

The Smoking, Drinking Behavior and Sexual Activity among Korean High School Students

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I . Introduction

In modern industrial societies, transition from childhood to adulthood typically takes many years. Young people reach puberty earlier than in the past, but it takes many more years to attain full adulthood with socioeconomic independence. During the long period of transition from childhood to adulthood, adolescents are exposed to a number of health risks associated with behavior such as drinking alcohol, smoking, and premarital sex. Such behavior is considered risky because of its harmful short and long term effects on health (Senderowits 1995; Kann et al. 1998).

Many studies have found that adolescent

risk-taking behavior is associated with a range of individual, family, and community characteristics. At the individual level, physical maturity is found to be associated with a desire to engage in risk-taking behavior (Udry et al. 1986; Neumark-Sztainer et al. 1996). Adolescents with accurate knowledge of the health consequences are less likely to engage in risk-taking behavior (Thompson and Tachakori 1993). Individuals with aspirations for a higher level of education are less likely to engage in risk-taking behavior because they may perceive that the consequences of such behavior could prevent them from achieving their goals (Center for Disease Control 1994; Kann et al. 1993).

At the family level, adolescents who have

close contact with their parents are more likely than others to avoid risk-taking behavior(Kann et al. 1993; Resnick et al. 1997). Parents with more education are more likely than less-educated parents to instill high educational aspirations to their children, to understand their children's developmental stages, and to provide appropriate guidance for their children's behavior(Goodson et al. 1997).

At the community level, norms and values are formed on the basis of tradition, access to information from outside, and degree of homogeneity within the community. A community's norms and values and its ability to control adolescent behavior are likely to affect the risk-taking behavior among young people. Studies have found that adolescent risk-taking behavior is more common in communities that have more permissive norms than in other communities. Perceived social acceptance of out-of-wedlock childbearing, for example, may affect adolescents' sexual behavior (Neumark-Sztainer et al. 1996; Caldwell et al. 1998; Gage 1998).

This paper examines drinking, smoking, sexual activity in a sample of Korean high school students. South Korea provides an interesting case of a society with rigid social norms currently undergoing rapid modernization. Until the early part of the 20th century, social norms in Korea followed Neo-Confucian ideology emphasizing filial piety and the patrilineal family system(Mason et al. 1998). Pa-

rents' authority over children was viewed as absolute. Marriage was early and universal, and it was essential for women to maintain sexual abstinence before marriage. Social norms began to change slowly in the early part of the 20th century and accelerated dramatically in the past three decades along with rapid economic development and demographic change(National Statistical Office 1970-1997). In 1970 the majority of South Koreans were living in rural areas, were poor by international standards, and had limited exposure to mass media. The level of education was low, especially among women. About one generation later, in 1995, nearly 80% of the population was living in urban areas and the per capita GNP was more than U.S.\$10,000. Exposure to mass media was universal. High school education had become nearly universal, and post-secondary school enrollment ratios had increased dramatically for both men and women. The proportions of men and women remaining single until their late twenties had also increased substantially. Life expectancy increased by 11 years, indicating substantial improvements in the health status of the population.

These socioeconomic and demographic changes potentially have large implications for adolescent behavior. Adolescents in South Korea now are attaining physical maturity at earlier ages but are entering full adulthood with socioeconomic independence at later ages than in the past. Rapid urbanization and economic

development, increasing level of education, and increasing exposure to non-traditional ideas in the mass media are all likely to result in attitudes that are more tolerant of risk-taking behavior (National Statistical Office 1970-1995).

To date, only a handful of studies have reported on the health behavior of high school students in South Korea. These studies indicate that risk-taking behavior is increasing. For example, between 1988 and 1998, the proportion of high school students with premarital sexual experience is reported to have increased from 12% to 18% for boys (Hong et al. 1993; Shin et al. 1996). Between 1988 and 1997, the proportion increased from 3% to 8% for girls (Shin et al. 1996; Chang et al. 1988). No studies on correlates of risk-taking behaviour have been reported, however. Using recently collected survey data, this paper examines levels of drinking, smoking, and premarital sex among high school students in Korea.

This is followed by an examination of the effects of individual, family, and school characteristics on the risk-taking behavior. The paper also discusses implications for health education programs.

II. Materials and Method

The data from a recent survey of 1,259 high school students (636 male and 622 female) in

grades 10-12 were used. Their ages range from 15 to 18, with a mean age of 16.8 for boys and 16.9 for girls. The survey was conducted in August-September 1998 and February 1999. In 1998, 96% of boys and 95% of girls in appropriate ages were enrolled in high schools (Center for Clean Youth Movement 1999). In recent years, practically all boys and girls of high school ages in South Korea were single. In 1995, less than 0.5% of boys age 15-19 and less than 1% of girls were ever married in 1995 (Chin et al. 1998). Thus, our reference group consists of nearly all adolescents of ages 15-18.

The sample consists of two strata: Seoul and five other localities (Tangjin, Taechon, Yosu, Kwangju, Pusan). In these five localities, both urban and rural parts are included in the survey. Within each stratum, a sample of classes consisting of about 40 students was selected, and all of the students in the selected classes were included in the survey. The number of students selected from each stratum is proportional to the total number of students in that stratum. Although, strictly speaking, it is not a probability sample of all high school students in the country, the basic characteristics of our sample match those of all high school students in terms of type of school, urban/rural residence, father's employment status, father's occupation, father's education, and mother's education. We therefore believe that our sample is a good representation of high school

students in Korea.

Survey workers, who were college students majoring in health-related areas, visited each selected class and explained the purpose of the study and each questionnaire item. The high school students were then asked to fill in the questionnaires, put them in envelopes, and seal the envelopes. The survey workers collected the sealed envelopes and delivered them to the office of the principal investigator for processing.

The survey included questions on drinking alcohol, smoking cigarettes, sexual activity. Students were asked whether they had ever drunk or smoked and whether they were currently drinking or smoking. Those who were currently drinking were asked how frequently they drank. Those who were currently smoking were asked the average number of cigarettes they smoked per day. Students were asked whether they had ever had sexual intercourse with a partner of the opposite sex. Because all the students in the survey were single, all the sexual intercourse they reported can be classified as premarital sex. Students who reported sexual experience were asked about a number of factors associated with sexual intercourse, such as whether they used any contraceptives and if so, which methods, what was their relationship with their first sexual partner, and how many sexual partners they had. Information was also collected on attitudes and knowledge about health behavior, es-

pecially behavior related to reproductive health. Background characteristics collected by the survey include type of school attended, childhood residence, composition of family, experiences of living away from immediate family, economic status of the family assessed by students, and socioeconomic characteristics of parents.

Because our data come from a self-administered survey, they may suffer from the same reporting errors that have affected most other self-administered surveys on adolescents. Specifically, it is possible that risk-taking behavior is over-reported by boys and under-reported by girls(National Statistical Office 1998).

We examine the prevalence of risk-taking behavior and their correlates using descriptive statistics and logistic regression analysis. Most analyses are done separately for male and female students. Three types of correlates are examined: characteristics of individuals, families, and communities. At the individual level, two variables are considered. One is whether the student has ever lived away from his/her immediate family. There are two main reasons why some children in Korea live away from their immediate families. Some families in small cities or rural areas make arrangements for their children to attend secondary school in Seoul or other large cities so that they will have a better chance to enter college. In other cases, children may be temporarily separated

from their parents due to parents' employment opportunities and conditions such as temporary assignment to different locations. Most of the children who do not live with their immediate families live with adult siblings or other relatives. Students who have lived away from their immediate families may have emotional stress leading to risk-taking behavior or mental-health problems. They are also less likely to have received consistent guidance from parents. The second individual-level variable we examine is whether the student has a friend of same sex who has experienced premarital sex. This variable is used only for the analysis of sexual activity. Adolescent behavior is known to be affected strongly by peers, and having a friend who is sexually active may increase the probability of becoming sexually active oneself. It is also possible that students who are sexually active seek other sexually active students as friends. Thus, it is difficult to attribute a causal relationship to the association between being sexually active and having friends who are sexually active, and results need to be interpreted with caution. A number of other individual level correlates have been examined but are not included in the final analysis because they are found to have no effects on risk-taking behavior and excluding them does not affect the estimates of other correlates. These are age, age at menarche, religion, and childhood residence. At the family level, three variables are examined.

Mother's education is used as a measure of the parents' aspirations for their children and their ability to understand the needs of adolescence and to provide appropriate guidance. The second family-level variable is whether a student considers his or her family to be poor. Students who perceive their family to be poor may have a low level of aspiration for their future and may be likely to engage in risk-taking behavior. The last family level variable is whether the student's family includes both parents. Students from one-parent or no-parent families may have experienced emotional stress leading to mental-health problems. They may be less likely to receive appropriate guidance from their parents and are more likely to engage in risk-taking behavior than others. Father's occupation and mother's employment status have been examined but not included in the final analysis because they are found to have no effects on risk-taking behavior and excluding them does not affect the estimates of other correlates. As the community level characteristics, we examine three school level variables: location of school, type of schools, and whether students received reproductive health education at school. Location of school has two categories: Seoul and other. The hypothesis is that students in Seoul, being in a more urbanized setting, are more likely than others to engage in risk-taking behavior. Type of school has two categories: academic and vocational. Students in vocational schools are

less likely to go on to college and thus will enter adult life sooner than the students in academic schools. Other things being equal, vocational-school students are more likely than academic school students to engage in behavior reserved for adults such as drinking, smoking, and premarital sex. Health education has been part of the curriculum of most junior and senior high schools in South Korea for many years. According to previous studies, however, these programs do not provide adequate information on health risks of drinking, smoking, and premarital sex. We examine the effect of health education on behavior to see if our data support these earlier findings.

III. Results

1. Background Characteristics of the Sample

Table 1 shows the distribution of the students included in our sample by sex and location of school, and their background characteristics. The first set of characteristics describe individual students. Nearly 20% have lived away from their immediate families, with the proportion slightly higher for students in Seoul. More than half have friends of the same sex who have had premarital sexual experience. The proportion is higher for boys than for girls and higher in Seoul than in other areas. Girls' average age at menarche is 13.09 years and it is slightly higher for girls in Seoul than in other areas.

Table 1. Characteristics of respondents by gender and location of school

Characteristics	Total	Gender		Location	
		Male	Female	Seoul	Other
Number of students	1,259	636	623	481	778
School characteristics					
% in vocational school	35.4	16.5	50.2	43.0	27.1
% received reproductive health education at school	80.1	78.3	82.0	79.8	80.3
Family characteristics					
% mothers education < sr. high school	50.6	51.7	49.4	38.3	58.2
% perceiving family is poor	25.1	22.5	27.8	26.0	24.6
% not a two-parents family	14.5	15.4	13.6	19.3	11.6
Personal characteristics					
% ever lived away from family	18.2	19.0	17.3	19.6	17.3
% have friends with sexual experience	56.3	65.7	46.7	64.9	51.0

The second set of characteristics describes the students' families. The level of mother's education is much higher for students in Seoul than in other areas. Girls are somewhat more likely than boys to perceive that their families are poor. Students in Seoul are much more likely than students elsewhere to come from families that do not have both parents. In most of these children's families mothers are present but fathers are absent.

The third set of characteristics describes the school setting. A larger proportion of girls are enrolled in vocational schools than boys, reflecting the fact that boys in South Korea are more likely than girls to go on to college. A larger proportion of students in Seoul are enrolled in vocational schools than in other areas, reflecting the fact that most vocational high schools are located in Seoul. Most students receive some reproductive health education in high school and the proportion does not vary by sex or type of school.

2. Prevalence and pattern of risk-taking behavior

The prevalence of drinking and smoking is quite high (Table 2). Nearly half of the boys (48.7%) and more than one third of girls (36.3%) have tried drinking. Similar percentages report that they currently drink (43.4% for boys and 33.4% for girls), while 26.9% of boys and 21.9% of girls drink once a week or more often.

The prevalence of smoking is somewhat lower than of drinking, and girls are much less likely than boys to have experienced smoking or to smoke currently. The prevalence of drinking and smoking shown here is not very different from the level observed among high school students in the U.S. except that gender differences are larger in South Korea, particularly for smoking (Neumark-Sztainer et al. 1996; Kann et al. 1993). The overall prevalence and gender differences in smoking is similar to that observed in Japan and China (Beijing) (Siegel et al. 1998; Lee 1997).

Table 2. Selected measures of risk taking behavior other than sex

Health behavior	Total	Male	Female
Alcohol drinking			
Percent ever had drink	42.6	48.7	36.3
Percent currently drinking	38.4	43.4	33.4
Percent drinking at least once a week	24.9	26.9	21.9
Smoking			
Percent ever smoked	32.4	40.8	24.0
Mean age first smoked	14.9	15.0	14.7
Percent currently smoking	21.0	28.9	12.9
Average number of cigarettes per day	6.3	7.0	4.7

The high levels of adolescent drinking and smoking revealed by this survey should come as no surprise. It is quite easy for adolescents in Korea to purchase cigarettes and some alcoholic drinks from convenience store. Many studies have shown that health education programs in Korean schools provide little information on the harmful health effects of smoking(Im et al. 1994). Furthermore, the prevalence of smoking and drinking among adult men in South Korea is extremely high. A recent study on health behavior of the adult population in South Korea reports that more than 50% of men aged 15-59 are smokers and more than 50% drink regularly(Osaki and Minowa 1996). The World Health Organization reports that the prevalence of cigarette smoking among adult men in South Korea is the highest of any country in the world(Zhu

et al. 1996).

Table 3 shows the prevalence of sexual activity and some characteristics of sexual behavior. Overall, about one in ten students report having had sex. The prevalence is much higher among boys(14.3%) than among girls (7.1%). These levels are similar to those found by other studies in Korea and much lower than level reported for high school students in the U.S. (Neumark-Sztainer et al. 1996; Kann et al. 1993; Resnick et al. 1997; Shin et al. 1996; Chang et al. 1988). As mentioned earlier, some of the gender difference may be due to response errors: boys exaggerating their sexual experiences and girls underreporting theirs. The difference is too large, however, to be attribute to reporting errors entirely. We believe that the real prevalence of sexual behavior is higher among boys than among girls.

Table 3. Selected measures and characteristics of sexual activity, by gender and location of school

Health Behavior	Total	Gender		Location	
		Male	Female	Seoul	Other
Sexual activity and reproductive health					
% ever had sexual intercourse	10.7	14.3	7.1	20.6	4.6
% ever had STD	1.3	2.5	0.0	2.1	0.8
Among ever had sexual intercourse					
% with two or more partners	68.1	73.6	56.8	69.7	63.9
% ever used contraception	38.5	44.0	29.3	39.4	36.1
% ever used condom	28.2	35.2	13.6	30.3	22.2
Percent with first sex partner					
Steady boy/girl friend	51.1	45.1	63.6	53.5	44.4
Friend, not steady	11.9	12.1	11.4	12.1	11.1
Acquaintance	21.5	24.2	15.9	19.2	27.8
Stranger	11.9	13.2	9.1	11.1	13.9
Commercial sex workera	3.6	5.5	-	4.0	2.8

Note: a; Only male respondents were asked about commercial sex workers.

Students' attitude on premarital sex in our data show gender differences as well. Their attitude on women's premarital sex is quite conservative. About 80% of the boys and 76% of the girls in our survey think that a woman should not have sex before marriage. The attitude towards men's premarital sexual behavior is quite different, particularly among boys. Seventy-two percent of girls think that men should not have sex before marriage but only 57% of boys. It is interesting that high school boys are much more likely to have a double standard (80% vs. 57%) than high school girls (76% vs. 72%).

Very few students report that they have ever had sexually transmitted disease (STD). Some characteristics of sexual behavior, however, indicate that high school students face considerable risk of infection. More than two-thirds of the boys and more than one-half of the girls who report premarital sex have had more than one partner. Among students reporting premarital sex, less than half of the boys and less than one third of the girls have ever used contraception, and only 35.2% of the boys and 13.6% of the girls have ever used condoms. Thus, substantial proportions of boys and girls are exposed to the risk of STDs, and a substantial proportion of girls risk premarital pregnancy.

A large majority of the girls who have had sex had their first sexual experience with a steady boyfriend. Less than half of the sexually

active boys, on the other hand, first had sex with a steady girlfriend. The first sexual experience for a substantial proportion of boys and girls could be described as casual involving partners who were friends or acquaintances. Casual sex is more common among boys than among girls. The first sexual experience may have been the result of sexual violence, especially for boys and girls whose first sexual partners were strangers. In fact, in a recent large survey, 11% of high school girls in South Korea who have had sex report that their first sexual experience was due to sexual violence (Chang et al. 1988). More than 5% of sexually active boys had their first sexual experience with a commercial sex worker.

Figure 1 shows the pattern of multiple risk-taking behavior for boys and girls. More than half of the boys and nearly half of the girls have experienced at least one type of the risk-taking behavior and multiple risk-taking was common for both boys and girls. The combination of drinking and smoking is particularly common. It is notable that most high school students who have experienced premarital sex have also experienced drinking and smoking.

It would be interesting to examine whether one type risk-taking behavior normally precedes others or whether students usually initiate multiple risk-taking behavior concurrently. Results from the survey show that 58% of boys 76% of the girls who have experienced both

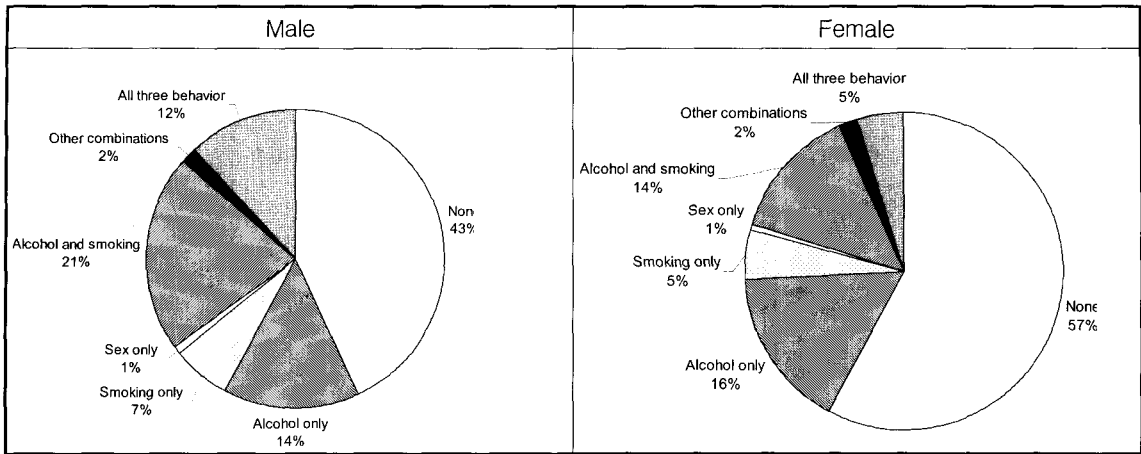


Fig. 1. Percent Distribution of multiple risk taking behavior by sex

smoking and sex began smoking before their first sexual experience. Unfortunately, the survey did not ask about the age at the first experience of drinking.

3. Correlates of risk-taking behavior

We examined the correlates of drinking, smoking and sexual activity using logistic regression analysis. The results are shown in Table 4. For boys, going to school in Seoul and having lived away from their immediate family increase the likelihood of all three risk-taking behaviors. Not having both parents in the family increases the likelihood of drinking and smoking, and considering the family to be poor increases the likelihood of smoking.

Among girls, only school location has a statistically significant effect on drinking or smoking. Sexual activity, however, has a number of statistically significant correlates. Ha-

ving a friend with sexual experience and going to school in Seoul greatly increase the odds of a girl being sexually active. To a lesser extent, having a mother with a low level of education and coming from a family that does not have both parents also increase the odds of having sexual experience. As discussed earlier, some of the effect of having a sexually active friend on the girl's own sexual activity may be spurious. The extremely large magnitude of the effect and the large statistical significance, however, suggest that a true causal relationship exists.

Reproductive health education in school is found to have no effect on students' sexual activity. At present, school-based health education programs in South Korea tend to be limited to reproductive biology(Im et al. 1994). Our survey indicates that these programs fail to provide students with appropriate knowledge on reproductive health. Students' knowledge of

Table 4. Estimated effects (odds ratio) of risk factors on alcohol drinking, smoking, sexual intercourse, and emotional health problem by sex

Health behavior / Factors	Male	Female
<u>Ever had alcohol drink</u>		
Attending vocational school	1.18	1.23
School is located in Seoul	4.66***	3.72***
Mother has less than sr. high school education	0.93	1.10
Considers family to be poor	1.09	0.76
Family consists of single or no parents	2.01**	0.86
Ever lived away from family	1.70*	1.52
<u>Ever smoked</u>		
Attending vocational school	3.97***	1.16
School is located in Seoul	2.47***	3.94***
Mother has less than sr. high school education	0.72	1.16
Considers family to be poor	1.60*	1.13
Family consists of single parent or no parents	2.05**	1.58
Ever lived away from family	1.61*	1.38
<u>Ever experienced sexual intercourse</u>		
Attending vocational school	1.56	1.58
School is located in Seoul	3.33***	7.19***
Mother has less than sr. high school education	0.76	2.51*
Consider family to be poor	1.28	1.62
Family consists of single parent or no parents	0.77	2.34*
Ever lived away from family	1.91*	1.89
Received reproductive health education at school	1.39	2.86
Have a friend with sexual experience	26.66***	15.20***

Note: * : p<0.05, ** : p<0.01, *** : p<0.001.

reproductive biology and the transmission of STDs is not correlated with their having received reproductive health education at school. Many of the students in our sample want to learn more about reproductive physiology (68%), contraceptive methods(75%), HIV/AIDS(76%), managing relationships with the opposite sex(73%), and health in general (83%). Our data show that the majority (51%) of students in need of counseling turn to their friends.

IV. Discussion and Conclusion

The prevalence of risk-taking behavior is quite high among high school students in South Korea. More than half of the boys and nearly half of the girls have experienced at least one of the three risk-taking behaviors covered in this study: drinking, smoking, or sexual intercourse. The prevalence of drinking and smoking is comparable to levels reported among

high school students in the U.S., but the prevalence of sexual activity is much lower, perhaps due to values and attitudes associated with the traditional Korean family system. The traditional Korean family system, based on Neo-Confucian ideology, emphasized the patrilineal family line and sexual abstinence before marriage, especially for girls(Nam et al. 1995).

Boys are more likely than girls to engage in risk-taking behaviors. A similar large gender difference in risk-taking behavior has been observed in China and Japan(Siegel et al. 1998; Lee 1997). This pattern is not surprising considering that traditional values in East Asia put women under much stricter restrictions than men(Mason et al. 1998; Nam et al. 1995). Gender differences are reflected in the attitudes reported by students in our survey. For example, high school boys are much more likely than girls to have a double standard on premarital sex, being more permissive on men's premarital sex than on women's premarital sex. Similar type of gender differences in attitudes are common in South Korea(WHO 1997).

Contraceptive use is low among sexually active students. It is, therefore, likely that some students may experience pregnancies. However, childbearing is rare among unmarried adolescent women in South Korea. Less than 1% of all births in 1996 were to women under age 20 in Korea(Oh 1985). This extremely low level of adolescent fertility is probably the

result of the strong negative attitude towards premarital childbearing(Choe and Bumpass 1996) plus an easy access to induced abortions(National Statistical Office 1997). The low level of condom use among sexually active adolescents has serious implications for the spread of STDs as well as unwanted pregnancies.

A large proportion of boys and girls in this study who take any health risk are taking multiple risks. The combination of drinking and smoking is common, with or without premarital sex. Adolescent health programs should pay special attention to those who have initiated any risk-taking behavior, providing them with intensive education and prevention programs concerning all forms of risk-taking.

One of the most important correlates of risk-taking behavior among high school students is going to school in Seoul, where the process of industrialization and Westernization is most advanced. In South Korea, industrialization is still in the process and Seoul is at the forefront of the process. Korea is a small and culturally homogeneous country and the diffusion of attitudes and behavioral norms is likely to be fast(Seoul Womens Welfare Association 1996). It is likely that the pattern of risk-taking behavior found among high school students in Seoul will spread to adolescents in other parts of South Korea, unless effective programs to slow down or reverse the process are quickly put into action.

Family factors affect adolescents' risk-taking behavior in Korea in similar ways as in other countries. Not living with both parents and having lived away from the immediate family are both associated with an increase in risk-taking behavior. Programs designed to protect adolescents from health risks need to pay special attention adolescents in these categories.

Reproductive health education in school appears to have no effect on students' knowledge of reproductive health risks or their sexual activity. Adolescents in South Korea, like their counterparts in other countries, rely heavily on mass media and their peers as sources of information (Shin et al. 1996; Chang et al. 1988; NSO 1997). Our data show that the majority of students in need of counseling turn to their friends. These findings show clearly that school-based health education programs need to be improved and expanded. In addition to school-based health education, the development of community-based programs utilizing mass media and peer groups should be considered seriously in addressing the problems of risk behavior among adolescents.

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ABSTRACT

The purpose of this study is to examine the prevalence and correlates of three types of risk-taking behavior among high school students in Korea in a cross-sectional national sample. A sample of 636 male and 622 female high school students is analyzed using descriptive statistics and logistic regression. Three types of risk-taking behavior are examined: drinking alcohol, smoking, and premarital sex.

The results are as follows: Forty-three percent of students in the sample have ever drunk alcohol, 32% have ever smoked, 11% have experience premarital sex. Risk-taking behavior is more prevalent among boys than among girls. Boys and girls in Seoul are much more likely to have experienced three types of risk-taking behavior. Not having two parents in the family and having lived away from immediate family increase the likelihood of some risk-taking behavior. Students who have a friend with premarital sexual experience are much more likely to have experienced premarital sex themselves. Among sexually active students, having multiple sexual partners is common and prevalence of condom use is low. Reproductive health education at school has no effect on students' sexual behavior.

The prevalence of risk-taking behavior among adolescent in Korea is likely to rise in the future. Substantial proportion of adolescents are exposed to the risks of STDs and substantial proportion of adolescent girls risk premarital pregnancy. Current health education programs are inadequate in protecting students from risk-taking behavior. Students whose families do not include both parents and students who live away from their immediate families need special programs to protect them from risk-taking behavior.

Key Words : Adolescents, Drinking, Smoking, Premarital sex, Risk taking behavior