



ADOLESCENT SEXUAL AND REPRODUCTIVE BEHAVIOR: A REVIEW OF THE EVIDENCE FROM INDIA

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Abstract—Despite the fact that adolescents represent almost one quarter of the Indian population, their reproductive health needs are poorly understood and ill served. This paper documents the existing research on sexual and reproductive health, explores the knowledge and attitudes among this population in India, and highlights limitations of methodologies currently employed in research on adolescent reproductive health in India. One serious limitation is the lack of attention in almost every dimension of their reproductive health, including sexuality, reproductive morbidity, abortion-seeking and reproductive choice. What is needed is more behavioral research that explores the levels, patterns, and sociocultural factors underlying adolescents' reproductive health; assesses adolescent reproductive health needs and ways in which health and information services can be structured to respond to these needs in light of the social, cultural and economic constraints that adolescents face; and explores appropriate methodological alternatives, recognizing the need for community-based research, as well as the difficulties of conducting such research under the sociocultural constraints prevailing in India. At the same time, this review argues for far more attention within programs to address adolescent reproductive health service and information needs. © 1998 Elsevier Science Ltd. All rights reserved

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INTRODUCTION

Reproductive health in general and adolescent reproductive health needs in particular are poorly understood and ill served in India. While the needs of children and pregnant women are acknowledged in national programs, neither services nor research have focused on adolescents and their unique health and information needs. In a country in which ado-

lescents aged 10–19 represent over one fifth of the population, the health consequences of this neglect take on enormous proportions. The objective of this paper is to document the existing information on sexual and reproductive behavior, as well as knowledge and attitudes among the adolescent and youth populations in India, and thereby make program and research recommendations related to adolescent reproductive health. Consistent with the thrust of the literature, the focus of the review is primarily the adolescent (10–19) and youth (10–24) population*.

Variation in social and cultural settings between countries and biological differences concerning age of physical maturation render different connotations to the meaning of adolescence in different settings. In India, traditionally, the transition from childhood to adulthood among females has tended to be sudden. On the one hand, as a result of the poor nutritional status of the average Indian adolescent, there is evidence that menarche occurs relatively late, delaying the biological onset of adolescence. On the other hand, marriage, and consequently the onset of sexual activity, pregnancy, and childbearing occur relatively early, thrusting adolescent females early into adulthood, frequently soon after regular menstruation is established and before physical maturity is attained.

*The evidence reviewed here pertains largely to the recent evidence, since the 1980s and occasionally includes the 1970s. Both quantitative and qualitative data are reviewed; qualitative data are particularly useful in examining sexual behavior and its correlates. So also, both published and unpublished studies are reviewed. Studies range from those using inappropriate methodologies to those using qualitative methods; from large scale surveys to intensive in-depth studies of a handful of respondents. Extensive searches were conducted through the library of the Family Planning Association of India to cover material which included the main key words pertinent to adolescents, their sexual and reproductive behavior, knowledge, and attitudes. Another important source of information was a workshop on Sexual Aspects of AIDS/STD Prevention in India, held at the Tata Institute of Social Sciences in Bombay in 1993 from which several papers emerged dealing with the sexual behavior of Indian youth. Considerable recent data are drawn from the results of the National Family Health Survey (IIPS, 1995).

PROFILE OF ADOLESCENTS IN INDIA

There are an estimated 190 million adolescents (aged 10–19) in India, comprising over one fifth of the entire population*. As is well known, the situation of adolescents varies widely by gender and region, with adolescent girls and those from northern states at a particular disadvantage. A brief overview of the situation of adolescents follows (see Table 1):

- About 30% of all adolescents continue to be illiterate: 20% of all boys, and 40% of all girls aged 10–19 (IIPS, 1995).

- School attendance among younger adolescents is hardly universal: 76% of all boys and 55% of all girls aged 11–14 are in school.

- About one third of adolescents aged 15–19 were reported to be working in 1981 — 51% of all boys, and a grossly underestimated 18% of all girls (Ministry of Health and Family Welfare, 1993; see also, Jejeebhoy, 1993; Bhende, 1995)†.

- As in other countries, adolescent mortality rates are lower than mortality rates at younger and older ages, and gender disparities in mortality are narrow. But unlike other countries, females in India experience slightly higher mortality rates than males do. Among the rural population aged 15–19, mortality rates ranged from 2.2 among males to 3.4 among females; among the urban population, corresponding rates are 1.3 and 1.7 (IIPS, 1995).

- Gender disparities at these ages are largely explained by poor reproductive health and high maternal mortality among adolescent females. Fifteen percent of all deaths to rural women aged 15–24 are attributed to complications of childbirth and pregnancy (the second largest cause of death in this age group following accidents and violence).

Within the typical gender stratified social structure in India, adolescent girls are especially disadvantaged. In terms of food intake, access to health care, and growth patterns, they are worse off than their brothers (Das Gupta, 1987; Srikantia, 1989b; Government of Maharashtra and UNICEF-WIO, 1991), and by the time they reach adolescence many are grossly underweight. Moreover, a sizeable proportion marry well before they are 18 and pregnancy at a young age further exacerbates their poor health. In

Table 1. Profile of adolescents in India

	Total	Male	Female
1. Adolescents' (%) share of the population (1992) (a)			
Ages 10–14	11.1	11.2	11.0
Ages 15–19	10.5	10.9	10.2
2. Adolescent literacy rates (1992–1993) (b)			
Ages 10–14	73.4	82.1	64.1
Ages 15–19	68.1	80.5	56.2
Ages 20–24	61.8	77.5	47.7
3. Educational attainment: % who have completed (b):			
Primary school (10–14)	43.3	48.5	37.8
Middle school (15–19)	44.2	54.1	34.8
Middle school (20–24)	41.9	55.8	29.4
4. School attendance rates among adolescents aged 11–14, 1992–1993) (b)			
Total	66.2	76.3	55.3
Rural	61.2	73.4	47.9
Urban	80.1	84.2	75.7
5. Adolescent work force participation rates (1981) (c)			
Ages 15–19	35.0	51.0	18.0
6. Age specific mortality rates (b)			
A. Rural			
Ages 10–14	1.9	1.6	2.2
Ages 15–19	2.8	2.2	3.4
B. Urban			
Ages 10–14	1.0	1.6	0.3
Ages 15–19	1.5	1.3	1.7

*Registrar General, India. 1993. SRS: Fertility and Mortality Indicators, 1992. New Delhi, Government of India, Fertility and Mortality (SRS) Survey Division.

†IIPS, 1995.

†Ministry of Health and Family Welfare, 1993. Family Welfare Yearbook, 1991–1992. New Delhi, Ministry of Health and Family Welfare, from Registrar General, India. 1985. Census of India 1981 (based on 20% data).

terms of housework, adolescent girls contribute long hours to the household economy, but their activities are invisible and undervalued since they draw no income. Given the seclusion norms that are widespread from puberty onwards, adolescent girls are unlikely to have much exposure or physical access to the outside world. Without education, without a skill or opportunity for employment, and with relatively poor health and nutrition, they are caught in a web of ignorance, poor reproductive health, life-long economic dependency, physical seclusion, early marriage and frequent childbearing. Few services cater to their health, nutrition, vocational skill, economic or information needs.

ADOLESCENT REPRODUCTIVE HEALTH BEHAVIOR

Sexual activity commences at an early age for the majority of Indian women. Unlike in most other countries, the onset of sexual activity occurs largely within the context of marriage, is consistent with the strong emphasis placed on female “purity” and chastity, and is sanctioned by family elders. Less can be inferred about adolescent males.

*Age specific data from the 1991 census have yet to be released. Data pertaining to earlier years suggest that in 1981, there were a total of 145 864 800 persons aged 10–19, that is, 23% of the 1981 population (Registrar General, 1983a,b), up from 19% and 21% in 1961 and 1971.

†Rural-urban disparities are wide — economic activity rates range from 58% among rural males to 32% among urban males, and from 23% among rural females to 6% among urban females.

Table 2. Nuptiality among adolescents

	15–19	20–24	25–49
1. Proportions ever married (1992–1993) (%)			
Total	39.3	81.5	98.4
Rural	45.6	86.8	99.1
Urban	21.8	68.2	97.2
1981	40.4		
2. % of women married by ages:			
13			
Total	6.8	11.8	19.1
Rural	8.6	14.9	23.4
Urban	1.8	3.9	8.6
15			
Total	17.0	26.1	36.6
Rural	21.3	32.0	43.4
Urban	5.5	10.9	20.2
18			
Total	NA	54.2	68.0
Rural	NA	62.8	75.8
Urban	NA	32.6	49.0
3. Median age at first marriage	NA	17.4	16.1
4. Median age at first cohabitation			
Before age 13 (%)			
Total	2.2	3.9	6.2
Rural	2.7	4.8	7.4
Urban	0.8	1.8	3.5
Before age 15 (%)			
Total	11.9	18.0	25.0
Rural	14.6	21.9	29.0
Urban	4.5	8.3	15.3
Before age 18 (%)			
Total	NA	50.6	62.9
Rural	NA	58.1	69.6
Urban	NA	31.3	46.7

Source: International Institute for Population Sciences (1995).

Marriage patterns

Despite laws stipulating the legal age at marriage as 18 for females, early marriage continues to be the norm even in the 1990s (see Table 2). The median age at marriage is 16 years and 40% of all women aged 15–19 are already married. In rural areas, almost two in three females aged 20–24 were married by age 18, one third by the time they were 15, and 15% even before they were 13. Cohabitation (gauna) also occurs early: about half of all women are thus sexually active by the time they are 18; and almost one fifth by age 15. In the four large northern states — Bihar, Madhya Pradesh, Uttar Pradesh, and especially Rajasthan — the median age at marriage remains 15 or less even in the 1990s (IIPS, 1995).

Nationally, there is evidence that the prevalence of adolescent marriages has been declining modestly over the last decades. Proportions married among adolescent females aged 15–19 have declined from 70% in 1961 (Pathak and Ram, 1993), to 44% by 1981, and to 39% by 1992–1993 (IIPS, 1995).

*Questionnaires were published, for men, in *Debonair* in 1991, and for women, in *Savvy* in 1992. Their results were published, respectively, in subsequent issues.

Sexual activity

There is a general (mis)-perception that adolescents, and unmarried individuals rarely engage in sexual relations, that sexual activity occurs overwhelmingly within the context of marriage, and is not a matter of concern. Not only is the topic of the sexual behavior of young people highly sensitive, but also, research on sexual behavior, whether premarital or within marriage, is sparse. The few studies that exist are described below.

The majority of these studies rely on similar designs and methodologies. Typically, for example, data are drawn from surveys with self-administered questionnaires in English (for example, Watsa, 1993; Goparaju, 1993; Sehgal *et al.*, 1992). Some are even based on magazine surveys of readers, with entirely self-selected samples (Savara and Sridhar, 1991; Sridhar and Savara, 1992)*. A few studies, however, are conducted in local languages (Bhende, 1994; Savara and Sridhar, 1994; Sharma and Sharma, 1995), supplement survey results with qualitative methods (Goparaju, 1993), or rely explicitly on clinical examinations (Bang *et al.*, 1989) or qualitative designs (Bhende, 1994; George and Jaswal, 1995). Despite serious limitations in their study designs and methodologies, these are among the only studies of their kind in India, and their results, summarized in Table 3 and 4, give a good starting point for discussion on adolescent sexual activity.

Premarital sexual behavior of adolescent and college-aged males. Although beset by methodological weaknesses, and not necessarily representative of the population at large, studies on adolescent and college-aged men paint a disturbing but relatively consistent picture of considerable sexual activity, including high risky behavior, and relatively early and spontaneous initiation of sexual activity, often with older married women in the community, and without protection.

Roughly one in four to one in five unmarried adolescent boys has engaged in sexual relations. These rates are reported among school and college students responding through self-administered questionnaires in English (Watsa, 1993; Goparaju, 1993; Savara and Sridhar, 1994; Sehgal *et al.*, 1992), as well as other groups, responding in local languages (Savara and Sridhar, 1994; Bansal, 1992). Somewhat lower rates are reported in a study in Gujarat using face-to-face interviews, in which only 16% of rural boys, and 9% of urban college boys admitted sexual activity (Sharma and Sharma, 1995). Higher rates are reported by the self-selected sample responding to a magazine survey (Savara and Sridhar, 1991).

While the modal age of initiation of sexual activity was 17–18 — reported by 55% of college-going males in Hyderabad (Goparaju, 1993), and over 90% of sexually active rural adolescents in

Table 3. Profile of premarital sexual activity of males during adolescence: summary of results from various studies

Sample	Site	Method	Language	Proportion of sexually active men reporting:			Author
				Percentage reporting sexual activity in adolescence	Age at sexual initiation	relations with sex worker	
1. Adolescents and young adults	16 cities	self-reported questionnaires	English	28	na	19	Watsa, 1993
2. College students aged 19–23, male	Hyderabad	self-reported questionnaires	English	25	17–18	25	Goparaju, 1993
3. Unmarried males* college students (mean age 18) migrants (mean age 20) white collar workers (mean age 24) blue collar workers (mean age 23)	Nasik/Thane	Face-to-face interviews and FGDs if illiterate; self-administered if literate	English Marathi	19	17	2**	Savara and Sridhar, 1994
4. Adolescent male truck cleaners	Indore	Face-to-face interviews	Hindi	25	na	high	Bansal, 1992
5. Adolescent boys aged 16–19	rural Gujarat	Face-to-face interviews	Gujarati	16	17–18	78	Sharma and Sharma, 1995
6. College going adolescent males aged 16–19	urban Gujarat	Face-to-face interviews	Gujarati	9	na	na	Sharma and Sharma, 1995
7. School boys	Delhi	Survey	English	25	na	na	Sehgal <i>et al.</i> , 1992
8. Male readers*	all-India	Magazine survey	English	41	17–19	37	Savara and Sridhar, 1991

*Reporting on adolescent sexual activity retrospectively where necessary.

**Sexual initiation only.

na: not ascertained.

Table 4. Profile of premarital sexual activity of females during adolescence: summary of results from various studies

Sample	Site	Method	Language	Percentage reporting premarital sexual activity*		Age at sexual initiation	Author
				Percentage reporting sexual activity*	Age at sexual initiation		
1. Adolescents and young adults	16 cities	self-reported questionnaires	English	6	na	na	Watsa, 1993
2. Women	urban areas	Survey	English	9	na	na	IMRB, 1993
3. Unmarried women (aged 17–23)	Nasik/Thane	Face-to-face interviews if illiterate, self-administered if literate	English Marathi	“almost none”	na	na	Savara and Sridhar, 1993
Married women: Migrants (mean age 27) White collar (mean age 31) Blue collar (mean age 28)				7* 1* 9*	16 23 21		
4. Female readers	all-India	Magazine survey	English	7*	19		Sridhar and Savara, 1992
5. Adolescent girls, tribal area	tribal area, rural Maharashtra	Physical examination	Marathi	47	na		Bang <i>et al.</i> , 1989
6. Adolescent girls	Bombay slums	Survey, FGDs, key informants	Marathi	evidence from girls and their mothers suggests none; indirect evidence from key informants, physicians, and chemists suggests that sexual activity among adolescent girls is not unknown	na		Bhende, 1995
7. Married women	Bombay slums	repeated FGDs	Marathi	no premarital sexual activity reported; the wedding night usually reported as first sexual encounter	usually in adolescence		George and Jaswal, 1995

*Reporting retrospectively on pre-marital sexual activity, not necessarily but usually in adolescence, since marriage generally reported to have occurred in adolescence.

na: not ascertained.

Gujarat (Sharma and Sharma, 1995) — between 5% and 10% of these two groups had been sexually active by age 16. Similarly, among males in Nashik and Thane, age at initiation of sexual activity ranged from 16.6 years among the sexually active college-aged sample to between 17 and 19 years among unmarried migrant and blue and white collar workers aged 20–25 (Savara and Sridhar, 1994).

Partners at the time of initiation vary. Their ages range from the same age as the respondents (55%), to girls under 15 (20%), to much older married woman (20%) (Goparaju, 1993). Their status also varies. Among college students from Hyderabad, partners at initiation were largely married women (45%), friends (30%), relatives (15%), and fiancées (10%), but never, reportedly, sex workers. In contrast, in the Gujarat study, 78% of sexually active rural adolescents, most of whom were wage earning and thus somewhat economically independent, admitted that sexual initiation occurred with a sex worker (Sharma and Sharma, 1995, see also Savara and Sridhar, 1991).

Nevertheless, large proportions of unmarried adolescent and college-aged males have had relations with a sex worker at some time. In one multicentre study, 19% of sexually active young men admitted relations with a sex worker (Watsa, 1993), as did 25% of unmarried sexually active college-going boys in Hyderabad (Goparaju, 1993). Medical practitioners serving a Bombay slum corroborate that many of the sexually active adolescent boys they treat report contact with sex workers (Bhende, 1994).

Also common to many studies is the consistency with which unmarried urban males report sexual relations with older married women residing in their neighborhoods: college students in Hyderabad (Goparaju, 1993), as well as younger (aged 16–17) sexually active males in the study in Gujarat (Sharma and Sharma, 1995), and even sexually active Delhi school boys (60%) (Jain, 1994, reporting on Chaudhary and Francis, 1994).

Outside of marriage, relationships are rarely steady. Two in three respondents reporting sexual activity had relations with multiple — an average of four — partners (Goparaju, 1993). Moreover, sexual relations occur, for the most part, spontaneously and surreptitiously, depending largely on opportunities for privacy (Goparaju, 1993). Homosexual contacts vary from 3% reported in interviews (Savara and Sridhar, 1994), to ten percent in self-administered questionnaires (Watsa, 1993), to one in four in magazine surveys (Savara and Sridhar, 1991).

Condom use is rare and irregular, even among the educated (Goparaju, 1993; Jain, 1994). Among the mostly illiterate truck cleaners, as many as 94% of sexually active adolescents had engaged in

unprotected sex (Bansal, 1992). In rural Gujarat, where relations with sex workers were freely admitted, as many as 80% of sexually active adolescent boys had never used a condom (Sharma and Sharma, 1995).

Studies of sexually transmitted diseases among adolescents are rare. However, data from studies of the general population and facilities warn that young people constitute a neglected but high risk group whose numbers may have doubled since the 1980s (Watsa, undated). The typical patient at STD clinics is a young man barely out of adolescence (modal ages are 20–25) and of relatively low socioeconomic status (Hiramani *et al.*, 1985). Other evidence comes from medical practitioners serving an urban slum community in Bombay, who report treating adolescent boys for sexually transmitted diseases (Bhende, 1995), and from one small study of adolescent truck cleaners, among whom only four percent — likely an underestimate — admit a history of sexually transmitted disease (Bansal, 1992).

Premarital sexual behavior among adolescent and college-aged females. As seen in Table 4, there are fewer studies of female sexual behavior before marriage in India. Whatever the methodology, results consistently suggest low levels — under 10% — of sexual activity among relatively well-off English-speaking unmarried urban women (Watsa, 1993; IMRB, 1993, reported in Nag, 1994), as well as among relatively poor women in Nashik and Thane (Savara and Sridhar, 1993). Also, age at sexual initiation is higher among unmarried females than among males, averaging 20 years.

Fewer studies have addressed sexual activity among poor adolescent girls in rural areas and urban slums. In one study of rural, tribal women in Maharashtra, physical examination revealed that nearly half of all unmarried girls were already sexually active (Bang *et al.*, 1989). While probably atypical of rural India as a whole, these rates suggest that sexual activity among unmarried adolescents in rural areas may not be as rare as is often believed.

In contrast, an in-depth study of relatively poorly educated and low-income adolescents in the slums of Bombay suggests that girls are so closely watched that pre-marital sexual activity is virtually impossible. However, key informants, including medical practitioners, suggest that sexual activity among unmarried adolescent girls, while limited, does exist; abortion and oral contraceptive use by adolescent girls are not unknown. Such evidence suggests that adolescents were probably somewhat more sexually active than suggested in direct interviews. It also highlights the difficulties in obtaining accurate information on sexual behavior among adolescent girls, even by studies designed in culturally sensitive ways.

Although data are sparse, there is evidence that a disturbingly large number of adolescent girls are subjected to rape and forced prostitution. Almost 25% of rape victims are reportedly aged under 16, and 20% of all sex workers are adolescents (Ministry of Welfare, Department of Women and Child Development, 1990).

A rare look at sexual experiences within marriage comes from an in-depth study in Bombay that provides retrospective information on 35 women's experiences as married adolescents (George and Jaswal, 1995). Although not intended to be representative*, results highlight the sexual vulnerability of newly married — usually adolescent — women. Most of these women were unprepared for and ignorant about sexual intercourse. The first sexual experience with their husbands was typically described by these women as traumatic, distasteful, and painful, and the use of force was frequently mentioned.

Limitations. It is clear from this review that studies addressing the issue of adolescent sexual behavior are rare and exploratory. Many studies are concentrated among the English-speaking and thus better educated and higher income sub-populations. Fewer studies discuss female rather than male sexual behavior. The few available studies refer more commonly to premarital rather than marital sexual activity. Moreover, existing studies have employed a variety of methodologies, and questions remain regarding sample selection, sample loss and consequent potential biases, the representativeness of findings, and the reliability of responses in a conservative population as in India. (See the appendix for more detail on the sample and design of some of the surveys.)

A major limitation of studies is their design and sample selection procedures, and the consequent non-representativeness of their samples, since surveys, mostly conducted in English, have usually covered the educated, and urban — rather than the poor, rural, or slum — population. In the FPAI study, for example, the sample was drawn from a

variety of sources in the different sites — schools, colleges, youth meetings, and even from public places such as railway stations, college canteens, and offices (Watsa, 1993). In the Hyderabad study, college students were not randomly selected; rather, the sample was drawn from among those who were out of class (Goparaju, 1993). In both studies, English language questionnaires were administered, thereby excluding the large majority of non-English speaking youth in the country. In contrast, the rural Gujarat study, although administered in Gujarati, drew its sexually active population through a snowball technique, which may well have missed sexually active boys (Sharma and Sharma, 1995). In other studies, sample selection procedures are not addressed (for example, Savara and Sridhar, 1993; Bansal, 1992). Magazine surveys are undoubtedly the most problematic, and least reliable and representative. Their respondents are necessarily self-selected, restricted not only to the already select English-language readership of magazines dealing explicitly with sexual issues, but to those who are willing and motivated enough to respond to a survey on sexual behavior (Savara and Sridhar, 1991; Sridhar and Savara, 1992). Suggestive of this selectivity is the observation that respondents of the magazine surveys were disproportionately male, urban, and well-educated.

Questions can also be raised regarding sample bias among qualitative studies. For example, in a study of women in Bombay, more than one in four women in the sample were deserted, separated or divorced; all were selected as a result of contact with one of several non-governmental organizations providing services to women in distress, a procedure that may well have resulted in a biased sample (George and Jaswal, 1995; George, 1993).

Issues of sample loss also arise. In both the FPAI (Watsa, 1993) and the Hyderabad (Goparaju, 1993) studies, questionnaires were self-administered, filled out on the spot, and returned to the investigator. This resulted in a *non-response* rate of 8% and 17% for male and female respondents, respectively, in the FPAI study (Watsa, personal communication) and 12% in the Hyderabad study (80 of 91 students returned the filled-out questionnaire). Refusal rates in other studies may be higher, but were not indicated.

The extent to which a single interview situation could inhibit responses on premarital sexual activity is another concern. Some studies have used a combination of self-administered questionnaires for literate respondents and face-to-face interviews of illiterate respondents (Savara and Sridhar, 1993). The extent to which these different methodologies themselves affected the responses of literate and illiterate respondents is, unfortunately, not addressed. In the Gujarat study, questions were asked in face-to-face interviews and this may have contributed to the considerably lower rates of sex-

*The Bombay study was based on repeated focus groups, with up to 20 in each of six groups over a period of three months. Results are probably not representative for several reasons. First, its use of repeated focus groups among women who are acquainted with each other is contrary to standard focus group methodology and needs further evaluation. Second, as in other studies, and as discussed under Limitations, sample selection procedures suggest a somewhat biased sample, since, for example, all women in the sample were selected as a result of contact with one of several non-governmental organizations providing vocational training, legal assistance, counselling, education, housing and health services. Third, as a result of its time intensive approach, its sample size is 35, raising further questions about the representativeness of its findings. Fourth, there is no clear indication of the kinds of questions asked and it is unclear whether the content of focus groups focused on negative experiences rather than all experiences.

ual activity obtained in this survey compared to others (Sharma and Sharma, 1995).

What is surprising then is the degree of agreement among studies on the magnitude of adolescent sexual activity, as seen in Tables 3 and 4. While this consistency of responses is intriguing, it should not deflect attention from the need to assess appropriate methodologies for rigorous studies of adolescent sexual behavior given the sociocultural constraints prevailing in India. Major questions remain on methodological issues relating to studies of sexual behavior among adolescents and young people in India. A fundamental question is whether the kinds of quantitative studies of sexual behavior among adolescents conducted in other regions of the world can be successful in India. Self-reported questionnaires ensure confidentiality, but can only be implemented in a literate population. In contrast, as seen in Tables 3 and 4, strong cultural norms may result in underestimates of rates of sexual activity if obtained through face-to-face interviews. Under these conditions, even if quantitative methods are to be pursued, they may need to be combined with qualitative ones, in order to provide in-depth information on both norms and experiences.

Fertility and family planning

Unlike in most other countries, adolescent fertility in India occurs mainly among *married* adolescent females. Early onset of sexual activity and the pressure on young married women to prove their fertility as soon after marriage as possible results in high rates of adolescent fertility*, as summarized in Table 5. As many as 36% of married adolescents aged 13–16 and 64% of those aged 17–19 — a total of about ten million women — are either currently pregnant or are already mothers; one quarter and one half, respectively, are already mothers. Worse, about five million have experienced pregnancy by the time they are 16 (estimated from IIPS, 1995).

Moreover, adolescents contribute significantly to the total number of births occurring in the country. A progressively larger share of all births occurring in the country occurs to women aged 15–19: 11% in 1971, 13% in 1981 and 17% in 1992–1993 (IIPS, 1995). As family size preferences have begun to fall and contraception has been undertaken increasingly among older women, fertility appears to be increasingly concentrated in the adolescent ages. Also, anecdotal evidence, and hospital and clinic admis-

Table 5. Adolescent child bearing, 1992–1993

1. Age specific fertility rate (ages 15–19)	
Total	0.116
Rural	0.131
Urban	0.075
2. Mean number of live births to currently married women aged 15–19	
Total	0.62
Rural	0.63
Urban	0.60
3. Childbearing among ever-married women aged 13–19:	
% who are mothers	
13–16	24.5
17–19	52.4
Total	46.0
% married women aged 15–19 who are mothers or pregnant with their first child at ages:	
13–16	36.1
17–19	64.1
Total	57.7
4. Absolute number of pregnant adolescents and adolescent mothers (in millions)	10
5. % share of births occurring to women aged 15–19 (1992–1993)	
Total	17.1
Rural	17.8
Urban	13.9
6. Spontaneous abortion: % pregnancies resulting in miscarriage or stillbirth (1992–1993)	
To adolescents (15–19)	
Total	9.7
Rural	9.3
Urban	11.4
To women of all ages (15–49)	
Total	6.8
Rural	6.6
Urban	7.4
7. Induced abortion: % pregnancies resulting in induced abortion (1992–1993)	
To adolescents (15–19)	
Total	1.7
Rural	1.4
Urban	3.3
To women of all ages (15–49)	
Total	1.3
Rural	0.9
Urban	2.4

Source: IIPS, 1995.

sions data suggest that fertility among unmarried adolescents is increasing, particularly in urban areas†.

Contraception is rarely practiced among adolescent and young women or their husbands and partners. The 1992–1993 National Family Health Survey (IIPS, 1995) reports that only 7.1% of married women aged 15–19 were using contraception, compared to 21% among women aged 20–24. Methods that are suitable for adolescents, such as oral contraceptives or diaphragms, are simply unavailable; the condom, while available, is underutilized by both adolescent and adult men. It is no surprise then that as many as 30% of married women aged 15–19 report a desire to

*Fertility is measured as the number of births per 1000 women (including both married and unmarried women, those sexually active and inactive).

†The situation of unmarried adolescent mothers is particularly bleak; families are unlikely to offer support and the few existing “remand” homes for unwed mothers tend to be understaffed and offer little comfort, physical or emotional, to the woman and child (Watsa, 1991).

delay the next birth (28%) or limit childbearing (2%), but are not using a contraceptive (IIPS, 1995).

Health risks of early marriage and childbearing

Pregnancy occurs to these adolescents before they are physically fully developed, and exposes them to particularly acute health risks during pregnancy and childbirth. The extra nutritional demands of pregnancy come at the heels of the adolescent growth spurt, a period that itself requires additional nutritional inputs, and if unmet, can further deplete the already malnourished adolescent. Pregnancy that occurs before the adolescent is physically fully developed can result in severe damage to the reproductive tract (Ramachandran, 1989), elevated risks of maternal mortality, pregnancy complications, perinatal and neonatal mortality, and low birth weight (Jejeebhoy and Rama Rao, 1995).

Although data are sparse and largely hospital-based, they confirm that maternal deaths are considerably higher among adolescents than among older women. For example, a hospital study in a relatively low mortality setting in Bombay indicates that while the maternal mortality ratio among women aged 20–29 was 138 per 100 000 live births, adolescents experienced considerably higher ratios — 206 per 100 000 live births (Pachauri and Jamshedji, 1983). And estimates derived from the only known community-based survey, which was carried out in rural Andhra Pradesh (Bhatia, 1988; Acsadi and Johnson-Acsadi, 1990), suggest that adolescent maternal mortality ratios are almost twice as high as those reported for women aged 25–39 (1484 and 736 per 100 000 live births, respectively).

Adolescents are also more likely to experience adverse pregnancy outcomes than older women are. For example, ten percent of all adolescent pregnancies end in miscarriage or stillbirth compared to seven percent among older women (IIPS, 1995). A hospital-based study in Bombay observes spontaneous abortion rates as high as 158 per 1000 pregnant women among adolescents, compared to 77 among women aged 20–29, and comparative stillbirth rates of 35 and 29 per 1000 pregnant women, respectively (Pachauri and Jamshedji, 1983). Infants of adolescent mothers also fare worse than infants of older women: the neonatal mortality rate was 70.8 per 1000 live births among the infants of adolescent mothers compared to 44.8 among those of women aged 20–29 (IIPS, 1995).

Despite the huge health risks associated with pregnancy among adolescents, few studies have examined their obstetric morbidity patterns. What is available suggests that levels of anaemia and complications of pregnancy are considerably higher among them than among older women

(Ramachandran, 1989; Pachauri and Jamshedji, 1983). One community-based study in Andhra Pradesh found that adolescent weight gain during pregnancy was 2.7 kg compared to 4.8 kg among adult women. Weight loss during lactation was higher among adolescents than among adult women (2.9 and 1.9 kg, respectively); and birth weight and subsequent weight gain was substantially lower among infants born to adolescent compared to adult women (Geervani and Jayashree, 1988). Another community-based study among tribal and overwhelmingly illiterate adolescents in Rajasthan observed moderate or severe anaemia among almost all (94%) of the pregnant adolescents; 85% weighed less than 42 kg; one in three had Vitamin A deficiency; and one in three of those in the third trimester showed high-risk signs (Sharma and Sharma, 1992). Despite these elevated risks, adolescents are not more likely than older women to obtain antenatal care during pregnancy and trained attendance at delivery. Both receive about the same: two in three obtain antenatal care; and about one in three is delivered by a trained attendant (IIPS, 1995).

Induced abortion among adolescents

While abortion has been legal in India since 1972, limited availability and poor quality have kept safe abortion beyond the reach of most poor women. Of the estimated five million induced abortions that occur annually in India, only half a million are performed under the health services network (UNICEF, 1991). Studies describing the abortion situation in India are limited, hospital-based, and urban and, hence, refer to only a small proportion of abortion-seekers. And the few population based surveys that exist have tended to underestimate its prevalence, primarily because investigators rarely probe about abortion, and also because they have tended to focus on married rather than all women. Information on adolescent abortion seekers is particularly limited, but what is available is disturbing.

Induced abortion is somewhat more likely among adolescent than among older women. Population-based estimates of prevalence suggest mildly higher rates of induced abortion among married adolescent women aged 15–19 than among all women — 1.7 vs. 1.3% of pregnancies, respectively (IIPS, 1995). Hospital based studies, however, suggest that adolescents constitute a significant proportion of abortion-seekers: 27% of all abortions conducted in the period 1976–1987 in a rural setting (Chhabra *et al.*, 1988); and 30% of the 1684 abortions conducted in an urban hospital setting (Solapurkar and Sangam, 1985).

Unmarried adolescents constitute a disproportionately large proportion of abortion seekers. A large

proportion of adolescents who seek abortions are unmarried in both rural (Chhabra *et al.*, 1988) and urban areas (Aras *et al.*, 1987; Solapurkar and Sangam, 1985; Purandare and Krishna, 1974). Conversely, at least half of unmarried women seeking abortions are adolescent (Divekar *et al.*, 1979), and a disturbing number even below 15.

Especially disturbing is the fact that adolescents are considerably more likely than older women to *delay* seeking abortion services and hence undergo second trimester abortion (Divekar *et al.*, 1979; Aras *et al.*, 1987; Solapurkar and Sangam, 1985; Bhatt, 1978; Chhabra, 1992; Chhabra *et al.*, 1988). Delays in seeking services were largely the result of lack of awareness of pregnancy, ignorance of services, and fear of social stigmatization. In Solapur, second trimester abortions were performed on 56% of adolescent abortion seekers, compared to 34% of older women. And in both Baroda (Bhatt, 1978) and Bombay (Purandare and Krishna, 1974) in the early 1970s, more than four in five adolescent abortion seekers (81% and 90% respectively) came in the second trimester of pregnancy. Unmarried adolescents fare the worst. While three in five unmarried adolescents (59%) sought second trimester abortions, only a quarter (26%) of all married adolescents did so in a study in Bombay (Aras *et al.*, 1987). Even in rural areas, as many as 72% of unmarried abortion seekers, mostly adolescent, delayed abortion until the second trimester, compared to 43% of married abortion seekers. Worse, a study in Bombay revealed that 16% of all unmarried women (mostly adolescents) sought abortion at 20 weeks or later (Divekar *et al.*, 1979).

Health consequences of abortion are particularly acute for adolescents. Almost one in four adolescents who sought second trimester abortion suffered complications, compared to one percent of those who underwent abortion in the first trimester (Aras *et al.*, 1987). Adolescent abortion seekers also appear to be more vulnerable to repeat abortions; following abortion, few single adolescent women agreed to use contraception (Purandare and Krishna, 1974; Divekar *et al.*, 1979; Mandal, 1982).

Finally, a disturbing proportion of adolescent abortion seekers became pregnant as a result of rape or non-consensual sexual activity, suggesting the prevalence of violence against adolescent girls. In one Bombay study, for example, as many as 20% of all pregnancies to adolescent abortion seekers occurred as a result of involuntary contacts — 10% resulted from rape by male domestic servants of the daughters of their employers; another four percent resulted from rape generally; and about six percent resulted from incest or involvement with relatives (Divekar *et al.*, 1979). Pregnancy frequently resulted from relations with relatives —

anywhere from 11% (Mandal, 1982) to 20% (Bhatt, 1978).

WHAT ADOLESCENTS KNOW ABOUT SEXUAL, CONTRACEPTIVE AND REPRODUCTIVE HEALTH

Adolescents tend to be extremely poorly informed regarding their own sexuality and physical well-being, their health, and their bodies. Whatever knowledge they have, moreover, is incomplete and confused. Low rates of educational attainment, limited sex education activities, and inhibited attitudes towards sex attenuate this ignorance.

Awareness among female adolescents about menstruation and other physiological changes at puberty tends to be patchy, at least until these changes occur — two in five menstruating girls by one account in rural Maharashtra (Vlassoff, 1978). Knowledge is limited to the mechanics of menstruation and to related behavioral norms — for example, that they are not permitted to cook or go too close to the idols of the Gods (Bhende, 1995, 1994), rather than a deeper understanding of the physical changes occurring and their relationships to sex and reproduction (Vlassoff, 1978). Boys are about as unaware of physical changes as girls are, but are far more interested in filling this gap in knowledge (Bhende, 1994).

Knowledge of sex and reproduction is even more limited. For example, the average college-going girl (aged 17–18) in one study, could correctly answer only six of 25 questions on human sexuality, reproduction, and contraception (Sharma and Sharma, 1996). Similarly, in the slums of Bombay, the majority of girls (67%) and less than half the boys reported that they knew nothing about married life and its sexual aspects, and 16% of all girls and 54% of the boys answered correctly that pregnancy results from sexual intercourse, although observation of body language and non-verbal responses hint of deliberate under-reporting (Bhende, 1995, 1994). A retrospective investigation of poor women residing in Bombay corroborates their general ignorance about what to expect after marriage (George and Jaswal, 1995; George, 1993). One woman was told only that “after marriage, we’ll be dressed up, taken to a man, and made to sleep with him. They tell us not to be frightened, not to shout but to keep quiet”. The consequences of this ignorance are dire: as many as 88% of unmarried girls, most from the rural areas, who sought abortion were unaware of the link of sexual relations and pregnancy (Chhabra, 1992).

Contraceptive awareness is equally vague, even among married adolescents. Although the large majority of ever married adolescents know about at least one method of contraception, this method is most likely to be sterilization, a method that is

unsuitable for the large majority of adolescents. A national survey of fertility and family planning practices (ORG, 1990) observed that while 89% of married adolescent females were aware of female sterilization, only 59% were aware of condoms, 49% knew of oral contraceptives, and 39% of IUDs. Unmarried adolescent boys also display poor contraceptive awareness: only 57% of adolescent boys residing in Bombay slums were aware of female sterilization, 53% of condoms and oral pills, and 41% of male sterilization (Bhende, 1995, 1994)*. Fewer still of both female and male adolescents are likely to be aware of the correct use of various contraceptives.

Awareness of sexually transmitted diseases, and HIV/AIDS is particularly limited. Even among urban college students, AIDS awareness is not universal (66% in Solapur, 95% in Bombay, Chitale and Das, 1992). It is particularly poor among low-income slum adolescents: asked specifically about AIDS, one in four girls and one in three boys indicated that they had heard of AIDS. But when asked about sexually transmitted diseases more generally, only about 10% of both girls and boys (8 of 85 girls and 13 of 125 boys) had heard of STDs, and whereas most of these boys (7) could name at least one STD, not a single girl could (Bhende, 1995, 1994).

Far worse, knowledge about the modes of transmission of HIV/AIDS, and the role of condoms in safe sex were poorly understood, irrespective of age and educational status, but particularly by females. Fewer than five percent of college students were aware that AIDS could be transmitted through infected blood; and almost twenty percent thought AIDS was curable (Chitale and Das, 1992). Moreover, fewer than 11% of these college students were aware that sexual relations with sex workers could be a mode of transmission. In comparison, of the 85 female and 125 male low-income adolescents residing in Bombay's slums, only five respondents — all boys — suggested that relations with sex workers could result in STDs and HIV infection. Many of these low-income girls and boys, moreover, were of the impression that HIV infection can be contracted through the air, and by various non-sexual contacts (coughing, touching) with a person with HIV/AIDS. Nine girls and 19 boys thought AIDS was curable. The role of condoms in preventing HIV infection was rarely recognized — no girls and 6 of 125 boys (Bhende, 1995, 1994).

*Bhende's in-depth study of adolescents in Bombay slums inquired about knowledge of contraception only among boys, fearing that it would not have been accepted favorably by girls and especially their mothers. Whether such an assumption is valid needs to be rigorously assessed, given the apparent ease with which earlier studies appear to have tackled the question.

Adolescent ignorance about sexual and reproductive behavior is compounded by a reluctance among parents and teachers to impart relevant information. In both rural areas and urban slums, mothers expect their adolescent children, particularly daughters, to remain uninformed about sex and reproduction, considered to be embarrassing, distasteful, and dirty subjects, not to be discussed with their adolescent daughters (Bhende, 1995, 1994; Vlassoff, 1978; George and Jaswal, 1995). One woman in Bombay said: "Who will tell this dirty thing to young girls and frighten them with this knowledge?" (George and Jaswal, 1995). Focus group discussions with mothers of adolescent girls highlight both their reluctance to inform their daughters regarding sex and reproduction ("How can the mother talk about such matters?", and "There is no need to tell them anything".) (Bhende, 1995, 1994).

The educational system is also ambivalent about imparting sex education. For example, sex education activities initiated by the National Council of Educational Research and Training are euphemistically referred to as "adolescent" education, and are imparted not as a separate subject but as part of existing population education activities (Anand, 1993). Teachers by and large find the topic embarrassing and avoid it (Vlassoff, 1978). As a result of the general reticence of adults to address these issues, the main source of information remains the media (Chitale and Das, 1992; Bhende, 1995, 1994; Anand, 1993). Exceptions do exist, however, such as a unique letter box system in schools and colleges in one setting in Gujarat, in which questions, dropped anonymously, are answered by trained counselors. Concerns raised by adolescents tended to cluster by age and sex. Among girls, the major concern changed from menstruation in Classes 7–8, to physical appearance by Classes 9–12; and only among female college students do issues of sexual relations become important. Among boys, interest shifts from questions regarding normal sexual behavior, nocturnal emission, and male and female anatomy in Classes 7–8; to more specific and personal questions on masturbation, body size, and condoms in Classes 9–12; to questions pertaining to adult sexual behavior and satisfaction among older boys (Sharma, 1996).

ATTITUDES ABOUT MARRIAGE AND SEX

Attitudes towards marriage and sex among adolescents, and girls in particular, continue, by and large, to be conservative and accepting of traditional norms which oppose love marriages, social interaction between adolescent boys and girls and pre-marital sex. Those in the forefront of changing attitudes are boys, and urban and educated adolescents.

Attitudes of adolescent or young women to the ideal age at marriage remain, by and large, traditional, although there is evidence that attitudes of young men are changing. Most adolescent girls continue to favor or expect marriage in adolescence (Bhende, 1995, 1994; Vlassoff, 1978; Patel, 1982; Kumari, 1985), with later ages at marriage favored more by well educated and working adolescents (Kumari, 1985). Equally conservative attitudes are displayed as far as marital decision-making is concerned. In Lucknow, as many as 84% of adolescent females preferred that marriages be arranged by their parents (Kumari, 1985). In the Bombay slums, however, while the majority of adolescent girls favored arranged marriage, two in three boys actually favored love marriages (Bhende, 1995, 1994).

Nor are parents willing to relinquish the right to arrange the marriages of their children. In one study in Bombay, only 35% of parents were willing to allow sons to select their own spouses, and 28% were willing to allow this of their daughters. Marriage decisions are rarely discussed with adolescent children — by no more than one in ten parents — although career plans are discussed by over half (Mahale, 1987). In the Bombay slums, parents tend to consult their sons when approving a prospective match, but rarely their daughters. Despite these attitudes, love marriages and even elopements do exist (Bhende, 1995).

Attitudes on premarital sexual activity, even among young people themselves, continue to be conservative, although evidence suggests an increasing acceptance of premarital sex. Young adolescents appear least likely to approve of premarital sexual activity: For example, in a study of 17 185 adolescents aged 14 to 17 (95% unmarried) from 22 districts and 251 schools in Uttar Pradesh, Rajasthan, Haryana, and Delhi (Family Planning Foundation of India, 1993), 87% of females and 72% of males disapproved of premarital sex. Older adolescents, in contrast, appear to be somewhat more tolerant: in a 1993 survey of young people (aged up to 24 and presumably more experienced) in 16 cities, 63% of females and 38% of males disapprove of sexual relations before marriage in any circumstances, for example, even if in love (Watsa, 1993). As many as 23% of all males and 30% of all females are of the view that premarital sex is a sin (FPAI-SECRT, 1990). And a magazine survey of women (Sridhar and Savara, 1992) suggests that even among educated, liberated, and self-selected women, double standards continue to be held: about half of both men and women stress that it is imperative that a female — but not a male — is a virgin at marriage (Watsa, 1993; Sridhar and Savara, 1992).

A comparison of the findings of qualitative studies of urban college students in Hyderabad (Goparaju, 1993), and adolescents in the slums of Bombay (Bhende, 1995, 1994) underscores differences in attitudes between males and females and

between college educated and poorly educated youth. College students, including those not sexually active, report very liberal attitudes to premarital sex (Goparaju, 1993). At the other extreme, adolescent girls residing in a Bombay slum are particularly guarded and secluded, and accepting of the kinds of restrictions imposed on them (Bhende, 1995, 1994). Adolescent boys and girls agree that girls who mix with boys are considered dubious and “bad” (69% girls and 66% boys), that “a girl who responds when you whistle at her is a bad girl”, but that “a girl who stays at home and does all the housework is a good girl”. Although responsible sexual behavior, in their opinion, is to stay away from the other sex, the greater freedom that adolescent boys are accorded allows them to strike up sexual relationships more easily, though not with adolescent girls of their neighborhoods.

SEXUAL AND REPRODUCTIVE DECISION-MAKING BY ADOLESCENTS

Within the patriarchal family structure, women have relatively little power, but young and newly married women are particularly powerless, secluded, and voiceless (Karve, 1965). Adolescent women then have little choice about whom and when to marry, whether or not to have sexual relations, and when to bear children. In fact, there are strong pressures on women to prove their fertility as soon as possible after marriage; social acceptance and economic security in her marital home are established largely through fertility, and particularly through the birth of a son. Infertility is deeply feared — a childless woman stands the risk of abuse, abandonment or the presence of a second wife. A rare look at sexual negotiating among women in India highlights young women's lack of decision-making authority in matters relating to sex. Focus group discussions reveal that young women were routinely told that they were married for their sexual services and hence obliged to fulfill the sexual needs of their husbands: “This man has brought you here; if not for this, why has he brought you? You have to do it...” (George and Jaswal, 1995; George, 1993).

Nor is there much communication or intimacy between a young woman and her husband. Numerous surveys observe that couples in which the wife is young are systematically less likely to discuss their family size preferences or contraception than are couples with an older wife. Contraceptive and family size decisions typically rest with the husband alone or in conjunction with elder members of his family. In premarital relationships, too, adolescent girls are unlikely to make contraceptive decisions. Studies of adolescent and young adult abortion-seekers find, for example, that contraceptive decision-making was almost never made by the woman herself but left to the male

partners, a large proportion of whom (40%) remained apathetic to contraception (Mandal, 1982).

ADOLESCENT USE OF REPRODUCTIVE AND FAMILY PLANNING SERVICES

Despite their special health and information needs, there are few services that cater to adolescents in India, a limitation recognized by the Indian government itself (Ministry of Welfare, Department of Women and Child Development, 1990). Worst off is the out-of-school adolescent, overwhelmingly female, who is too old for child

health services, and does not qualify for maternal health services until she is pregnant*. As a result, anaemia, for example, which is rampant among adolescent girls, has been unaddressed by the health service network until pregnancy (Srikantia, 1989a). School health services do exist, but are not comprehensive, and school-going adolescents may fare only slightly better than out of school youth in getting their reproductive health needs addressed. Finally, counselling services are rare, making adolescents vulnerable to quacks and "sex specialists" (Watsa, 1987).

Equally few services are available to address the information needs of adolescents and young adults. While a formal population education program does exist, and activities conducted in schools, colleges, universities and vocational training institutions as well as in non-formal and adult education programs are expected to cover a wide range of issues, in practice its content rarely touches issues of sexuality and reproductive health, and there remains a glaring lack of responsiveness to the sexual information needs of young people†. The NGO Sector has tried to fill this gap by providing family life, and sex education for both in- and out-of-school youth. Although their outreach is limited, their experiences clearly demonstrate the huge demand for information and counselling services‡ (Watsa, 1991).

SUMMARY AND KEY RECOMMENDATIONS

The objective of this paper was to review what is known about adolescent fertility, sexual behavior and reproductive health in India. What has become clear, despite the fact that adolescents represent almost one quarter of the population, is that little information is available, and that adolescents are rarely considered a distinct group with special needs apart from those of children and adults. Moreover, much of the available information is recent and exploratory.

Some findings are, nonetheless, well established. Adolescent marriage and adolescent fertility rates are disturbingly high. Unlike in most other countries, adolescent fertility in India occurs mainly within the context of marriage. As a result of early marriage, about half of all young women are sexually active by the time they are 18; and almost one in five by the time they are 15. Correspondingly, the magnitude of teenage fertility in India is considerable: well over half of all women aged 15–19 have experienced a pregnancy or a birth. In general, the sparse information concerning other aspects of adolescent reproductive health suggests that adolescents face a variety of reproductive health problems beyond early marriage and fertility. What is available also points to enormous methodological difficulties in conducting research among adolescents.

*Some government programs have attempted to redress the gap in filling adolescents' information needs. There is, for example, a non-formal education program for girls and, more recently, the Integrated Child Development Scheme (ICDS) has extended its activities to include adolescent girls. The ICDS program, originally intended to provide nutritional supplementation and health and nutrition education for pregnant and lactating women and nutritional supplementation and early childhood education for their pre-school-aged children, has recently expanded its services to incorporate programs for out-of-school adolescent girls aged 11–18. This program operates through Girls' Clubs (Balika Mandals) in 507 Blocks at present. Its activities, however, are limited to the provision of nutritional supplementation and health check ups, along with some health education. While training is a major component of the program for 15–18-year-old adolescents, the content of this training focuses on motherhood skills (nursing, first aid, child health, nutrition care and so on); reproductive health and sexual issues are not addressed. Despite its limited activities, the program is notable because, for the first time, the needs of adolescent girls are being specifically addressed.

†Population education cells exist in virtually every state, and population education has been introduced in the formal education curriculum. At college and university levels, the University Grants Commission launched a program to increase awareness about population education and make it an integral part of higher education among some 3.5 million youth in universities and college by 1990. Twelve Population Education Resource Centers located in universities across the country are responsible for curriculum development, material development, monitoring, and evaluation. In addition, by 1986–87, 35 universities had incorporated population education ideas into teacher training programs for secondary school teachers and 32 included population education at the post graduate level.

‡Activities have been conducted, for example, by the Indian Health Organization, the Family Planning Association of India, and the Parivar Seva Sanstha. The Family Planning Association, for example, is among the few organizations that address the health, counselling, and information needs of adolescents, now in some eight cities. Moreover, trainees of family life education programs, who tended initially to be shy and hesitant, succeeded in overcoming their reticence and routinely express their confusions about three issues in particular: physical and biological growth, conception, and emotional relationships.

While adolescent sexual behavior, sexual awareness and attitudes remain poorly explored topics, and available findings are not entirely representative, a disturbing picture emerges. Regarding sexual activity, the available evidence suggests that between 20 and 30% of all males and up to 10% of all females are sexually active during adolescence before marriage. Sexual awareness seems to be largely superficial. Social attitudes clearly favor cultural norms of premarital chastity. Double standards exist whereby unmarried adolescent boys are far more likely than adolescent girls to be sexually active; they are also more likely to approve of premarital sexual relations for themselves; and they have more opportunities to engage in sexual relations. Both unmarried and married women are vulnerable to being unprotected from pregnancy and sexually transmitted infection. They also are unlikely to have decision-making power in their sexual relationships.

Program recommendations

Unfortunately for program planners, the paucity of reliable information is less conducive to recommendations for adolescent programs than to research recommendations. Several program recommendations, nonetheless, stand out clearly from this review.

Intensify efforts to postpone early marriage among adolescent girls. It is important to raise awareness among girls, their parents, schools, and communities of the harmful health consequences of early pregnancy, as well as other consequences for girls' well-being, such as their subordinate status. It is also important to raise awareness of legislation prohibiting marriage for girls under 18 and to hold government accountable for upholding such legislation.

Address negative health implications of the lack of autonomy of married adolescent girls. Service providers must be trained to address the special needs of married adolescent girls, in ways that are sensitive to the adolescent and recognize their powerlessness within their husbands' families. The information and counselling needs of adolescents, for example, are more acute and varied than those of adult women, and need to be recognized and delivered appropriately. Equally important, service providers must treat pregnant adolescents as a high risk group, and monitor their pregnancies closely. Also, due to the low decision-making autonomy of adolescent girls in their husbands' families, providers should also try to raise the awareness of more powerful family decision-makers, such as their husbands and mothers-in-laws.

Address the nutritional needs of adolescent girls. Gender disparities in feeding patterns and anemia are widespread in India and take their toll on the growth of adolescent girls, and on the risks they suffer in pregnancy. Appropriate interventions must

be sought, therefore, that provide iron supplementation to all poor adolescent girls, irrespective of pregnancy status.

Provide more education to adolescents on anatomy and physiology. Adolescent girls and boys need more education on their anatomy and physiology, including information on changes in puberty, menstruation, conception, infections, sexuality, and contraception and protection from sexually transmitted diseases. Innovative ways of providing this information in a non-threatening environment that allows adolescents to raise their own concerns need to be replicated at the school and community levels. Equally important, innovative ways of overcoming adult resistance to education on these sensitive topics need to be developed.

Respond more sensitively to special needs of unmarried adolescent girls and boys. Broadly speaking, existing reproductive health and information services need to respond more sensitively, and in less judgmental ways, to the needs of adolescents. It is critical, moreover, that privacy and confidentiality are ensured in this culture in which adolescent sexual activity outside of marriage is considered unacceptable, especially for girls.

Research recommendations

The gaps in understanding about adolescent reproductive health are numerous and formidable. This review suggests that alongside biomedical studies, far more community-based, and behavioral research is needed, and that the following recommendations deserve priority:

Investigate reproductive health needs and decision-making authority among married adolescent girls. In India, where women generally have limited autonomy, where obstetric and gynecological morbidity is endured as a fact of life, where domestic violence against women is widespread, and where women are shy to reveal these conditions to health providers, research is needed that highlights the constraints married adolescent women face in accessing information and services, and in influencing decisions about fertility, contraception, morbidity and sexual relations. Research is also needed that identifies circumstances under which adolescent girls may be able to exercise greater autonomy in these matters.

Investigate pre-marital sexual behavior, awareness and attitudes among more representative samples of adolescent girls and boys. Research that is both more representative and more in-depth is required to assess such issues as levels and patterns of sexual activity, perceptions of sexual relations and sexual responsibility among adolescent females and males, awareness of sexual behavior, reproduction and ways of preventing pregnancy and disease, and the array of social and cultural constraints they face in addressing sexual issues or acquiring appropriate information and services on sexual matters.

Describe the levels, patterns and context of abortion behavior among both unmarried and married adolescent girls, and awareness of its legal status. Hospital-based evidence and evidence from such key informants as medical practitioners and others suggests that abortion is a significant and growing problem among adolescent girls. Adolescents frequently seek abortion later than adult women, in the second trimester, and experience higher rates of complications. Despite the serious implications of these findings, the topic of adolescent abortion has hardly been studied.

Conduct community-based studies on obstetric and gynecological morbidity among adolescent girls, and sexually transmitted infections among boys and girls. Evidence largely from hospital-based studies confirms the vulnerability of adolescent girls, compared to older women, to complications of pregnancy and childbirth. Studies of gynecological morbidity suggest that such self-reported morbidities as excessive discharge are indeed observed among adolescents. Studies of STD clinics suggest that a growing proportion of adolescents, boys in particular, come for treatment of sexually transmitted infections. Community-based studies are needed that reveal patterns of obstetric and gynecological morbidity among adolescent girls and sexually transmitted morbidity among girls and boys, and their socioeconomic and behavioral correlates.

Investigate adolescents' access to health care, and the constraints they face in acquiring good health. Very little is known about adolescent utilization of reproductive health services and the constraints, both sociocultural and program-related, adolescents face in acquiring services. What is available suggests that few services in fact exist which cater to their special health and information needs. Likewise, there are few opportunities for adolescents to seek information or counselling on sexual and reproductive matters. The few educational or counselling facilities that exist are only based in large urban areas. Moreover, the culture of silence surrounding sexual and reproductive health issues, along with widespread seclusion of young women, makes adolescent girls particularly unlikely to seek or obtain reproductive health information or care, including antenatal and delivery services.

Use rigorous, in-depth, and at the same time, sensitive and culturally appropriate research designs to elicit data about adolescents. Considerable attention needs to be paid to methodology and design issues on a topic as sensitive as adolescent reproductive health, particularly in a conservative culture. There are several limitations in existing research designs that need to be overcome. First, samples of study populations need to be representative of populations from which they are drawn, and randomness must be ensured. Second, given the sensitive nature of topics relating to adolescent sexuality, and the lack of sound precedents, a greater reliance on

qualitative methods is warranted, either on their own, or in order to provide supplementary and more in-depth insights to quantitative findings. Researchers need to test several such methods and select those that enable respondents to discuss their personal lives most openly. Third, questions need to be sensitively and imaginatively framed, designed to allow for as much in-depth insight as possible, and requiring considerable preparatory field-testing. Finally, whatever the methodology, there is a need to go beyond simple descriptions of data, to more rigorous analysis of behavioral relationships, and the social and cultural correlates of adolescent reproductive health.

In conclusion, this review has highlighted the glaring lack of information on the sexual and reproductive health of adolescents. Far more social science research is needed that explores why adolescents' sexual and reproductive health service and information needs remain unmet and how health and information services can be structured to respond to these needs, taking into consideration the social, cultural and economic constraints that adolescents face.

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APPENDIX

Samples and Designs of Surveys of Premarital Sexual Behavior Among Adolescents

Studies dealing with sexual behavior among the adolescent and college-aged population are limited. What is available focuses largely on males, and on the educated, English-speaking population. Hence results are not representative. For example, a survey of sexual behavior and attitudes conducted by the Family Planning Association of India in the early-1990s (Watsa, 1993) covered a total of 5709 educated, English speaking, males and females in 16 cities in some of which the FPAI operates Sex Education, Counselling, Research and Training Centers (Watsa, 1993). Over 90% of all respondents were adolescents and college-aged men and women (Watsa personal communication).

A second such study focused on never-married male college students in Hyderabad (Goparaju, 1993). While

the FPAI study was only quantitative, this study utilized both qualitative methods (focus group discussions) and quantitative survey techniques, among a sample of 91 male college students, aged 19–23. In both studies, survey questionnaires, prepared in English, were self-administered, filled out on the spot and returned to the investigator. This resulted in a relatively low non-response rate: 8% and 17% for male and female respondents, respectively, in the FPAI study, and 12% in the Hyderabad study (80 of 91 students returned the filled-out questionnaire).

A third study (Savara and Sridhar, 1993) was conducted among English and Marathi speaking students, aged 17–19, and white and blue collar workers and migrant laborers aged 20–25, in Nasik and Thane. The sample comprised a total of 1100 male and 1052 female respondents. The questionnaire was for the most part self-administered except in the case of illiterate respondents for whom a regular interview was conducted. The extent to which these different methodologies themselves affected the responses of literate and illiterate respondents is not addressed, unfortunately; nor is study design, sample selection procedures or the extent of sample loss.

A fourth study (Sharma and Sharma, 1995) was conducted among adolescent boys aged 16–19 in rural Gujarat and college-going boys in neighboring urban areas. The sample comprised 294 and 74 unmarried, sexually active boys from 10 villages and 4 colleges, respectively. Rates are probably underestimated for two reasons. First, in the rural population, sexually active adolescents were identified from the 10 villages by a snowball technique, which may well have missed sexually active boys. Second, questions were asked in face-to-face interviews and responses may thus have been inhibited. These limitations may well have contributed to the considerably lower rates of sexual activity obtained in this survey compared to others.

Magazine surveys that invite readers to respond to a “sex survey” are undoubtedly least reliable and representative. Respondents are necessarily self-selected, restricted not only to the readership of the particular magazine but to those among them who are willing and motivated enough to respond to the survey. Magazine surveys have been conducted in *Debonair* (an Indian equivalent of *Playboy* magazine but more modest) and in *Savvy* (a woman’s magazine catering to the more modern woman), both English language magazines. In both surveys, questionnaires were published — for men, in *Debonair* in 1991, and for women, in *Savvy* in 1992. Their results were published in subsequent issues (Savara and Sridhar, 1991, 1992). Respondents of the men’s survey included a total of 1424 married and unmarried men, among whom only 6% were adolescents. The magazine survey of women in contrast drew far less interest with only 500 respondents. As in the case of men, female respondents were overwhelmingly well educated and urban, suggesting considerable selectivity among respondents (Sridhar and Savara, 1992).