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Original Research Article

Awareness of pubertal changes and reproductive health in adolescent girls: a comparative study

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ABSTRACT

Background: Adolescent period is characterized by physical, psychological and behavioural changes and girls can show different reactions to these changes. Proper information can help them in handling these changes without any stress. Tribal females are a vulnerable population and lack health care facilities. Limited data is available on awareness of pubertal changes and reproductive health among tribal adolescent girls. Aims of the study were to study and compare the level of awareness about pubertal changes and reproductive health between tribal and urban adolescent girls.
Methods: The study population consisted of 200 adolescent girls between 10-19 years age 100 each, from urban and tribal setting. A predesigned questionnaire, which consisted of questions designed to evaluate the awareness about pubertal changes and reproductive health was used for data collection. Data was analysed using SPSS software, student t test, Chi- square test and co-relation test.
Results: Mean age of the study population was 13.76±1.2 years. Mean awareness of urban adolescent girls about pubertal changes and reproductive health was significantly greater than tribal adolescent girls. Awareness was more in older age and more literate adolescent girls.
Conclusions: Information, education and communication (IEC) campaigns have to be strengthened to increase awareness on menstrual hygiene practices and sexually transmitted diseases among tribal adolescent girls as these are a vulnerable group.

Keywords: Adolescents, HIV/AIDS, Menarche, Puberty, Tribal, Urban

INTRODUCTION

Adolescent period is age group between 10–19 years and is characterised by rapid physical growth, psychological and behavioural changes.[1,2] It is associated with a number of problems like depression, substance abuse, high risk sexual behaviour, delinquency and school dropouts.[3-5] Adolescent girls can show different reactions to the complex changes occurring during puberty.[6] Girls should be properly guided about these changes, so that they can have a smooth transition to adolescence and their distress in handling with these changes is minimised.[7] Adolescent health can be improved only by increasing their awareness on puberty related issues and preventing them to get information from improper sources.[7] Eight percent (8%) of the total population in our country is formed of tribals but still they are discriminated and neglected in our society.[8] Despite being a vulnerable population, tribal females lack adequate attention and basic access to health care facilities.[8,9] Limited data is available on awareness of pubertal changes among tribal adolescent girls. With a long term objective of reducing morbidity among

adolescent girls, this study was designed to study and compare the level of awareness about pubertal changes and reproductive health between tribal and urban adolescent girls and to find out various factors which affect this awareness.

METHODS

This was an observational, descriptive, community based, cross sectional study conducted in Gwalior, Madhya Pradesh. Ethical clearance was taken from Institute Ethics Committee. The study population consisted of 200 adolescent girls between 10-19 years age 100 each, representing the urban and tribal setting. Urban sample of 100 girls was represented by students from a private school. Tribal sample of 100 girls was drawn from 4 different villages around Gwalior area. Prior permission was also taken from school authorities and also from influential people of village like Gram Sarpanch. A predesigned questionnaire, which consisted of questions designed to evaluate the awareness about pubertal changes like change in weight, height , breasts, menstrual cycle , psychological and social functioning, Sexually transmitted diseases (STD), AIDS and family welfare methods, was used for data collection. The questionnaire was prepared and finalised after a pilot study by a group of experts from different fields namely paediatrics, gynaecology and obstetrics, sociology and psychology. A translated Hindi version of the questions was also made available to the study population in tribal setting. Study purpose was explained to all the adolescent girls along with assurance of confidentiality. Before handing the questionnaire, a verbal consent was obtained from all the girls included in the study. They were explained every question in the questionnaire and their doubts were cleared. This was followed by a health education session regarding pubertal changes, menstruation, sexually transmitted diseases and AIDS. Data entry was done in Microsoft Excel. Data was analysed using SPSS software, student t test, Chi- square test and co-relation test.

RESULTS

Table 1 shows the demographic characteristics of the study population. Mean age of the entire study population was 13.76±1.2 years. In the tribal group, maximum girls (62%) and most of the parents i.e. both father (69%) and mother (92%) were illiterate. Mothers of 49% of urban adolescent girls were graduate.

Table 2 shows awareness of adolescent girls about changes in puberty like physical changes, secondary sexual changes, psychological changes & social relations. Only 38% of tribal girls were aware of correct age of adolescence as compared to 58% of urban adolescent girls. Cause of pubertal changes was correctly answered by only 35% of tribal girls. Consciousness about weight and height was seen in 70% of urban and only 40% of tribal adolescent girls. Overall, 66% of urban adolescent girls were aware of physical changes of puberty as compared to only 41% of tribal adolescent girls and this difference was found to be statistically significant ($p<0.05$). When asked about secondary sexual changes, only 30% of tribal girls considered growth of axillary and pubic hair to be normal as compared to 50% of urban girls. Only 45% of tribal adolescent girls knew that breast changes are normal in adolescence. Consciousness about breast changes was seen in 60% of urban girls and 37% of tribal girls. Difference in awareness of secondary sexual characteristics between urban and tribal adolescent girls was significant ($p<0.05$). Concern about future planning was seen in 68% of urban and 34% of tribal girls. Frequent arguments were reported by 71% of urban adolescent girls. Only 39% of tribal girls said they were less dependent on their family as compared to 72% of urban girls. Overall, awareness about psychological changes was more in urban girls ($p<0.05$).

Table 1: Demographic characteristics of study population.

Demographic characteristics	Urban (N=100) N (%)	Tribal (N=100) N (%)
Age (years)		
10-13	49 (49%)	24 (24%)
13-16	34 (34%)	46 (46%)
16-19	17 (17%)	30 (30%)
Educational status		
Illiterate	-	62 (62%)
primary class	-	23 (23%)
middle class	28 (28%)	15 (15%)
high school	45 (45%)	-
higher secondary	27 (27%)	-
Parental literacy status		
Father		
Illiterate	-	69 (69%)
Middle class	-	22 (22%)
High school	-	9 (9%)
Higher secondary	25 (25%)	-
Graduate	24 (24%)	-
Post graduate	51 (51%)	-
Mother		
Illiterate	-	92 (92%)
Middle class	-	6 (6%)
High school	-	2 (2%)
Higher secondary	39 (39%)	-
Graduate	49 (49%)	-
Post graduate	12 (12%)	-

Table 3 shows awareness of adolescent girls about menstruation, Sexually Transmitted Diseases (STD), HIV/AIDS & Family Welfare Methods. Age of menarche was correctly answered by 63% of urban and 39% of tribal adolescent girls. Menstruation was considered to be a natural process by only 43% of tribal girls. Sanitary pads to be used during menstruation was correctly answered by 73% of urban and only 53% of tribal girls. Symptoms like mood changes, backache were

experienced by 75% of urban and 51% of tribal girls. Only 52% of tribal girls said there should be no restrictions during menstruation as compared to 70% of urban girls. Personal hygiene was considered to be necessary during periods by 69% of urban and 43% of tribal girls. Difference in awareness of menstruation between urban and tribal adolescent girls was found to be statistically significant ($p<0.05$). Sixty five percent (65%) of urban and 30% of tribal adolescent girls knew that hygiene prevents STD. Only 28% of tribal girls were aware that AIDS is caused by a virus. Around 75% of urban girls knew that AIDS is transmissible through blood borne and sexual methods while only 30% of tribal girls were aware about it. Only 70% of tribal girls were aware about oral contraceptives and teenage pregnancy as compared to 68% of urban girls. Awareness about permanent method of sterilisation was present in 66% of urban and 36% of tribal girls. Urban adolescent girls were significantly more aware ($p<0.05$) about Sexually Transmitted Diseases (STD), HIV/AIDS & Family Welfare Methods as compared to tribal adolescent girls.

Table 2: Awareness of adolescent girls about physical, secondary sexual changes, psychological changes and social relations.

Question	Urban (N=100) N (%)	Tribal (N=100) N (%)	
Physical changes			
Age of adolescence	58 (58%)	38 (38%)	
Cause of pubertal changes	62 (62%)	35 (35%)	
Changes occur at same time in all girls	71 (71%)	48 (48%)	
Your weight for age	72 (72%)	50 (50%)	
Conscious about your weight	70 (70%)	46 (46%)	
Your height for age	65 (65%)	36 (36%)	
Conscious about your height	64 (64%)	34 (34%)	
Mean awareness about physical changes	66%	41%	$p<0.05$
Secondary sexual changes			
Facial changes	52 (52%)	34 (34%)	
Growth of axillary hair	48 (48%)	30 (30%)	
Growth of pubic hair	50 (50%)	30 (30%)	
Changes in breast	66 (66%)	45 (45%)	
Breast changes normal for age	62 (62%)	42 (42%)	
Conscious about breast changes	60 (60%)	37 (37%)	
Mean awareness about secondary sexual changes	**54%**	**36%**	$p<0.05$
Psychological changes and social relations			
Future planning	68 (68%)	34 (34%)	
Frequent arguments	71 (71%)	43 (43%)	
Less dependent on family	72 (72%)	39 (39%)	
Spend more time with friends	69 (69%)	44 (44%)	
Mean awareness about psychological changes & social relations	70%	40%	$p<0.05$

Table 4 shows the various sources of information to adolescent girls about pubertal changes and Sexually Transmitted Diseases (STD), HIV/AIDS & Family Welfare Methods. Regarding pubertal change, for tribal girls mother (62%) was the main source of information. Mass media (45%) was the main source of information to urban adolescent girls about sexually transmitted diseases (STD), HIV/AIDS & Family Welfare Methods while for tribal adolescent girls this information was mainly provided by peer group.

Table 5 shows awareness of pubertal changes in adolescent girls according to age group, education status and parental education status. In urban area , maximum awareness about pubertal changes was found in 16-19 years age group (83%) and this difference among different age groups was found to be statistically significant ($p<0.05$). In tribal setting, maximum awareness about pubertal changes was found in 16-19 years age group (53%) but this difference among different age groups was not found to be statistically significant ($p>0.05$). Awareness of puberty changes was found to be 84% among higher secondary school girls in urban area as compared to high school (63%) and middle school girls (40%) ($p<0.05$). Similarly, awareness of puberty changes in middle school girls was 65% in tribal area as compared to illiterate girls (33%) ($p<0.05$). Awareness regarding pubertal changes in adolescent girls in tribal area whose mothers were educated upto high school was found to be maximum (70%) and this

difference related to educational status of mothers was significant (p<0.05). In urban area, the difference in awareness of puberty changes among adolescent girls related to educational status of mothers was not significant (p>0.05).

Table 3: Awareness of adolescent girls about menstruation and sexually transmitted diseases, HIV/AIDS and family welfare methods.

	Urban (N=100) N (%)	Tribal (N=100) N (%)	
Question (Menstruation)			
Age of menarche	63 (63%)	39 (39%)	
Duration of bleeding	64 (64%)	41 (41%)	
Duration of menstrual cycle	66 (66%)	42 (42%)	
Opinion on menstruation	61 (61%)	43 (43%)	
Use of sanitary pads	73 (73%)	53 (53%)	
Diet change necessary	74 (74%)	50 (50%)	
Symptoms during menstruation	75 (75%)	51 (51%)	
Restrictions not necessary	70 (70%)	52 (52%)	
Personal hygiene	69 (69%)	43 (43%)	
Mean awareness about menstruation	68%	47%	p<0.05
Question (STD, AIDS & Family welfare methods)			
Hygiene prevents STD	65 (65%)	30 (30%)	
STD can spread to spouse	72 (72%)	34 (34%)	
Etiological agent of AID	71 (71%)	28 (28%)	
AIDS can be sexually transmitted	75 (75%)	31 (31%)	
Blood borne transmission of AIDS	76 (76%)	32 (32%)	
Oral contraceptives prevent pregnancy	68 (68%)	30 (30%)	
Teenage pregnancy	71 (71%)	29 (29%)	
Permanent method of sterilisation	66 (66%)	36 (36%)	
Mean awareness about STD, AIDS and family welfare methods	71%	32%	p<0.05

Table 4: Sources of information.

	Urban (N=100) N (%)	Tribal (N=100) N (%)
Sources of information (Pubertal changes)		
Mother & Relatives	46 (46%)	62 (62%)
Peer group	21 (21%)	26 (26%)
Mass media	33 (33%)	12 (12%)
Sources of information (STD, AIDS & Family welfare methods)		
Mother & Relatives	25 (25%)	40 (40%)
Peer group	30 (30%)	48 (48%)
Mass media	45 (45%)	12 (12%)

Table 5: Awareness of pubertal changes in adolescent girls according to age group, education status and parental education status.

	Urban	Tribal
Age group (years)		
10 -13	39 %	28 %
13-16	60 %	50 %
16-19	83 %	53 %
Educational status		
Illiterate	-	33%
Primary class	-	35%
Middle class	40%	65%
High school	63%	-
Higher secondary	84%	-
Parental educational status		
Father		
Illiterate	-	34%
Middle class	-	44%
High school	-	54%
Higher secondary	59%	-
Graduate	60%	-
Post graduate	61%	-
Mother		
Illiterate	-	35%
Middle class	-	60%
High school	-	70%
Higher secondary	56%	-
Graduate	59%	-
Post graduate	63%	-

DISCUSSION

The mean age of the population in our study was 13.76±1.2 years which was similar to some previous studies.[2,7,10,11] But in one study mean age of the adolescents was 16.65 years.[9] Approximately 60% tribal adolescent girls were illiterate in the present study whereas in a study by Nagar et al all tribal adolescent girls were school going.[9] This shows that still some efforts have to be put to promote education among tribal communities especially females. Proportion of illiterate mothers in tribal community was very high (92%) in present study as compared to only 16% of tribal illiterate mothers in a previous study.[9] High illiteracy status of tribal adolescent girls can be very well corroborated to illiteracy status of their parents which illustrates that more focus should be put on educational projects in tribal communities especially involving females.

About 70% urban and 40% tribal adolescent girls were conscious about their height and weight which is similar to a study by Sinha et al where 52% adolescent girls had difficulty in accepting the body changes associated with adolescence.[10] In a study in Iran, most of the participants were not happy with the body changes associated with puberty.[8] Altintas et al in their study reported that self esteem in adolescents is related to body mass index.[12] Mean awareness about adolescent physical changes was

66% in urban adolescent girls which was comparable to some previous studies.[5,13,14] Mean awareness about physical changes in puberty was greater ($p<0.05$) in urban than tribal adolescent girls.

More than 50% urban and 35% tribal adolescent girls were aware about secondary sexual changes during puberty in our study which was similar to a previous study.[5] In a study from Gujarat more than 60% female adolescent girls were aware of secondary sexual changes during puberty.[15] Mean awareness about secondary sexual changes was more ($p<0.05$) in urban than tribal adolescent girls in present study. In a study from Karnataka, only 20 % of study population had correct knowledge regarding secondary sexual characteristics.[16]

Mean awareness about psychosocial changes and cultural relations was greater ($p<0.05$) in urban adolescent girls. In urban participants, 70% said that they have frequent arguments, similarly to earlier study.[10] In contrast in an earlier study, only 10% adolescents knew about psychosocial changes during puberty.[7] Seventy (70%) participants in our study felt they were less dependent on family and spent more time with friends which was in contrast to a previous study.[10] In one study, majority of participants felt they had difficulty in communicating with their parents.[6] These findings may be due to the generation gap and psychosocial changes associated with puberty.

Mean awareness about menstruation was high ($p<0.05$) in urban than tribal adolescent girls. Only 39% tribal participants knew the exact age of menarche compared to an earlier study.[9] When enquired about their opinion on menstruation, 60% urban and 40% tribal adolescent girls considered it to be a physiological, similar to a meta analysis on menstrual hygiene in India.[17] In a previous study, more girls became aware that menstruation is a normal process after they were imparted health education.[2] This observation highlights the importance of health education programmes in schools focussing mainly on menstrual hygiene and reproductive health among adolescent girls. Seventy (70%) urban and 50% tribal adolescent girls knew that sanitary pads must be used during menstruation in our study. A previous study and a meta analysis also revealed the same fact that sanitary pad use was more common in urban areas.[11,17] This may be due to the easy availability of menstrual hygiene products in urban settings and also the media which makes adolescent girls in urban areas more aware about these products. About 60% of total participants in this study opined that unnecessary restrictions should not be imposed during menstruation in contrast to a previous study where only 26% of girls had no restrictions imposed on them during periods.[11] This shows the various myths and taboos associated with menstruation in our society which can only be removed by health education and empowering the female child as these practices may have religious sentiments too.[17-19] Maximum girls thought that personal hygiene is necessary during menstruation which was consistent with some previous studies.[2,9,17,20] Few studies have also shown that regular bathing is not practiced by many girls during menstruation which may be due to water scarcity, lack of knowledge and lack of privacy.[21] Menstrual hygiene is very important for adolescent girls as it can prevent them from various reproductive tract infections.

Around 50% study population knew the aetiology of AIDS and only 30% tribal adolescent girls knew about HIV transmission which was concurrent with a previous study.[22] This difference in knowledge may be due to various multi media campaigns involved in increasing AIDS awareness in urban settings and is very glaring as adolescent age is a very vulnerable group and knowledge of correct modes of transmission will protect adolescents from this deadly disease. Only 30% of study population knew about contraceptives as seen in a study by Kotecha et al.[15] Approximately 50% of the study population were aware of permanent methods of sterilisation which is much better than a study by Kotecha et al.[23]

The present study revealed that 46% urban and 62% tribal participants received information about pubertal changes from their mothers, 21% urban and 26% tribal from friends which was very similar to a study by Dube et al.[24] Peer group was the main source of information regarding reproductive health in this study whereas in few earlier studies media was its main source.[22,25] Maximum awareness about pubertal changes in this study was seen in older and more literate girls, comparable to some previous studies.[7] Maternal education played an important role in awareness about puberty and reproductive health in tribal respondents as seen in a study by Shanbhag et al.[20] This signifies the importance of mothers as an important medium for health education regarding menstruation and menstrual hygiene and openly discussing this topic with their daughters as a well informed adolescent can further transfer her knowledge to her children when she becomes a mother.

The limitation of our study is that there might have been some over reporting as these observations are based on self-reported outcomes. The participants in the study might have answered some questions differently in order to satisfy the interviewer. Also, the sample size taken was very small considering the scope of the problem.

The study was undertaken to understand the awareness level of pubertal changes and reproductive health among adolescent girls in urban and tribal area and it was observed that knowledge of tribal adolescent girls was far from satisfactory. It was also seen that early adolescent girls lacked awareness about pubertal changes and reproductive health making them more vulnerable to high risk behaviour. There is an urgent need to promote female literacy especially in tribal areas where girls work for a living instead of going to school. This can be accomplished by communicating and educating parents, teachers, family members and other influential person

who act as resource persons educating and spreading the correct knowledge. Information, education and communication (IEC) campaigns have to be strengthened to increase awareness on menstrual hygiene practices and sexually transmitted diseases among tribal adolescent girls as these are a vulnerable group. Health education programmes need active participation of mothers so that they can break all barriers and discuss this topic openly with their adolescent daughters and make them confident in dealing this transition phase.

CONCLUSION

Information, education and communication (IEC) campaigns have to be strengthened to increase awareness on menstrual hygiene practices and sexually transmitted diseases among tribal adolescent girls as these are a vulnerable group.

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