle (14-16yrs)	115(46%)	124(50%)
Late (17-19yrs)	43(17%)	56(22%)

Table-2: Comparison of growth status (height and weight)

Age group yrs	Rural		Urban		ICMR standard	
	Height in cm	Weight in kg	Height in cm	Weight in kg	Height in cm	Weight in kg
10	137.0±5.63	28.3±6.97	140.5±6.45	35.0±9.84	138.3	32.0
11	137.3±6.89	27.3±4.98	142.8±5.44	37.8±6.51	142.0	32.5
12	144.3±8.41	32.0±4.92	147.1±6.30	41.5±9.29	148.0	33.7
13	147.9±6.74	38.8±4.69	148.7±7.18	41.6±5.85	150.0	38.2
14	150.8±9.52	42.2±4.15	152.8±4.27	47.6±8.71	155.0	44.0
15	157.0±8.21	46.6±6.81	157.4±6.00	49.0±8.65	161.0	48.0
16	159.5±11.71	47.7±5.38	157.5±9.21	52.8±9.21	162.0	51.5
17	159.6±9.69	48.5±5.50	160.7±5.17	52.1±3.72	163.0	53
18	159.7±7.98	48.0±3.90	160.9±7.57	55.1±7.71	164.0	54
19	158.5±10.58	49.4±4.63	162.4±7.36	54.6±5.59	164.0	54.4

Table-3:

PARAMETERS	**RURAL**	**URBAN**
BMI (<15.0)	31(13%)	6(2%)
BMI(15-20)	178(71%)	130(52%)
BMI(>20)	41(16%)	114(46%)
Menarche		
Early(9-11 yrs)	44(22%)	72(30%)
Ideal (12-13yrs)	135(66%)	153(64%)
Late (14-15yrs)	24(12%)	15(6%)
Breast Development (Tanners Stage)	Mean Age	Mean Age
I	11.07	10.33
II	11.46	11.00
III	13.07	12.93
IV	14.95	14.69
V	16.56	16.55
Pubic hair Development (Tanners Stage)	Mean Age	Mean Age
I	11.07	10.54
II	12.74	12.52
III	13.25	12.58
IV	13.75	13.25
V	15.62	15.75
Menstrual disorders		
Menorrhagia	0	5(5%)
Menotaxis	2(3%)	5(5%)
Metrorrhagia	2(3%)	2(2%)
Menometrorrhagia	5(9%)	8(7%)
Hypermenorrhoea	10(17%)	22(20%)
Hypomenorrhoea	6(10%)	0
Oligomenorrhoea	16(27%)	20(19%)
PCOD suspected	2(3%)	7(6%)
Dysmenorrhoea	17(28%)	39(36%)

Cycle length		
<21days	2(1%)	5(2%)
21-35 days	178(88%)	203(85%)
>35 days	23(11%)	32(13%)
Duration of flow		
1-2 days	6(3%)	7(3%)
3-7 days	188(93%)	222(92%)
8-14 days	9(4%)	11(5%)
Amount of flow		
< 5 pads	37(18%)	7(3%)
5-15 pads	160(79%)	217(90%)
>15 pads	6(3%)	16(7%)
Type of Flow		
No Clot	135(67%)	67(28%)
With Clot	68(33%)	173((72%)
Menstrual Hygiene		
Cloths	159(78%)	11(5%)
Sanitary Napkins	44(22%)	229(95%)
Vaginal infection	25(17%)	13(5%)

DISCUSSION

Menstrual problems are the most common gynecological complain among adolescent group. The urban and rural cases differ significantly in their socioeconomic life style, food habit, attitude towards menstrual hygiene and other health disorders. The main burden of menstrual problems among adolescent girls is related to various factors. The BPL population is more seen in rural setups (86%) than in APL population (14%) where as in urban setups only 6% are in BPL and rest 94% are in APL category. Maximum number of girls was in middle age group (14-18 years) which is comparable to the result of Karthiga V et al [1]. The sexual maturation as seen from breast development was 100% in urban population but majority (96%) were having only stage II development in rural population. The pubic hair development was at stage V in 65% of urban population and 68% in rural population. The pubic hair development was at stage II at the age of menarche. Bali RS et al [2] showed a relationship between body and sexual maturation at adolescence. Simmons K et al [3] showed that earlier the menarche the greater is the peak velocity of height spurt. Tanner JM [4] showed a relationship of body size and growth with puberty. The prevalence of primary amenorrhea was found to be variable in various studies. Bang et al [5] found amenorrhea in 20% of rural population. In rural population in 45% of casesand in urban population in 68% menarche was seen at 11-12 years age. Jain K et al [6] found the mean age of menarche to be 13.16 years. Lee L K et al [7] found the mean age to be 12.3 years. It is also observed by ICMR 1972 [8] and Bai KI et al [9]that the higher socioeconomic group had early menarche as compared to low socioeconomic group. Bagga A et al [10] observed that daughters of hamals, housemaids and day laborers experience late menarche as compared to higher socioeconomic group. In urban population more menstrual abnormality was seen as compared to rural population. In the present study high percentage of menstrual abnormality (45%) was seen in the urban population than the rural (30%). The RCOG 2004 [11] had demonstrated menstrual irregularity to be seen in 8% to 83% cases but hypomenorrhoea is not seen in urban population. In both the urban or rural population the dysmenorrhea is seen to be the most common abnormality followed by others. Menorrhagia is mostly seen in urban group while metrorrhagia is mostly seen in rural population. The cycle interval was mostly normal in both the study groups. Prevalence of oligomenorrhoea of > 35days was seen in 8%-22% of cases. Singh M et al [12] showed that approximately 4%-8% of women report menstrual periods of longer than 7-8 days. In this study 75.83% had regular flow. In 92% of urban and 93% of rural the duration of flow was normal and is statistically significant. The amount of flow in terms of number of pads per cycle is seen to be more in urban group (5-15) than the rural group. Association of clot is seen more in urban group (72%) and less (33%) in rural group. In this study a very low

incidence of PCOS was seen in both groups. Martha H et al [13] observed that PCOS appears to underlie irregular menses in up to one third of girls. Venturoli et al [14] showed that menarche is not delayed but bleeding is persistently irregular. Rural girls have a high burden of unhealthy practice as compared to urban population which is statistically significant ($p<0.0001$). The health consciousness for menstrual abnormality is very poor both in urban and rural populations (18% in urban and 2% in rural). Lee LK et al [7] observed that 88.9% had not consulted a doctor. Menstrual abnormality is seen to be more in girls with less exercise and more food. They reported that menstrual abnormality was most common in girls who ate less to lose weight and also who did not perform physical exercise. It was observed that in rural population awareness regarding male contraception is more as compared to female contraception where as the reverse was for urban population (Male contraception rural 44% urban 19% and about female contraception rural 19% and urban 48%). Urban girls are found to be very much aware about the HIV and AIDS. (87%) as compared to 96% in rural group.

CONCLUSION

Adolescent menstrual problem is a separate and distinct entity. They present mostly in the form of dysmenorrhea, oligomenorrhea, menorrhagia, polymenorrhea and polymenorrhagia. Detailed history taking, thorough physical examination with special reference to abnormal thyroid function, any underlying bleeding disorder and exclusion of any organic pathology can enable us to reach at a clinical diagnosis. Most of the bleeding disorders in adolescence are functional and are frequently related to inappropriate peripheral and central feedback mechanism involving in regulation of ovulation. This study on adolescent girl achieved its target as was anticipated to cover various factors of menstrual problem. It revealed many factors that is contributory to menstrual disorders. It is observed that some gynecological problems are more in girls doing regular exercise (though statistically insignificant) which is usually advised to do. This study could not discover many facts related to menarche, secular trend change in menarche age. This is a small setup study only having 500 populations which may not represent the whole population. Extensive study taking large population and excluding confounding factors is needed to establish relationship of various factors to menstrual disorders. Establishment of adolescent gynecologic clinics will provide a friendly environment for them to come forward with their problems. Apart from looking after their curative, preventive and reproductive health, the gynecologists must analyze regarding physical, social and psychological life style, advice accordingly.

ABBREVIATIONS

SES – Socioeconomic status
APL – Above Poverty Line
BPL – Below Poverty Line
ICMR – Indian Council of Medical Research
Cm – Centimeter
PCOS – Polycystic Ovarian Syndrome
PCOD – Polycystic Ovarian disease
Vs. – Versus
HIV – Human Immunodeficiency Virus
AIDS – Acquired immune deficiency syndrome
BMI – Body Mass Index
RCOG - Royal College of Obstetricians and Gynecologists

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