THE STUDY OF MATURITY AMONG ADOLESCENT GIRLS OF WESTERN MAHARASHTRA

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ABSTRACT

Introduction: Adolescent females are a major needy group. It is critical period of biological, psychological, and social changes, as achievement of optimum growth in girls is considered utmost, improving future health.

Purpose: 1) to study physical and physiological changes in adolescent girls, with respect to secondary sexual characters of adolescent girls of Urban Health Center, Govt. Medical College Solapur. 2) To study some sociodemographic characteristics of the same.

Methodology: A community based cross-sectional study was done involving 246 adolescent girls (116 nonslum and 130 slum) of Urban Health Center,Solapur.By doing house to house survey, adolescent girls were interviewed with the help of predesigned, pretested questionnaire. Their physical examination was done and secondary sexual characteristics assessed with strict privacy and confidentiality. Menstrual history was also taken.

Results: Literacy was more among nonslum adolescent girls. Extended families were more in nonslum area. Family members were more in families of slum girls. There was significant difference between the socioeconomic status of nonslum and slum girls.The mean age of menarche was less in nonslum area than slum area. Also, there was significant difference at I, IV and V stages of SMR between nonslum and slum adolescent girls.

Conclusions: There was significant difference in mean age at menarche and sexual maturity between adolescent nonslum and slum girls. Nutritional supplementation should be given to adolescent slum girls to improve their reproductive health.

Keywords: adolescents, sexual maturity, nonslum, slum

INTRODUCTION

The World Health Organization (WHO) defined adolescence as being between ages of 10 to 19 years, encompassing the entire continuum of transition from childhood to adulthood.[1] Adolescent represents 23% of population in India.[2] The attributes of adolescence are- rapid but uneven physical growth and development, sexual maturity, desire for the experimentation, development of adult mental processes and self-identity, transition from dependence to relative independence.[2]

During this phase of growth and development, Progression from appearance of secondary sex characteristics (puberty) to sexual and reproductive maturity takes place.[3] The phases of adolescence were described as early adolescence 10 to 14 years, mid adolescence as 15-17 years and late adolescence as 18 to 19 years.[4] During puberty, ovaries in girls produce enough steroid hormones to cause accelerated growth of genital organs and appearance of secondary sex characters.[2]

The special health problems encountered in adolescents are both physiological and medical[2]. Achievement of optimum growth in adolescent girls is considered utmost, improving future health.[5] National Health Policy 2000 had identified adolescents as underserved population group.[6] With reference to these problems of adolescent girls, and present study was aimed at assessing secondary sexual characters and some demographic characteristics of adolescent girls of Urban Health Center, Govt. Medical College Solapur.

MATERIAL AND METHODS

In the present cross-sectional observational study, one nonslum and one slum area with populations of 1395 and 1277 respectively were chosen randomly among all the field practice areas of Urban Health Center, Dr. V. M. Govt. Medical College, Solapur after approval by institutional ethical committee. Verbal consent was also taken.

House to house survey was done and all 246 adolescent girls (aged 10 to 19 years) from above areas were interviewed with the help of pretested proforma.

Out of 120 adolescent girls in nonslum area, 116 responded and Out of 132 adolescent girls in slum area 130 responded to the study. The data collected included identification data, type of family, total number of family members, socioeconomic status and education of girls etc. Nature and purpose of study was also explained to adolescent girls and their parents. Privacy, confidentiality, and anonymity were maintained. Clinical examination was carried out in good daylight. Puberty status was assessed from appearance of secondary sexual characters. The girls were classified according to sexual maturity rating stages as described by Tanner J. M. et al (1962).[7]

The following table shows sexual maturity rating stages in girls:

Stage	Pubic hair	Breasts
I	Pre- adolescent	Pre- adolescent
II	Sparse, slightly pigmented, Straight, medial border of labia.	Breast and papilla elevated as small mould, Areola diameter increased.
III	Darker, beginning to curl, increased amount.	Breast areola increased but no distinct separation.
IV	Coarse, curly, abundant but less than in adult.	Areola forms secondary mould.
V	Adult, feminine triangle, spread to medial surface of thighs.	Mature nipple, areola protrudes from the general contour of the breast.

Menstrual history was also taken. Social class grading was done using modified B.G. Prasad's classification[8]. Data thus collected was entered and analyzed by using appropriate statistical tool-Chi square test, Z test, t test etc.

RESULTS

Out of 246 adolescent girls, 116 girls were from non-slum area and 130 girls were from slum area. Table 1 depects,out of 116 non slum girls, 23 girls were of 17 years, 14 of 18 years, 11 girls each of

19,16,15,14 years each,10 girls of 13 years, 9 of 12 years and 12 years each, 8 girls of 11 and 10 years each.

Out of 130 slum girls, 25 girls were of 11 years and 24 of 10 years, 13 of 16 and 14 years each, 12 of 15 and 12 years each, 11 of 17 and 13 years each, 6 of 18 years, 3 of 19 years.

In nonslum area, 46 (39.56%) girls were educated up to primary school, 25 (21.5%) upto secondary school, 45 (38.7%) up to higher secondary school and none was illiterate. In slum area, 30 (23.08%) girls were illiterate, 66 (50.82%) educated up to primary school, 27 (20.79%) girls were educated up to secondary school, and 7 (5.39%) up to higher secondary school .

As shown in table-2, among non-slum adolescent girls, 43(37.07%) were from extended families, 37(31.9%) from nuclear families and 36(31.03%) from joint families. Whereas 98 (75.38%) slum adolescent girls were from nuclear families, 28 (21.54%) from joint families and 4(3.08%) from extended families.

In 116 non-slum girls, 35 (30.17%) had 7 members in their family, while 30 (25.86%) had 6 family members.22(18.96%) had more than 7 family members, 20(17.24%) had 4 members, this was followed by 7 (6.03%) having 5 , 2 (1.72%) girls having 3 family members.

In slum area total number of family members In slum area total number of family members were 7 in 44 (33.84%) families, followed by 6 in 37 (28.46%), more than 7 in 30(23.08%) families, 5 in 10 (7.69%) families, 4 in 4(3.08%), 3 in 4(3.08%) and 2 in only 1(0.77%) family .

Table 3 depects, among nonslum girls 80(68.97%) belonged to class I, and 36(31.03%) to class II socioeconomic status whereas 77(59.23%) slum girls belonged to class V, 50(38.46%) slum girls to class IV and 3(2.31%) to class III socioeconomic status.

Table 4 shows, out of total, 43 girls belonged to stage I SMR. In nonslum area, 8(%) girls and in slum area, 35(27.69%) girls belonged to stage I SMR. (All these girls were below 12 years of age).

When stage II SMR was considered total 37 girls , (12(%) non-slum)and 25(%) slum) adolescent girls out of 246 belonged to stage II SMR (Premenarcheal stage).(These girls were of age less than 14 years in nonslum area and less than 15 years in slum area.)

Out of total, 69 girls belonged to SMR III i.e. stage of attainment of menarche, of which 30 (%) were non-slum and 39 (%) were slum. (These girls were between 11-18 years).

Seventy three girls belonged to SMR-IV, of which 48 (%) were non-slum and 25 (%) were slum girls. Twenty four girls belonged to SMR-V, of which 18 (%) were non slum and 6 (%) were slum girls.

When menstrual history was taken, it was found that, among nonslum girls, 88 girls attained menarche. The mean age of menarche in nonslum girls was (13.01±0.71). In the slum girls, 76 had attained menarche. The mean age of menarche in slum girls was (13.33±0.76).

DISCUSSION

In the present study, the number of girls was not uniformly distributed in age groups 10-19 years in both areas.

The literacy of nonslum girls (100%) was more than those of slum girls (87.8%). The number of girls higher educated than secondary school were significantly more in nonslum area (%) than those in slum area (%), ($\chi^2 =$, df-, p<), because of poor socioeconomic status, parents will, unacceptance of female education in slum area.

The number of girls with extended and joint families in nonslum area i.e.79 (68.10%) outnumbered the number of girls from slum area with extended and joint families i.e.32 (24.62%). More number of slum girls were from nuclear families i.e.98 (75.38%) than nonslum girls i.e.37 (31.9%). There was more number of extended families as compared to those found in the study by Dev D.[9]

In the present study, there were 52(21.14%) families with more than 7 family members, 22(18.96%) in non-slum and 30(23.08%) in slum

area. This difference in total number of family members in nonslum and slum area was statistically significant (Z =2.46, p = 0.01).

All the nonslum girls were of socioeconomic status (I and II) and majority of slum girls were of lower socioeconomic status (IV and V) i.e. 97.69%. This difference was significant (X^2 = 236.62, df-3, p<0.0001) explaining better socioeconomic status going hand in hand with the better literacy status in nonslum area.

When the sexual maturity was studied, there was significant difference at the I, IV and V stages of SMR between nonslum and slum adolescent girls. These findings are similar with the findings of Tanner J.M.[7] ,who discussed the effect of various factors like environment, nutrition, socio economic condition on the mean age at the attainment of different puberty signs. He found that the children from higher socio economic classes and with good nutrition attain puberty earlier than those from lower socio economic classes and those who are malnourished.

Our findings are also consistent with the findings of Prabhaker A. K. et. al.[10], who found that children from higher socio economic classes attained puberty signs earlier than those from lower socio economic classes

Ghosh D. et. al.[11] et al studied secondary sex characters in menstruating girls. Breast bud appeared between the ages 8-15 years, with an average of 12.2 years, pubic hair between 9-16 years, with an average of 12.4 years. Whereas in our study, breast bud as well as pubic hairs appeared between the ages of 10-13 years in nonslum area and 10-14 years in slum area.

The mean age of menarche in nonslum girls (13.01±0.71) was significantly less than slum girls(13.33±0.76) (Z =2.91, p< 0.003).This might be due to better nutritional status, better socioeconomic status, better hygienic practices, healthy psychosocial environment and some genetic factors in nonslum girls . These findings are consistent with the study by Satyavathi K. and

Agarwal K.N.[12] The mean age of menarche of slum girls in this study is comparable with the studies by Wills Shiela[13] ,Prasad B.G.[14] The mean age of menarche was high as compared to the findings by Agarwal D.K.[15]

High socioeconomic status usually associated with small family norm, better living conditions, proper nutrition and many other factors could be reason for earlier growth spurt in turn explaining earlier age at menarche.

CONCLUSIONS

The distribution of adolescent girls was not uniform in both areas. Literacy was more among nonslum girls. Extended families were more in nonslum area; nuclear families were more in slum area. Family members were more in families of slum girls. There was significant difference between the socioeconomic status of nonslum and slum girls. The mean age of menarche was less in nonslum area than slum area. Also, there was significant difference at the I, IV and V stages of SMR between nonslum and slum adolescent girls.

This might be due to better nutritional status, better socioeconomic status, better hygienic practices, healthy psychosocial environment and some genetic factors in nonslum girls.

Recommendations

Growth monitoring of school girls at regular interval of every 3 months throughout schooling may be made compulsory to detect early nutritional deficiencies. Nutritional supplementation should be given to adolescent slum girls to prevent nutritional deficiencies and to improve their reproductive health.

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Tables

Table 1

Age in years	Non slum		Slum		Total	
	No.	%	No.	%	No.	%
10	8	6.9	24	18.46	32	13.12
11	8	6.9	25	19.23	33	13.53
12	9	7.76	12	9.23	21	8.62
13	10	8.62	11	8.46	21	8.62
14	11	9.48	13	10	24	9.84
15	11	9.48	12	9.23	23	9.43
16	11	9.48	13	10	24	9.84

17	23	19.83	11	8.46	34	13.94
18	14	12.07	6	4.62	20	8.2
19	11	9.48	3	2.31	14	5.74
Total	116	100	130	100	246	100

Table 2

Type of family	Non-slum		Slum		Total	
	No.	%	No.	%	No.	%
Nuclear	37	31.9	98	75.38	135	54.88
Joint	36	31.03	28	21.54	64	26.02
Extended	43	37.07	4	3.08	47	19.10
Total	116	100	130	100	246	100

Table 3

S.E. Status	Non slum	%	Slum	%	Total	%
I	80	68.97	-	-	80	32.52
II	36	31.03	-	-	36	14.63
III	-	-	3	2.31	3	1.22
IV	-	-	50	38.46	50	20.33
V	-	-	77	59.23	77	31.3
Total	116	100	130	100	246	100

χ^2 = 236.62, df- 3, p<0.0001 (class IV & V are pooled together).

Table 4 Distribution of adolescent girls according to Sexual Maturity Rating (SMR)

Age in yrs	I		II		III		IV		V	
	Non slum	Slum	Non Slum	Slum	Non slum	Slum	Non slum	Slum	Non Slum	Slum
10 No. %	6 5.18	18 13.83	2 1.72	6 4.61	-	-	-	-	-	-
11 No. %	2 1.72	17 13.06	3 2.59	8 7.70	3 2.59	-	-	-	-	-
12 No. %	-	-	4 3.45	4 3.08	5 4.31	8 6.15		-	-	-
13 No. %	-	-	3 2.59	3 2.31	5 4.31	4 3.08	2 1.72	4 3.08	-	-
14 No. %	-	-	-	4 3.08	8 6.9	6 4.61	3 2.59	3 2.31	-	-

15 No. %	-	-	-	-	4 3.45	6 4.61	5 4.31	5 3.85	2 1.72	1 0.77
16 No. %	-	-	-	-	3 2.59	5 3.85	6 5.16	6 4.61	2 1.72	2 1.54
17 No. %	-	-	-	-	2 1.72	7 5.31	13 11.18	3 2.31	8 6.88	1 0.77
18 No. %	-	-	-	-	-	3 2.31	11 9.46	2 1.54	3 2.59	1 0.77
19 No. %	-	-	-	-	-	-	8 6.88	2 1.54	3 2.59	1 0.77
Total No. %	8 6.88	35 26.95	12 10.32	25 19.02	30 25.8	39 30.03	48 41.28	25 19.25	18 15.48	6 4.62
t test	6.54		1.71		1.30		2.01		2.10	
P value	0.01		0.09		0.11		0.03		0.03	