

Sexual Behavior and Sources of Information about Sex among Male Adolescents: An 8-Year Follow-up

Saniye KORKMAZ ÇETİN, Tezan BİLDİK, Serpil ERERMIŞ, Nagehan DEMİRAL, Burcu ÖZBARAN, Müge TAMAR, Cahide AYDIN

Abstract

Objective: This study aimed to determine the changes over time in sexual attitude and behavior among adolescents, and to measure the effect of sources information about sex on these changes.

Method: This study was conducted in 2 stages, the first in 1996 and the second in 2004. In all, 392 male tenth grade students (150 in the first stage and 242 in the second stage) were evaluated. A personal information questionnaire developed by the authors was used to collect sociodemographic data, including sexual behavior, sexual attitude, and sources of information about sex.

Results: The findings show that there was a significant increase in intercourse and flirting behavior from 1996 to 2004, although no significant difference in masturbation was observed. Additionally, the number of male adolescents that reported family and pornographic films as their sources of information about sex increased 1.6-fold and 2.9-fold, respectively. A significant relationship between watching pornographic films and engaging in sexual intercourse was noted.

Conclusion: The number of male adolescents age mean 16, engaging in sexual intercourse increased between 1996 and 2004. Pornographic films were observed to be the most common source of information about sex and also predicted the probability of adolescents having sex. Findings that indicate the need for better and more accurate sources of information about sex. The availability of good quality information about sex is critical to the development of the sexual identity and mental health of male adolescents.

Key Words: Male adolescent, sexual behavior, sex education

INTRODUCTION

Adolescence, which is the period of transition from childhood to adulthood, is characterized by physical, cognitive, and psychosocial changes. An important developmental function of this period is the formation of identity. Identity has social, occupational, and sexual aspects. Formation of sexual identity is affected by an individual's biological characteristics, sexual orientation and behaviors, family attitude, and social and cultural values. Although sexuality is usually recognized as sexual orientation and behavior, healthy sexuality is the integration of the aforementioned factors and the sense of self (Brown, 2000). Family values, cultural factors, and biological structure each play a role in sexual identity,

sexual orientation, and sexual behavior, as well as the formation of a sense of masculinity/femininity (Kaplan and Sadock, 2004).

Because of conflicts that arise as a result of peer pressure, risk-taking behavior, separation from parents, and the need for autonomy during middle adolescents' decisions about accurate and healthy sexual behavior might not be made (Kaul and Alderman, 2003). Early sexual experience can lead to legal problems stemming from cultural and social sanctions, as well as medical problems like unwanted pregnancy and sexually transmitted diseases. It is important that adolescents can openly and easily talk about all issues, including sexuality, and to try to understand their family's values as they establish their own

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Saniye Korkmaz Çetin MD., e-mail: sankork@yahoo.com

value system; however, it is known that parents usually avoid talking about sex with their children, and even if they do they avoid topics that adolescents are curious about and peers are unformed about, like masturbation, homosexuality, and orgasm (Ryan, 2000).

Sexual behavior includes sexual (coital) intercourse and non-coital activity (kissing, and touching breasts and genitals). Such non-coital behaviors are defined as that occur before sexual intercourse (Smith and Udry, 1985). The types of behaviors that are usually self-reported are influenced by race, and sociocultural variables, and they vary by culture. Studies conducted with university students in Turkey report that 67.8%-68% of males and 4%-11.4% of females have sexual relationships with the opposite sex (Orçun et al., 2003; Özan et al., 2004).

It is known that mass media have an impact on shaping value judgments. After the 1990s the impact of mass media, like television, music, cinema, and magazines, has increased to a large extent. An adolescent encounters about 14,000 programs per year on television that contain references to sexuality (Villani, 2001). Recently, there has been a striking increase in the quantity of pornographic content on the Internet and on CD that is easily obtained by adolescents. Although the impact of these media on the development of healthy sexual behavior is unknown, viewing television programs, CDs and Internet that contain sexual references increases sexual activity among adolescents and the risk of sexual intercourse in early ages (Brown et al., 2006a). Along with the widespread use of mass media and the Internet, there has been a gradual increase in the number of adolescents engaging in sexual behaviors for the last 10 years (Gökengin et al., 2003). This increase brings about the need for sources good quality information and preventive health services. It should be noted that mass media could have positive effects on adolescent behavior as well as leading to an increase in sexual activity. It is known that educational programs for youth reduce risky behaviors and the frequency of sexually transmitted diseases (Main et al., 1994; Coates and Feldman, 1997). It's important that media can make appropriate and self-controlled programs.

In Turkey, both young females and males find it acceptable that males have sexual intercourse before marriage (Orçun et al., 2003). The number of male adolescents that have their first sexual experience by paying for it or with people they are not romantically involved with is high (Özan et al., 2004). Considering the risks associated with such behavior, it is important to identify the sexual attitudes and behaviors of male adolescents,

determine how they change over time, and assess the effect sources of information about sex, including family, peers, and pornographic films, have on that change. This study aimed to contribute to the understanding of the sexual attitudes and behaviors of male adolescents, and to identify the problems they have this domain and methods for preventing risky sexual behaviors. To that end we examined the sexual behaviors and sources of information about sex, as well as the effect of those sources of information on the sexual behavior of male high school students, and monitored the changes that occurred between 1996 and 2004.

METHOD

Participants: Participants were recruited from a high school in the Konak district of Izmir, in which there were 1400 male and female students from middle class families. Tenth grade students of the school were randomly selected; 80 females (34.8%) and 150 males (65.2%) were assessed during the first stage of the study in 1996, while 28 females (10.4%) and 242 males (89.6%) participated in the second stage of the study in 2004. Because the small number of females in the second stage of the study made it difficult to match the groups in 2 stages, female students were excluded from the sample and only males were analyzed in the study. To conclude, the sample included 150 male students in the first stage and 242 in the second stage (total: 392 male adolescents).

Materials: A multiple choice self-report scale developed by the researchers, which included a total of 34 questions—20 in the first part and 14 in the second part—was administered. The first part of the scale included questions about sociodemographic characteristics, such as socioeconomic status, family type (divorce, parental loss), type of home, number of siblings, level of education, occupational status of parents, and migration status, which is an important issue in Turkey. The second part included questions about sexual attitudes and behaviors, and gathered data on the following: sources of information about sex (mother, father, sibling, other adults in the family, friends, newspapers, magazines, books with scientific content, television, and pornographic films); factors affecting sexual attitudes and behaviors; involvement in a romantic relationship with a girl; sexual experience and the extent of such experience (holding hands, kissing, cuddling-caressing, sexual intercourse); feelings and thoughts about this sexual experience having been shared and, if so, with whom; attitudes towards sexual intercourse before marriage and those of parents; knowledge of masturbation; engagement in masturbation and

Table 1. Distribution of adolescent male sexual behaviors in 1996 and 2004.

Types of Sexual Behavior	Stage 1 (1996) % (n)	Stage 2 (2004) % (n)	χ^2	P
Sexual Intercourse	19.9 (29)	34.4 (83)	9.39	0.002*
Masturbation	90.0 (135)	83.5 (202)	3.27	0.07
Flirting	29.7 (43)	42.3 (202)	6.195	0.013*

*P < 0.05

feelings about it; feelings and behaviors of a sexual nature that are experienced as problems.

Procedure: Written consent was received from the Konak District Board of Education to perform the study with their students. The study was conducted in 2 stages, during May and June of 1996 and 2004, respectively. The school administration and counseling service informed parents about the study prior to data collection. The demographic questionnaire was administered to students in a classroom during the most appropriate classroom hours by 2 researchers. The aim of the study was explained to students and their anonymity was guaranteed. Students who wanted to participate completed the scale. All of the students that were asked agreed to participate.

Analyses: SPSS v.10.0 was used to analyze the study data. The chi-square test was used for the analysis of categorical variables and the t-test was used to compare numerical means. The level of significance was $P < 0.05$. Variables that were significantly different between 1996 and 2004 were analyzed using the multivariate binary logistic regression model, and variables that did not significantly contribute to the model were excluded. In the model, “stages” and “sexual intercourse” were entered as dependent variables, while sources of information about sex were entered as predictive variables.

RESULTS

A. Sociodemographic Findings: In all, 392 male adolescents (150 in 1996 and 242 in 2004) were assessed. Mean age was 16.15 ± 0.90 years in 1996 and 16.56 ± 0.84 years in 2004, and the difference was not significant ($t = -4.632$, $P > 0.05$).

There were no differences between 1996 and 2004 in terms of sociodemographic characteristics, such as family type (nuclear or extended family: $\chi^2 = 7.177$, $P >$

0.05), type of home (apartment, single-family house, or shanty: $\chi^2 = 0.679$, $P > 0.05$), loss of a parent ($\chi^2 = 2.006$, $P > 0.05$ [due to death or divorce]), and migration ($\chi^2 = 1.764$, $P > 0.05$).

Mean age of the adolescents’ mothers and fathers was, respectively, 40.55 ± 4.52 years and 44.74 ± 5.11 years in 1996, and 39.84 ± 7.61 years and 44.96 ± 5.99 years in 2004; the difference in mean age of the mothers and fathers between years was not significant (mothers: $t = 1.010$, $P > 0.05$; fathers: $t = 0.368$, $P > 0.05$).

The level of education of the mothers and fathers differed significantly between 1996 and 2004 (mothers: $\chi^2 = 8.16$, $P < 0.01$; fathers: $\chi^2 = 21.34$, $P < 0.001$). Changes in the level of education of the mothers and fathers from 1996 to 2004, respectively, were as follows: mothers and fathers with a primary school level of education increased from 34% to 66% and 37% to 63%; mothers and fathers with a middle school level of education increased from 42% to 58% and 31% to 69%; mothers and fathers with a university level education decreased from 64% to 36% and 70% to 30%.

In 1996, 50% of the male adolescents reported that they had their own room at home, whereas only 34% reported they did in 2004; the difference between years was statistically significant ($\chi^2 = 11.62$, $P < 0.05$).

B. Findings about Sexual Behaviors and Feelings: Changes in the characteristics of adolescent male sexual behaviors, such as sexual intercourse, masturbation, and flirtation, as well as their feelings and thoughts about their sexual experiences between 1996 and 2004 were documented. When types of sexual behavior were examined, increases in sexual intercourse (19.9% vs. 34.4%) and flirting (29.7% vs. 42.3%) were observed, while no differences were found in terms of masturbation (90% vs. 83.5%) (Table 1).

Table II. Distribution of feelings and thoughts male adolescents had about masturbation and sexuality in two stages of the study.

	Stage 1 (1996) % (n)	Stage 2 (2004) % (n)	χ^2	P
Feelings and Thoughts about Masturbation				
Liking it and finding it natural	98.0 (114)	97.1 (233)	0.278	0.748
Guilt	10.2 (15)	5.4 (13)	3.113	0.105
Fear of harming oneself	8.2 (12)	5.4 (13)	1.138	0.294
Feeling ashamed to family	8.8 (13)	10.0 (24)	0.141	0.859
Wish to be supported by family	1.4 (2)	2.9 (7)	0.972	0.492
Feelings and Thoughts about Sexual Experiences				
Not being attracted to the opposite sex	6.1 (9)	6.2 (15)	0.002	1.000
Sexual inadequacy	8.8 (13)	4.6 (11)	2.881	0.127
Not attractive	15.0 (22)	9.6 (23)	2.570	0.141
Inadequate compared to friends	10.9 (16)	3.3 (8)	9.004	0.004*
Fear of sexuality	4.8 (7)	3.7 (9)	0.244	0.610
Homosexual tendencies and worries	3.4 (5)	7.9 (19)	3.195	0.084

*P < 0.05

Male adolescents that masturbated reported most frequently that they liked it and thought it was natural (98.0% vs. 97.1%). Feelings that the participants had about masturbation differed between 1996 and 2004, respectively, as follows: guilt (10.2% vs. 5.4%), fear of harming one's body (8.2% vs. 5.4%), feeling ashamed to family (8.8% vs. 10%), and wishing they were supported by their family (1.4% vs. 2.9%). There were no differences between the adolescents in 1996 and 2004 in terms of their feelings about masturbation. When the changes in adolescents' feelings and thoughts about sexuality were investigated it was observed that there was a significant decrease in the number of male adolescents feeling sexually inadequate when they compared themselves with their peers (10.9% in 1996 vs. 3.3% in 2004), and there were no significant differences in terms of not feeling attractive to girls (6.1% in 1996 vs. 6.2% in 2004), feelings of sexual inadequacy (8.8% in 1996

vs. 4.6% in 2004), not finding oneself sexually attractive (15% in 1996 vs. 9.6% in 2004), or fear of sexuality and relationships with girls (4.8% in 1996 vs. 3.7% in 2004) (Table 2).

C. Findings about Sources of Information about Sex: Sources of information about sex among the male adolescents were investigated in detail and then divided into 4 groups; namely, family (mother, father, and siblings), mass media (newspapers, magazines, books, and television), friends, and pornographic films. Changes that occurred during the 8-year interval and the effects of sources of information on sexual intercourse were examined.

The relationship between sources of information about sex in 1996 and 2004 (dependent variable) was examined by logistic regression analysis and a significant difference was found ($\chi^2 = 36.900$; $df = 4$; $P < 0.0001$).

Differences in information sources, except friends (P

Table III. Analysis of sources of information about sex in 1996 and 2004, based on logistic regression analysis.

Sources of Information	Stage 1 (1996) % (n)	Stage 2 (2004) % (n)	B	Odds Ratio	Confidence Interval	P
Family	37.6 (56)	49.2 (119)	0.462	1.587	1.024-2.460	0.039*
Mass media	74.5 (111)	56.2 (136)	-1.077	0.341	0.210-0.553	0.0001**
Friends	54.4 (81)	52.9 (128)	-0.164	0.849	0.546-1.321	0.468
Pornographic films	28.2 (42)	56.2 (136)	1.073	2.924	1.793-4.769	0.0001**

*P < 0.05

**P < 0.0001

> 0.05, $B = -0.164$, $r = 0.849$) were significant between 1996 and 2004. In 2004 there was a decrease in the number of adolescents that obtained information from mass media ($P \leq 0.0001$, $B = -1.077$, $r = 0.341$), while there were increases in obtaining information from family ($P < 0.05$, $B = 0.462$, $r = 1.587$) and pornographic films ($P \leq 0.0001$, $B = 1.073$, $r = 2.924$). The probability of obtaining information about sex by watching pornographic films increased 2.9-fold and the probability of obtaining information from family members increased 1.5-fold (Table 3).

Sources of information about sex and the 2 years were entered as independent variables, separately and together, while sexual intercourse was entered as a dependent variable. The relationship between these variables was examined by logistic regression analysis and a significant difference was observed ($\chi^2 = 19.030$; $df = 6$; $P < 0.01$).

There were no significant differences between adolescents who had sexual intercourse and those that did not, in terms of obtaining information from family members ($P > 0.05$, $B = 0.247$, $r = 1.280$) or friends ($P > 0.05$, $B = -0.058$, $r = 1.059$). Obtaining information from mass media decreased significantly in adolescents that had sexual intercourse ($P < 0.05$, $B = -0.550$, $r = 0.577$). The probability of adolescents that obtained information about sex from pornographic films having sexual intercourse increased 1.812-fold ($P < 0.01$, $B = 0.595$, $r = 1.812$). The probability of having sexual intercourse increased 1.704-fold between 1996 and 2004 ($P < 0.05$, $B = -0.533$, $r = 1.704$). When all sources of information about sex and both years were entered into regression analysis together, no significant differences were found between the variables. This non-significant

difference implies that change in adolescents' sexual behaviors occurred independent of sources of information about sex and that there might have been other factors that influenced the change. When sources of information were analyzed separately, only family, mass media, and pornographic films were observed to be predictive variables (Table 4). There were no significant relationships between adolescents that had sexual intercourse, and the level of education of their mothers ($P < 0.111$, $B = -0.339$, $r = 1.404$) or fathers ($P < 0.834$, $B = -0.041$, $r = 1.041$).

DISCUSSION

Turkey is undergoing rapid social, economic, and cultural changes. In recent years, globalization has played a role in these changes. Sexual intercourse has become more common among adolescents and the age of first sexual intercourse has decreased (Pedersen and Samuelsen, 2003). In Turkey, it is known that sexual intercourse is first experienced between 15 and 19 years of age (Bulut et al., 2002). In the present study it was observed that the probability of having sexual intercourse increased 1.704-fold during an 8-year interval. The increase in sexual behaviors observed in the present study is in line with the literature (Aşkun, 2000; Kaplan, 2000). This change has the potential to cause familial, educational, legal, and medical problems for adolescents. In particular, unprotected sexual intercourse is a risk factor for sexually transmitted diseases and unwanted pregnancy (Klanger et al., 1993). The observed increases in sexual behavior highlights the importance and necessity of providing sex education to children during primary school, before their first sexual experience.

The rate of masturbation among adolescents was re-

Table IV. Analysis of variables related to sexual intercourse based on logistic regression analysis.

Variables	No Sexual Intercourse % (n)	There is Sexual Intercourse % (n)	B	Odds Ratio	Confidence Interval	P
Family	67.2 (117)	32.8 (57)	0.247	1.280	0.773-2.121	0.337
Mass media	74.6 (182)	25.4 (62)	-0.550	0.577	0.346-0.961	0.035*
Friends	70.2 (146)	29.8 (62)	-0.058	1.059	0.654-1.716	0.815
Pornographic Films	64.4 (94)	35.6 (52)	0.595	1.812	1.077-3.048	0.025*
Year (Stage)	71.1 (275)	28.9 (112)	-0.533	1.704	1.023-2.836	0.040*
Family* Media* Friend* Year* Pornographic Film	65.3 (47)	34.7 (25)	-0.54	1.055	0.618-1.804	0.843

*P < 0.05.

ported to be 45%-60% in the 1970s (Sorenson, 1973), while a recent study in Turkey reported it to be 93.9% (Aras et al., 2003). In the present study the rate of masturbation in 1996 and 2004 was as high as 90% and 83.5%, respectively. These are similar findings to those of Aras and colleagues (2003). The lack of difference between the 2 years suggests that masturbation is a widespread and socially accepted sexual behavior in Turkey.

The rate of positive feelings and thoughts about masturbation, such as liking it and thinking of it as natural was high both in 1996 and 2004. Even if not significant, there were decreases in the rates of feeling guilty about masturbating and thinking it is harmful to the body. In a study conducted in the 1960s (Clark, 1966), masturbation was suggested to be involuntary, while recent studies report a predominance of feelings like happiness and relaxation in males following masturbation (Özan et al., 2004). The present study also indicates that positive feelings and thoughts about masturbation continued to be high among male adolescents over time.

In the present study the rate of sexual intercourse increased between 1996 and 2004. When we examined the effect of sources of information on sexual intercourse, it was observed that the effect of obtaining information did not change, while the effect of mass media decreased among adolescents that had sexual intercourse and those that did not. The probability that adolescents that obtained information about sex by watching pornographic films would have sexual intercourse increased 1.812-fold. Pornographic films were most important source of

information about sex that predicted sexual intercourse.

When change in sources of information was examined, the probability of obtaining information from family members and pornographic films increased 1.6-fold and 2.9-fold, respectively. Below, sources of information about sex and the change in this domain are discussed in detail.

It is known that mass media play an important role in adolescent sexuality and the establishment of values (Neinstein and Kaufman, 1996). For the last 20 years it has become easier for children to obtain information about sex or to watch programs with sexual content (Volbert, 2000). It is argued that among adolescents, being influenced by the sexual content in music, cinema, television, and magazines increases the risk of engaging in sexual activities and having sexual intercourses in early age (Brown et al., 2006b). In the present study mass media were observed to be the most important source of information about sex. In 1996, 74.5% of the participants obtained information in this manner, whereas the rate decreased to 56.2% in 2004. It was surprising to see that mass media became a less important source of information about sex over time. Although this may seem contradictory with the above-mentioned data, this finding might be explained by the 2.9-fold increase in the importance of pornographic films as a source of information about sex. If we think of pornographic films as a visual source, obtaining information from visual media persists. The increase in the use of computers in homes and in public cafes, and the rapid development of

Internet broadcasting is thought to have contributed to the increase in the use of pornographic films as a source of information. Widespread use of the Internet coupled with inadequate control increases the probability of obtaining information from pornographic websites. According to data provided by the Izmir Police Department in 2007, the number of internet cafes and video game cafes totals 1301, of which 301 were identified to be near schools (Izmir Police Department, 2007). For adolescents, sex is one of the most interesting topics to explore on the Internet (Goodson et al., 2000). The reasons adolescents watch pornographic films are reported to be curiosity among females, and arousal and masturbation among males (Wallmyr and Welin, 2006). Pornography and pornography on the Internet are associated with increased risk of deviant behavior and can be harmful to children and adolescents. It was indicated that severe deviant behaviors and Internet addiction make it difficult for adolescents to experience their sexuality in a healthy manner (Hayez, 2002). The observed increase in the use of pornographic films as sources of information and pornography as an important predictor (1.812) of experiencing sexual intercourse highlights the importance of sex education. Providing accurate information about sex and minimizing the impact of pornography is suggested to be important for sex education.

It is known that parental attitude is important for healthy adolescent sexual behavior (Pick and Palos, 1995; Huerta-Franco and Malacara, 1999). Adolescents who feel close to their parents and share their values less frequently with their parents have sexual experiences in early ages (Yates, 2002). In the present study the rate of obtaining information from parents increased 1.6-fold during an 8-year interval, but was not predictive of sexual intercourse. This finding suggests that even though communication skills between adolescents and their parents improved between 1996 and 2004, communication and obtaining information were not related to sexual intercourse. Parental guidance and talking about sex with parents are suggested to be important in terms of the healthy sexual development of adolescents.

The literature contains many reports of the importance of friends and peer groups as sources of information about sex (Kaya, 1991; Millan et al., 1995; Bulut et al., 2002; Gökengin et al., 2003; Orçun et al., 2003). In the present study it was observed that the rate of getting information from friends was high, and did not change between 1996 and 2004. The decrease in feelings of being sexually inadequate when one compares himself with his friends suggests that interaction among peers has im-

proved over the years. Given the importance of friends and peers, techniques like the Peer Education Model (Özcebe and Akın, 2003; Shiner, 1999) might be useful if applied to adolescent sex education.

The present study has some limitations. Firstly, the sample included only male adolescents. Further studies with larger samples that include female adolescents are warranted. Additionally, the reliability and validity of self-report scales remain controversial; however, there is no other option for data collection in such a study design. For this reason, the identities of the adolescents were kept confidential so as to not affect their responses. Participants were informed that the data collected would not be used for purposes other than scientific research and teachers were not in the classroom during the administration of the scales.

Another limitation is that we did not investigate the characteristics of Internet use, which is an important source of information about sex. This is a result of the fact that the Internet use was not widespread when the study started in 1996. In spite of the impression that there is widespread use of the Internet at Internet cafes and video game cafes, and that uncontrolled information about sex is available on the Internet, studies are needed to provide accurate information about this issue.

In conclusion, the number of adolescents that had sexual intercourses in early age was increased significantly between 1996 and 2004. Pornographic films were observed to be sources of information that predicted sexual intercourse. Widespread use of the Internet and pirate CD sales might have affected the increase in the use of pornographic films as a source of information.

Given the fact that obtaining information about sex during adolescence is an aspect of normal development, there is a need to provide appropriate sources of information. Struggle with pornography, educative broadcasting and self-control of media, starting sexual education during primary school-before the first sexual experiences-use of techniques like peer education model and, parental guidance are suggested to be important. In terms of preventive mental health, it is important for adolescents to interpret the information they obtain, to adapt this information to their daily lives, and to integrate it with the values of their society. There is a need for prospective studies with larger samples that include female adolescents. The present study is thought to contribute to this domain because it identified sexual attitudes and behaviors that are important for identity development in adolescents.

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