Original Article

Knowledge, attitude, and perception of adolescents regarding reproductive health and human immunodeficiency virus/acquired immunodeficiency syndrome in Rajasthan

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Abstract

Background: The studies are required to better understand the needs of adolescents and to help policy makers to develop appropriate need-based adolescent reproductive health programs. **Objectives:** The objective was to assess the awareness among adolescents regarding various reproductive health issues and to assess their attitude and perceptions regarding reproductive health and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS). **Design:** Community-based cross-sectional descriptive study. **Participants:** 423 adolescents of 11-19 years age group in two rural (219 students) and two urban (204 students) schools. **Methodology:** The survey used was a 4-part, 52-item self-administered questionnaire eliciting information on knowledge regarding reproductive health and HIV/AIDS. **Result:** Awareness of all reproductive health matters was suboptimum. Awareness was more in urban adolescents than in rural and in late teens than earlier teens. Overall, majority were aware of legal age of marriage (79%), two child family norm (90%), and birth spacing, disadvantages of early marriage, disfavor female feticide, and felt need for sex education (91%). Condoms were the most commonly known method of contraception among boys (80.15%) and oral pills among girls (60.24%). AIDS was the most well-known sexually transmitted disease (93.38%). **Conclusion:** Lacunae in awareness of all reproductive health matters suggests that young people's sexual and reproductive health issues need to be further addressed and explored in order to promote safer and responsible sexual behavior.

Key words: *Adolescent, Human immunodeficiency virus/acquired immunodeficiency syndrome, Reproductive health*

The National Population Policy - 2000 has recognized adolescents as an underserved vulnerable group that need to be served especially by providing reproductive health information and services [1]. Pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) infection, constitute important preventable health problems among adolescents. Half of new HIV infections occur among persons <25 years of age [2]. Various underlying factors enhancing vulnerability of adolescents to HIV are declining age at first sexual experience and adolescence related issues, e.g. curiosity about human sexuality, unmet information needs about sexuality, high influence of peers, perception of invulnerability and a high likelihood of substance use [3]. In the absence of any organized institution for imparting sex education, young people tend to learn about sexual and reproductive health from unauthorized and unreliable sources resulting in the perpetuation of myths and misconceptions. Building adolescent capacities and opportunities require programs that support adolescents' social, economic, and health assets so that they can contribute socially and economically to their societies. A healthy adolescent population is critical for low-resource countries, where a sizable proportion of the population is under 24 years of age [4]. Thus, we planned this study to assess the awareness of adolescents regarding various reproductive health issues (Table 1).

METHODOLOGY

It was a community-based cross-sectional study done in Department of Pediatrics, Government Medical College, Kota, Rajasthan in 2007. From the list of rural and urban schools within 30 km distance, 2 rural and 2 urban schools were selected randomly. Total 423 adolescents studying in IX-XII classes of 11-19 years age group in two rural (219 students) and two urban (204 students) schools were covered. After ethical committee approval and permission from the school authorities, a questionnaire was administered to the participants. Students were informed that their participation was voluntary.

The proforma was kept confidential without disclosing their identity. The investigator initially addressed all participants, emphasized the objectives of the study, and assured them of the strict confidentiality of their responses. They were also urged to avoid discussing the questions among themselves while completing the questionnaire. Students were encouraged to mark the choice "don't know" when they were uncertain about their responses. Prior information regarding the test was not given to students in order to avoid extra preparation of the subjects.

The survey used a 4-part, 52-item questionnaire eliciting information on knowledge regarding secondary sexual characteristics, human reproduction, contraceptives, STDs, and family planning in Part I. Questions pertaining to the attitudes and perceptions of students regarding reproductive health were asked in Part II while the Part III evaluated the students' knowledge regarding HIV infection, its transmission, prevention, and treatment. Part IV assessed the students' attitude and perception toward HIV/acquired immunodeficiency syndrome (AIDS). All the questions had multiple responses from which respondents were asked to mark the most appropriate answer/answers.

Statistical Analysis

Descriptive statistics were used to evaluate the responses. Bivariate associations between responses and other variables such as gender, place of residence, and religion were tested using the *t*-test. The scores were generated for students for questions assessing knowledge. We used multivariable linear regression to study the association of knowledge scores and attitude scores with select predictor variables. The dependent variables in these analyses were the total knowledge and attitude scores of the respondents. The predictor variables included gender (categorical variable: Boy, girl) and place of residence (categorical variable: Rural, urban). The data subjected to statistical analysis by Student's *t*-test and analysis of variance (ANOVA) using the Statistical Package of Social Science for Windows. A $p < 0.05$ was considered significant.

RESULTS

Of the 423 adolescents, 219 (122 males and 97 females) belong to rural and 204 (135 males and 69 females) to the urban area of residence. The mean age of the study population

Table 1: Knowledge and awareness of adolescents about reproductive health

Parameter	Total (%)	Rural (%)		*P* value	Urban (%)		p value
	n=423	Male, n=122	Female, n=97	Male-female	Male, n=135	Female n=69	Rural - urban
Complete knowledge of							
Secondary sexual characteristics in boys	72 (17)	38 (31.1)	7 (7.2)	<0.05	20 (14.8)	7 (10)	<0.05
Secondary sexual characteristics in girls	85 (20)	29 (23.7)	15 (14.4)	>0.05	20 (14.8)	21 (30.4)	>0.05
Causes of pubertal changes	343 (81)	86 (70.4)	68 (70.1)	<0.05	122 (90.3)	67 (97.1)	<0.05
Contraception methods							
Condom	305 (72)	99 (81)	46 (47.4)	<0.05	107 (79.2)	5 (76.8)	>0.05
OCP	259 (61.2)	80 (65.5)	58 (59.7)	>0.05	79 (58.5)	42 (60.8)	>0.05
Tubectomy	171 (40.4)	51 (41.8)	28 (28.8)	<0.05	56 (41.8)	36 (52.1)	>0.05
Vasecotmy	161 (38)	46 (37.7)	27 (27.8)	<0.05	56 (41.4)	32 (46.3)	>0.05
Cu-T	139 (32.8)	39 (31.9)	20 (20.6)	<0.05	49 (36.2)	31 (44.9)	>0.05
Sex education must	386 (91.2)	111 (91)	81 (83.5)		131 (97)	63 (91.3)	<0.05
Legal age of marriage	338 (79.9)	110 (90.2)	62 (63.9)		125 (92.6)	41 (59.4)	>0.05
Two child family norm	380 (89.8)	107 (87.7)	85 (87.6)		128 (95.2)	60 (88.4)	<0.05
Disadvantage of early marriage							
Early pregnancy	310 (73.2)	85 (69.6)	68 (70.1)	>0.05	101 (74.8)	56 (81.1)	>0.05
Early responsibility	238 (56.2)	76 (62.2)	46 (47.4)	>0.05	68 (50.3)	48 (69.5)	>0.05
Population explosion	177 (41.8)	60 (49.1)	41 (42.2)	>0.05	45 (33.3)	31 (44.9)	>0.05
Danger to mother and child health	291 (68.7)	81 (66.3)	60 (61.8)	>0.05	91 (67.4)	59 (85.5)	>0.05
Loss of studies	251 (59.3)	76 (62.2)	47 (48.4)	>0.05	78 (57.7)	50 (72.4)	<0.05
Premature births	228 (53.9)	70 (57.3)	43 (44.3)	>0.05	(48.8)	49 (71)	<0.05
Avoidance of female feticide	318 (75.1)	84 (69.6)	67 (69)	>0.05	104 (77)	63 (92.7)	<0.05

Student's t-test, p<0.05 significant. OCP: Oral contraceptive pill

was 15.66 years. Majority of the students were Hindus (85.5%), followed by Muslims (7.8%), Sikhs (2.8%) and Christians (0.9%). This composition was in accordance with the National Family Health Survey-3 (NFHS-3) for Rajasthan (2005-2006) [5]. Most of the study subjects in rural areas were primarily living in a joint family (76.71%) whereas the urban students were living in joint (49.01%) and nuclear families (50.9%) in almost equal numbers.

Knowledge Regarding Reproduction and Contraception

Overall, 60.25% males and 54.43% females were aware of secondary sexual characteristic but <1/5th were having complete knowledge. The knowledge about the fact that hormones are responsible for the physical changes occurring in an adolescent during puberty was significantly less in rural adolescents than urban. While urban females were more aware in comparison to urban males ($p < 0.05$), only 19.67% rural and 33.33% urban boys ($p < 0.05$) and 24.74% rural and 30.43% urban girls ($p < 0.05$) could correctly state the time of conception. The correct duration of pregnancy was known to 89.93% males and 86.74% females. The awareness of legal age of marriage was present in 78.53% rural and 81.37% urban adolescents.

Condoms were the most commonly known method of contraception among boys (80.15%) and oral pills among girls (60.24%). More number of urban boys was aware of vasectomy and Cu-T than rural. Overall, the knowledge of contraceptives among rural boys was at par with urban. The awareness of rural girls was significantly lower than that of urban ($p < 0.05$). Tubectomy and vasectomy were the least known methods of contraception.

Attitude and Perception of Reproductive Health

Most of the students were well aware of the demerits of early marriage. Awareness of the two family norm recommended by the family welfare program was the highest among the urban males (95.29%) followed by urban females (88.40%), rural males (87.70%) and rural females (87.62%). Similarly, 74.46% adolescents were aware of spacing between two children.

Majority of the rural boys and girls preferred a government hospital (69%) whereas the urban adolescents preferred a private hospital (81%) for conducting delivery. Seventy-three percent adolescents were of the opinion that sex determination of the unborn child should not be done. 92.73% urban girls stated that they would not like to terminate the pregnancy on detection of a female fetus as compared to 69.07% rural girls ($p < 0.05$). Similarly, urban boys (77.03%) had a more favorable attitude toward avoidance of female feticide than their rural counterparts (69.67%) ($p < 0.05$). 36% students responded in favor of termination of unwanted pregnancy. More number of urban (96%) than rural students (88%) favored the inclusion of sex education in the school curriculum. More number of females than male wanted equal rights for men and women (75.90% and 65.75%, respectively).

Regarding precautions to be taken during menstruation more number of girls (25.3%) than boys (17.1%) stated that girls should avoid going out during periods ($p < 0.05$). Such misconceptions were more prevalent in rural girls than urban ($p < 0.05$). Concept regarding factors determining sex of the child was not known to 54 (32.53%) rural males and 48 (21.9%) rural females.

Knowledge Regarding STDs, HIV/AIDS and its Transmission, Prevention and Control

Awareness of STD was low among all the groups in the present study. Only 21.40% and 17.25% adolescents had heard of gonorrhea and syphilis as a STD whereas AIDS was the most well-known STD to the students (93.38%). Only 11.11% students could correctly identify the symptoms of a STD. Pain and burning during urination were known to 52.24% students as symptoms of STD while presence to ulcer/sore on genitalia was known only to 28.13% students. Prevention of STDs by the use of condoms was known to 81.08% students with a significant difference between boys and girls (85.60% and 74.09% respectively, $p < 0.05$).

Only less than half of the students could correctly state the full form of AIDS but more than 3/4 were aware that AIDS in an infectious disease. The urban females were significantly more aware than rural counterparts regarding the cause of AIDS as HIV infection (91.30% and 65.97%, respectively, $p < 0.05$). The Knowledge of various routes of transmission of AIDS was more among girls than boys, urban girls were significantly more aware than rural ($p < 0.05$) (Table 2). There was a significant difference in knowledge of urban and rural adolescents in relation to modes of transmission of HIV as for breast-feeding, infected syringes, and needles and mother to child ($p < 0.05$). The awareness regarding transmission by homosexual relations was the lowest in both the groups and significantly less in rural females, ($p < 0.05$).

The common misconceptions observed regarding HIV transmission were social kissing (6.8%), shaking hand with an infected person (11.6%), sharing clothes (6.9%), and mosquito bite (6.9%). Overall, urban students had significantly more knowledge than their rural counterparts ($p < 0.05$) in HIV prevention. Majority of adolescent knew that HIV transmission could be prevented by the use of condoms. Only 19.85% students had heard of NACO. The maximum awareness regarding NACO was observed in urban adolescent girls (43.47%) and least in rural girls (6.18%). Knowledge of various routes of transmission and modes of prevention of AIDS increased with increase in age of the students. By applying ANOVA, the knowledge was found to be the highest in the age group of 17 years and above ($p < 0.001$), and fairly good in 15-17 years. Age group in comparison to <14 years.

Table 2: Knowledge and awareness of adolescents about HIV/AIDS

Parameter	Total (%)	Rural (n=219) (%)		*p* value	Urban (n=204) (%)		p value
	n=423	Male, n=122	Female n=97	Male-female	Male, n=135	Female n=69	Rural-urban
AIDS caused by HIV	201 (47.5)	77%	65.9%*	>0.05	78.6%	91.3%*	>0.05
Route of transmission							<0.05
Unsafe sex	342 (80.8)	100 (81.9)	73 (75.2)*	<0.05	104 (77)	65 (94.2)*	>0.05
Blood transfusion	272 (64.3)	82 (67.2)	58 (59.7)	>0.05	76 (56.2)	56 (81)	>0.05
Syringe and needles	274 (64.7)	87 (71.3)	62 (63.9)	>0.05	73 (54)	52 (75.3)	<0.05
Homosex	96 (22.6)	32 (26.2)	16 (16.4)*	<0.05	28 (20.7)	20 (28.9)*	>0.05
Breast feeding	171 (40.4)	57 (46.7)*	43 (44.3)	<0.05	42 (31.1)*	29 (42)*	<0.05
Mother to child	225 (53.1)	74 (60.6)	48 (49.4)*	>0.05	59 (43.7)	44 (63.7)*	<0.05
Method of prevention							<0.05
One faithful partner	205 (48.4)	53 (43.4)	40 (41.2)	>0.05	76 (56.2)	36 (52.1)	<0.05
Condom	334 (78.9)	87 (71.3)*	76 (78.3)*	<0.05	112 (82.9)*	59 (85.5)*	>0.05
Test blood before transfusion	242 (57.2)	55 (45)	53 (54.6)		85 (62.9)	49 (71)	<0.05
Avoid used needle	236 (55.7)	55 (45)	53 (54.6)		79 (58.5)	49 (71)	<0.05
Awareness of National AIDS control programme	84 (19.8)	25 (20.4)	5 (6.1)*		18 (17.7)	36 (43.4)*	<0.05
Equal right for HIV+	295 (69.7)	72 (59)	66 (68)	<0.05	97 (71.8)	60 (86.9)	
HIV testing must before marriage	260 (61.4)	64 (52.4)	60 (61.8)	>0.05	84 (62.2)	52 (75.3)	<0.05

*Rural/Urban versus Male/Female (Student's t-test p<0.05 significant). HIV: Human immunodeficiency virus, AIDS: Acquired immunodeficiency syndrome

Attitude and Perception Regarding HIV/AIDS

Sixty percent adolescents in the present study believed that HIV infection could be prevented by generating public awareness regarding AIDS. Urban girls were significantly more aware than rural (60.86% and 55.67%, $p < 0.05$), of the fact that there is no cure for AIDS. Whereas rural and urban boys were equally aware that AIDS is incurable. The urban students displayed a more favorable attitude toward HIV positive person as compared to rural students and in general, the attitude of females was more favorable. Only 63.93% rural males and 65.18% urban males were willing to shake hands with an HIV positive person as compared to 61.85% rural and 71.01% urban females. 55.8% students believed that people should disclose their HIV status. Higher number of girls (urban 96.95% and rural 68.04%) than boys (urban 71.85% and rural 59.01%) believed that HIV-positive person should be given equal social rights. Significant large percentage of urban adolescents (boys 62.22% and girls 75.36%) was in favor of HIV testing before marriage than rural (boys 52.45% and girls 61.85%).

DISCUSSION

Our findings indicate that the overall knowledge regarding reproductive health and HIV/AIDS was superficial and inadequate among this population especially rural girl, and seems to differ according to age, sex, and area of residence. Knowledge was found to be the highest in the age group of 17 years and more. Most of the adolescent reproductive health programs focus on the 15-19 years old age group. There is an increasing need to recognize the 10-14 years group that comprises 12% of India's total population [4].

Scientific knowledge about reproductive health issues and HIV/AIDS is essential for the adolescents leading them to take rational decisions regarding sexual life and how they can protect themselves against STDs. Though, 93% adolescent knew expanded form of AIDS, awareness regarding STDs, gonorrhea, syphilis, and their symptoms was very low in our study similar to a survey done in the China [6]. Prevention of STDs by use of the condom was known to 81% adolescent, significantly more in boys without any rural-urban difference as also reported by Lal et al. [7]. According to NFHS-3 (2005-06) 46% (76% of urban and 22% of rural) women and 81% men (urban 97% and rural 66%) (15-24 years) were aware of AIDS [5]. In studies by Anjali Singh in Gujarat and Calcutta, awareness was reported to be about HIV/AIDS was only 35% and 13.5% respectively [8,9]. However, in a study done in Kerala reporting 100% awareness of AIDS could be explained on the basis of older age of study sample (18-22 years) and residence in the state with maximum literacy [6]. In Maharashtra, 47% of all rural women were aware of AIDS but only 28% knew that one can avoid it, and only 16% possessed correct knowledge about its transmission. In Tamil Nadu, 82% of rural women had awareness of AIDS, and 71% knew that one can avoid the disease, but only about 31% possessed correct knowledge about its transmission [10].

Although, superficial but increased awareness across the country can be attributed to widespread measures being taken by government and nongovernment organizations and exposure to mass media in recent years. In NFHS-3, television was the most common source of information about AIDS followed by radio, friends/relatives, and newspapers/magazines [5]. AIDS is now rampantly known, but other STDs are mostly unheard and needs to be focused along with AIDS/HIV.

The significant difference in knowledge regarding secondary sexual characteristics and human reproduction among rural and urban in our study is also reported by other authors [5,11]. The poor infrastructures and low accessibility of these rural areas may have led to uneven distribution of reproductive health educational programs in the country, urging more programs and interventions aimed particularly at these high-risk groups.

The majority of respondents felt that there is a lack of authentic information on sexuality. They do not know whom to approach for clarifications. Most of the students in our study favored inclusion of sex education in the school curriculum. In the Youth Risk Behavior Surveillance survey conducted by the Centers for Disease Control and Prevention, almost all (>90%) adolescents reported having received HIV prevention education in school in 1997, and many also discussed with parent or guardian [12]. However, the content of such discussions may not provide complete information. In addition, school-based interventions do not provide confidential opportunities for individual and at high-risk patient.

Although, as many as two-thirds of adolescent patients reported wanting information about STDs and pregnancy from their physicians, many fewer have ever discussed these issues with their physician [13]. Despite the fact that CARE guidelines universally recommend obtaining comprehensive sexual histories from adolescents [14], fewer than half of primary care providers routinely ask adolescents about their sexual activity, STDs, condom use, sexual orientation, number of partners, or sexual abuse [15]. There is also ignorance about safer sex practices, taboo on discussions in sexuality, socioeconomic and rural differences. Thus, young people in a rural area do not have access to adequate education has made this population more vulnerable.

Data demonstrate that adolescent girls living in rural areas who are not in school and who are often married as children are vulnerable to maternal mortality and morbidity [16]. The spread of the epidemic to rural areas presents a need actively to disseminate AIDS-related knowledge for health protection rather than waiting for knowledge to follow the appearance of the disease in communities. Approaches to health promotion that do not consider differing contextual factors are unlikely to succeed. In particular, innovative strategies to disseminate knowledge among disadvantaged population groups are needed.

Discrimination of HIV/AIDS patients in the society has a negative impact on various health care programmes [17]. Although many misconceptions are still prevalent in the community about HIV, more number of urban than rural girls believed that HIV-positive person should be given equal social rights and most participants endorsed HIV testing for women prior to pregnancy. Similarly, Moniko et al. reported that discrimination of HIV-infected people is on the decline [18].

CONCLUSION

In spite of limitations of covering only school children we conclude that there is a need for appropriately targeted health promotion activities in the community with an endeavor to focus on raising awareness on reproductive health and gender-related issues with special emphasis on STDs especially targeting the rural areas and adolescent girls.

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