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Sexual Knowledge and Practices of College Girls in Rural Gujarat, India

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Introduction

In India, under the influence of various socio-cultural factors, a large number of parents marry off their daughters during adolescence. [1] In many traditional and conservative societies, sex is still considered taboo and sexual matters are generally not discussed in the family. [1], [2] Moreover, until recently, India had one of the lowest female literacy rates in the world. [3] All these factors considered together imply that in many parts of India a large number of young girls with low literacy levels get married during their early adolescence. Their lack of adequate knowledge about sexual matters and contraception results in early and successive pregnancies and sexual disharmony. [4], [5], [6] Furthermore, research studies have documented that a large number of myths and misconceptions associated with normal human sexuality are prevalent among various socio-cultural groups in our country, thereby further aggravating the confusion. [2], [7-8]

There is a general paucity of data regarding the sexual behaviour of adolescent girls in India and their knowledge concerning sexual matters. The present study was undertaken to determine the knowledge of human sexuality, physiology of reproduction and contraception among first-year college girls'. It also assessed the role of various demographic and socio-cultural factors such as parental education and socioeconomic background on their level of awareness.

Methodology

The study was carried out in three colleges in Anand taluka (an administrative sub-unit of a district) of Gujarat State, India. There are three girls' colleges in the area where only girls who have completed their Higher Secondary Education with science subjects are enrolled. All unmarried, first year female students from these colleges, numbering 530, were included in the study. We did not include girls from co-educational institutions because the total number of female students in such colleges was very low. The rationale for selecting girls with a background in science was the assumption that such girls would be more aware of human anatomy and physiology and would be in a better position to

understand the technical terms used in such a survey as compared to students with backgrounds in the humanities or social sciences. It was also felt that these students would feel more comfortable in answering certain questions in the survey questionnaire.

Data were obtained using a two-page, pretested, structured survey instrument. The questionnaire was finalised after performing a test-retest for reliability among a few students. The questionnaire was distributed to the girls by their class teachers who also assisted by translating some of the technical terms in it into the local dialect. The objectives of the study were explained to the teachers and they were requested to provide translations only and NOT offer any explanations for the terms that the girls did not understand.

The self-administered, anonymous questionnaire consisted of two parts; Section-I contained general information on the demographic and socioeconomic background of the respondent and questions about her own sexual behaviour. Section-2 included 25 structured, closed, true-false type questions (each with only one possible correct answer), related to fertility/pregnancy (e.g. a lady can become pregnant after sexual intercourse even without the male achieving orgasm), contraception (pregnancy can be avoided by thoroughly washing the vagina with water/ soap and water, immediately after sexual intercourse), sexual arousal/response (for a short period of time following orgasm, men are usually not able to respond to further sexual stimulation), general anatomy and physiology of reproduction (the amount of pleasure during sexual intercourse is dependent on the size of the sexual organ of the male), and sexually transmitted diseases or STDs (STDs are caused by having sexual intercourse with a woman during her menstrual period). One point was awarded for each correct answer, with the total points comprising the knowledge score for an individual respondent (range: 0-25). Thus, higher scale scores indicated a better level of knowledge about sexual matters.

Statistical analysis

Statistical analysis of the data was carried out with the help of EPI-INFO version 5.01 (Centre for Diseases Control and Prevention, Atlanta and WHO, 1991) using the Kruskal-Wallis one-way analysis of variance (non-parametric test) and the Mann-Whitney test. Multiple linear regression analysis was preformed using the overall awareness score as the dependent variable to determine the effect of various factors (parental education, birth order of the respondent, place of residence, source of information about sex, and religiosity of the respondent) on sexual awareness.

The qualitative (ordinal) variables were coded using the concept of effects coding and/or contrast coding (whereby variables are treated as dichotomous and are coded as 1 for the presence of a specific characteristic of the studied parameter and as 0 for the absence of that characteristic, i.e. as a contrast to each other, and the result represents the effect of each category compared to the other), wherever applicable. [9-11]

Results

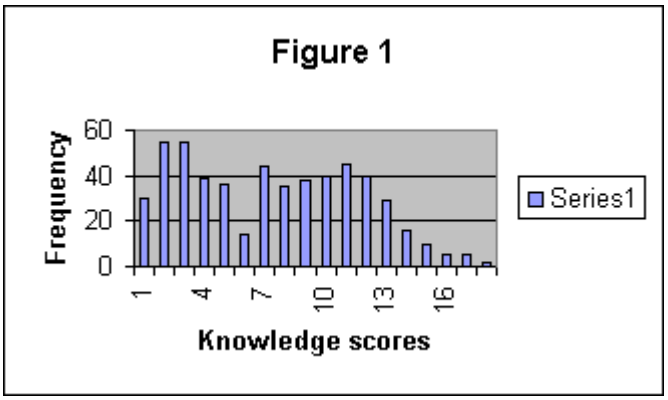
A total of 530 girls were studied. Nearly 51 percent (270) of the girls resided in hostels. Ninety one percent of them (481) were Hindu while the remaining were Christian and Muslim. Their mean age was 17.3 years (+ 1.38) with a range of 17-19 years. Approximately 30 percent reported that they has masturbated. None of them had experienced sexual intercourse and all of them indicated a heterosexual inclination. Table 1 presents the demographic profile of the respondents.

Table 1 : Socio-demographic profile of respondents

Parameter	Frequency (N = 530)	Percentage
Age (years) 17 18 19	406 91 33	76.6 17.2 6.2
Birth order 1 2 3 4 or higher	197 170 102 61	37.2 32.1 19.2 11.5
Parental education score 0-1 2-3 4-5 6	33 112 251 134	6.2 21.1 47.4 25.3
Residence in hostel Yes No	270 260	50.9 49.1
Perception of knowledge about sex I have adequate knowledge I do not have adequate knowledge	313 217	59.1 40.9

* Parental Education Scores refer to the combined scores for the educational status of both the father and mother considered separately on a scale ranging from `0-3: (illiterate = 0; Primary Education only = 1; Secondary Education = 2; Graduate = 3)

The mean knowledge score with respect to human sexuality was 6.38 (+ 4.25) scale of 25, with a median of 6 (see Figure 1). Almost 59 percent of the respondents felt that they possessed adequate knowledge regarding sexual matters. The level of knowledge was positively related to the educational status of their parents and residence in a hostel ($p < 0.001$). With respect to parental education, the highest correlation was observed when the educational status of both the parents was considered together ($r = 0.39$; Chi square = 121.52) as compared to that of the mother ($r = 0.38$; Chi square = 111.16) or father taken independently ($r = 0.31$; Chi square = 97.91).



The birth order of the respondent and history of masturbation were also strongly associated with higher knowledge scores ($p < 0.001$). However, religiosity had no effect on their knowledge about human sexuality. The source of information about sexuality was significant only when they had obtained their knowledge either from their parents or pornography (for the purpose of this study, the term 'pornography' was arbitrarily defined as any visual material depicting human beings in obscene and/or vulgar positions, either alone, in pairs, or in groups). Incidentally, the level of sexual knowledge was not significantly correlated with the perceived knowledge level as can be seen from Table 2.

Table 2 : Determinants of knowledge about human sexuality, reproduction and contraception

Parameter studies	Frequency (%)	Mean knowledge score (± SD)	Chi-square* (p)

Residence in hostel Yes No	270 (50.9) 260 (49.1)	8.34 (3.87) 4.34 (3.63)	< 0.001
History of masturbation Yes No	160 (30.2) 370 (69.8)	8.96 (3.55) 5.26 (4.04)	< 0.001
Birth order 1 2 3 4 or higher	197 (37.2) 170 (32.1) 102 (19.2) 61 (11.5)	5.94 (4.39) 6.99 (4.06) 6.40 (4.28) 5.98 (3.39)	< 0.005
Religiosity Yes No	434 (81.8) 96 (18.2)	6.37 (4.21) 6.42 (4.44)	0.63
Perception about own knowledge of sexuality Adequate knowledge Lack knowledge	313 (59.1) 217 (40.9)	6.12 (4.06) 6.85 (4.17)	0.31

* Indicates association between the parameter studied and the knowledge score. Mean knowledge score for the total sample = 6.38 (± 4.25).

Multiple linear regression analysis presented in Table 3 revealed that the most important factors associated with knowledge about human sexuality and contraception independently were: a history of masturbation, residence in a hostel, the educational status of parents, the source of information (parents), and birth order of the respondent, in this order.

Table 3 : Multiple linear regression analysis for factors influencing knowledge of human sexuality

Variable	**B-coefficient**	**95%**	**C.I**	**Standard Error**	**F-Statistics**	**P**
Residence in hostel	2.61	1.95	3.26	0.33	60.87	< 0.0001
Parental education	0.61	0.41	0.82	0.11	34.63	< 0.001
Source of information Elders* Friends*	1.20 0.16	0.55 - 0.45	1.86 0.77	0.33 0.31	12.93 0.26	< 0.001 N.S.
History of masturbation	2.64	1.99	3.39	0.33	63.52	< 0.0001
Perception about own knowledge	-0.25	-0.46	-0.88	0.32	0.59	N.S.
Age	-0.32	-0.67	0.03	0.18	3.23	N.S.
Birth order	0.08	0.49	1.03	0.13	9.37	N.S.
Religiosity	0.44	-0.33	1.22	0.41	1.25	N.S.

Y-INTERCEPT = 0.604

Coding used: *Information from elders = 1; Not from elders = 0; **Information from friends = 1; Not from friends = 0.

Discussion

The overall knowledge about human sexuality, reproduction and contraception was poor among the college girls included in the study. The significance of this finding becomes apparent when one considers the fact that these girls were literate and had studied science subjects during their secondary school education. In India, less than one percent of all girls are enrolled for tertiary/college level education. [12] As such, the girls included in the present study represent only a minority of the population, and constitute the "more knowledgeable and elite group" among adolescent girls in the area. It is likely that a large majority of adolescent girls in the area who are mostly illiterate or barely literate school drop outs [13] have even less knowledge regarding sexual matters.

Furthermore, a large number of the girls who felt that they possessed enough knowledge on such issues were in fact quite ignorant. This further complicates the scenario because such an attitude may lead to a pseudo-confidence among such girls which could be detrimental to their health, since there is enough evidence to suggest that correct knowledge of sexual matters influences the future reproductive behaviour of teenagers. [6] Adolescent marriages and subsequent teenage pregnancies are still common in the area under study, as well as in many other parts of India. [14] It may be extrapolated from these findings that most of the girls in the marriageable ages are ignorant about matters related to family life and contraception. This is contrary to the philosophy of some of India's national prevention programmmes, notably the national family welfare programme, the national STD control programme, and the national AIDS control programme.

The importance of parental education (including maternal education) in the better upbringing of children cannot be over-emphasised. The present study also demonstrates the positive effect of parental education on the sexual knowledge status of the girls. The better performance (knowledge scores) of girls of educated parents in our study may be due to the combined effect of various other confounding variables which are intimately associated with a better educational status, namely higher socio-economic status and increased exposure to printed and audio-visual media such as newspapers and television, the effects which have been amply documented by research. [15-18]

Another observation which merits attention is that the knowledge scores were significantly higher among girls who had learn about sexuality from their elders (mostly parents and teachers). Another indirect evidence, which lends further support to this finding, is the positive association between birth order and overall awareness score wherein the elder siblings might be the source of information (Table 2). It is important to note here that parents were the source of information in a relatively small number of cases (about 15 percent) and statistically there was no significant difference in the knowledge scores of girls whose source of information was their parents as compared to those where teachers had been responsible for giving such information. Moreover, in India, sex is still considered taboo and most parents do not talk about sexual matters with their children. [2], [4] This should reiterate the significance of incorporating sex education into school curricula so that girls acquire correct knowledge from reliable and socially acceptable sources rather than from pornography, as has been demonstrated in this study. The relationship between pornography and knowledge about human sexuality, though statistically significant, [19] is not worthy of elaboration because only a very small percentage of the girls (1.7 percent), all of whom were hostel residents, admitted to have viewed pornographic literature.

Among the respondents, those residing in the hostel were found to possess a significantly better knowledge of sexuality as opposed to those who were staying with their parents. One possible explanation for this observation could be the residents in hostels are away from their parents and have easier and more liberal access to print and audio-visual media containing sexually explicit information. This is in accordance with our finding that all the girls who had ever seen pornographic literature were hostel residents. Additionally, residence in a hostel, away from home, means more independence and fewer social restrictions, all of which have been demonstrated to influence sexual behaviour. [21-24] Another confounding factor is that a large majority of students living in hostels were daughters of educated parents.

Almost one-third of the girls included in this study reported that they had masturbated, but the fragmentary nature of India makes comparisons with other studies difficult. History of masturbation was found to be positively associated with knowledge regarding sexuality, with masturbators scoring significantly higher points in comparison to non-masturbators. Adolescents who masturbate have been shown to be less inhibited and more at ease with their bodies. They are more comfortable with their own sexuality and more likely to search for explanations for this physiological urge. [25], [26]

We did not observe any association between an individual's religiosity and her knowledge about sexuality. A possible explanation for this observation could be

the small sample size of girls with no religious orientation (18%), thus limiting our ability to detect differences in the influence of religion on sexual awareness. However, our finding is consistent with studies conducted earlier in other parts of the world. [27], [28] It appears that at this age familial and socio-economic factors rather than religious ones have a stronger influence on sexuality. An alternative explanation is that there are many similarities in the sexual beliefs of the various religious groups in India because of their similar historical and cultural back-grounds.[4], [5]

It is evident from this study that even educated girls in Gujarat, India, do not possess sufficient knowledge regarding certain normal physiological functions of the body such as sexuality and reproduction. Adolescents need to be taught about these body functions since ignorance perpetuates myths and mis-belief. In societies such as ours where parents do not normally discuss such matters with their children, this could be achieved by incorporating family life education/sex education in school curricula. School teachers play a key role in bringing about this desirable change and socially acceptable approaches to sex education such as the letter-box approach may be used for dissemination of scientific knowledge about sexuality and related topics. [29]

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