



Changing Trends in Sexual Debut Age in the Korean Internet Sexuality Survey

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Purpose: To evaluate changing trends in relation to the sexual debut age and socioeconomic status (SES) in Korea.

Materials and Methods: The Korean Internet Sexuality Survey (KISS) was conducted for in 2004, 2006, 2014, and 2016. We sent emails and surveyed people registered at an Internet survey agency. To determine the changing trends in sexual debut age, we collected and compared the responses of females in their 20s in 2004 (n=253) and 2014 (n=131) and collected and compared the responses of males in their 20s in 2006 (n=87) and 2016 (n=200).

Results: In females, SES factors such as occupation, income, and academic background were not related to early sexual debut age. In the 2006 male study, early sexual debut age was associated with occupation, income, and academic background. However, in the 2016 male study, participants' academic background was the only significant factor about early sexual debut age. In both the male and female studies, early sexual debut age was related to a higher number of sexual partners in life. Also, in both female cohorts (2004 and 2014), the number of pregnancies and the incidents of sexual abuse experienced were higher in the early sexual debut groups.

Conclusions: Factors influencing early sexual debut were different in time and between men and women. And there was no significant association between SES factors and early sexual debut age in women. However, early sexual debut caused multiple problems, especially in young women. Thus, we need to create some suitable strategies to address these problems.

Keywords: Health survey; Sexual behavior; Social class

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INTRODUCTION

Early sexual debut has numerous detrimental health consequences [1-5]. For instance, initial sexual intercourse at a young age can lead to unintended pregnancy because of the inappropriate use of contraception [1].

Also, the immature cervixes of young girls and women may be particularly prone to sexually transmitted diseases that are associated with pelvic inflammatory diseases [2,3].

Sexual debut at a young age has been linked to alcohol and drug use, sexual abuse, violence, and suicide at-

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tempts. Both early introductions to alcohol and drunken teenage behavior have been frequently criticized as important trigger factors for early sexual activity [4]. A longitudinal study reported that early sexual debut was associated with a high number of partners, sexual assaults, and sexual abuse experiences [5].

Both environmental and genetic parental factors can play a major role in deciding whether an adolescent chooses to have an early sexual debut [6-8]. However, there is a lack of research to examine which specific risk factors influence this behavior. Nevertheless, efforts to identify the risk factors that incite early sexual debut do underscore the importance of parenting practices and genetic influences as sources of risk [9,10]. Lack of parental supervision and support, limited family connectedness, single parenthood, marital discord, and poor quality of parents-child relationships have all been correlated with negative behavioral outcomes, including early sexual activity among children and adolescents [6].

Since 2009, sex education has been included in the general health curriculum in Korea from the senior year of elementary school. Recently, because the penetration of smartphones has also increased youth, social problems such as youth smartphone addiction and exposure to pornography are also emerging. Therefore, it is necessary to analyze the pattern of changes in factors related to the age of sexual debut and to deliver accurate sexual knowledge appropriate to the current situation of adolescents.

The first sexual experience should be postponed after adulthood to determine adolescents' correct sexual identity and to help ensure adolescents' healthy sexual behavior. Unfortunately, the age of adolescents' first sexual intercourse is decreasing; accordingly [11], it is necessary to analyze the causes and establish strategies to address these causes. Because the existing studies are often cross-sectional studies that employ questionnaires conducted at specific times [1-10], it is difficult to identify trends related to changes in the age of people's first sexual intercourse. As our research team used the same Internet survey for Korean adults that had been conducted 10 years earlier for both genders, we were able to evaluate the changing trends between sexual debut age and socioeconomic status (SES).

MATERIALS AND METHODS

1. Study design

The data for this study were extracted from Korean Internet Sexuality Survey (KISS), which was conducted for females in 2004 and 2014 and for males in 2006 and 2016 [12-15]. These nationwide Internet surveys included sexually active adults in their 20s or above. The primary goal for KISS with females was to evaluate the prevalence of female sexual dysfunction and to discover the risk factors for female sexual dysfunction. The number of female subjects was 460 in 2004 and 516 in 2014 (reading rate: 5.9% and 6.4%; response rate: 17.9% and 16.0%) [12,13]. In contrast, the primary goal for KISS with males was to assess the prevalence of erectile dysfunction and to investigate risk factors for the same. The number of male subjects was 601 in 2006 and 900 in 2016 (reading rate: 3.2% and 2.6%; response rate: 31.9% and 35.0%) [14,15]. To determine the changing trends in sexual debut age, we extracted and compared the responses from female participants in their 20s in 2004 (n=253) and 2014 (n=131) and male participants in their 20s in 2006 (n=87) and 2016 (n=200).

To determine the changing trends of sexual debut age and to investigate the connection with SES factors, questionnaire results concerning occupation, income and educational attainment were reviewed. Questionnaire responses concerning sexual abuse history, the total number of sexual partners in life, and frequency of intercourse per month were also analyzed. The early sexual debut was defined as having sexual intercourse before becoming a consenting adult (sexual debut age <19).

2. Korean Internet Sexuality Survey

The first KISS was performed as a web-based survey in 2004 [12,13]. The following KISS was repeated with the same methodology [14,15]. These studies were conducted using participants registered with the same company. Recruiting was conducted by emailing the participants extracted using a proportional quota sampling method. To improve the credibility of the answers to the questions on sexual function, subjects who had been sexually active (*i.e.*, they had sex at least once a month in the previous six months) were included. Only participants who answered all questionnaire items were included in the final analysis. When the average response time was determined to be less than 10%, the

response was considered unreliable and the data was automatically excluded. All participants who completed the questionnaires received an Internet coupon equivalent of 1,000 Korean won as compensation.

3. Statistical analysis

All numerical data were expressed as mean and standard error. For comparison between two groups, an independent t-test for continuous variables and a chi-squared test for categorical variables were used. The chi-squared test was done to compare the SES factors for early sexual debut in the female studies and the male studies. To investigate the SES risk factors of early sexual debut age, univariate and multivariate logistic regression analyses were completed to determine the odds ratio, and a 95% confidence interval was applied to find the risk factors. Variables of p-value <0.05 on univariate analyses were included in the multivariate model. The Statistical Package for the Social Sciences version 23.0 (IBM Corp., Armonk, NY, USA) was used.

4. Ethics statement

The study protocol was approved by the Institutional Review Board (IRB No. 16-2016-108) and the procedure in the present study complies with the Declaration of Helsinki. Informed consent was waived by the IRB.

RESULTS

The mean sexual debut age in the female group significantly younger in the 2014 study than the 2004 study (21.4±2.4 years in 2004 vs. 19.9±1.5 years in 2014, p<0.001). There was no statistical difference in the early sexual debut rate in the female group. It was reported as 9.1% in the 2004 study and 12.2% in the 2014 study (p=0.286). In contrast, the male group showed no significant difference in the mean sexual debut age (20.9±3.2 years in 2006 vs. 20.3±2.5 years in 2014, p=0.144) and early sexual debut rate (25.0% in 2006 vs. 19.5% in 2016, p=0.231).

In the female studies, SES factors such as occupation, income, and academic background were not related to

Table 1. Characteristics of 2004 and 2014 female study

Variable	2004			2014		
	Sexual debut age <19 y (n=23)	Sexual debut age ≥19 y (n=230)	p-value	Sexual debut age <19 y (n=15)	Sexual debut age ≥19 y (n=116)	p-value
Occupation			0.133			0.556
Student	8 (34.8)	42 (18.3)		8 (53.3)	53 (45.7)	
Housewife	7 (30.4)	70 (30.4)		2 (13.3)	9 (7.8)	
Worker	8 (34.8)	118 (51.3)		5 (33.3)	54 (46.6)	
Income			0.372			0.762
Low level ^a	16 (69.6)	140 (60.9)		10 (66.7)	68 (58.6)	
Medium level ^b	3 (13.0)	60 (26.1)		4 (26.7)	42 (36.2)	
High level ^c	4 (17.4)	30 (13.0)		1 (6.7)	6 (5.2)	
Educational attainment			0.223			0.503
High school	8 (34.8)	58 (25.2)		1 (6.7)	13 (11.2)	
College/graduate school	15 (65.2)	172 (74.8)		14 (93.3)	103 (88.8)	
Marriage status			0.310			0.497
Single	15 (65.2)	132 (57.4)		13 (86.7)	104 (89.7)	
Married	8 (34.8)	98 (42.6)		2 (13.3)	12 (10.3)	
Age at menarche	13.0±1.3	13.6±1.7	0.148	12.9±0.9	12.9±1.0	0.832
No. of pregnancy	0.5±0.7	0.5±0.9	0.800	0.5±0.6	0.1±0.4	0.001
No. of birth	0.1±0.3	0.2±0.8	0.262	0.1±0.3	0.1±0.3	0.967
Sexual abuse history	16 (69.6)	86 (37.4)	0.003	4 (26.7)	3 (2.6)	0.003
Total number of partners in life	3.8±2.8	1.8±1.5	<0.001	2.9±1.9	1.5±0.8	<0.001
Frequency of intercourse per month	5.3±4.4	5.7±4.1	0.598	4.2±2.5	3.4±2.2	0.179

Values are presented as number (%) or mean±standard error.

^aLow level: under 990,000 won. ^bMedium level: 990,000–2,990,000 won. ^cHigh level: over 3,000,000 won. 1 USD=1,203 won.

Patients were divided according to the sexual debut age.

early sexual debut age. Occupation distribution was significantly different between the 2004 and 2014 studies. In the 2014 study, the percentage of housewives had decreased, and the proportion of college students had increased. The proportion of female participants who had attended and/or graduated from college had also increased. Additionally, the proportion of single women had increased in the 2014 study. Because we extracted data only from respondents in their 20s, their current income was often low level in both studies (Table 1).

The male study comparison showed considerably different results from the female study comparison. In the 2006 male study, early sexual debut age was associated with occupation, income, and academic background. However, in the 2016 male study, the academic background was the only significant factor for early sexual debut age. By contrast with the female studies, no significant difference was revealed between the 10-year interval studies regarding occupation, income level, and academic background of male respondents in their 20s (Table 2).

In both the male and female studies, early sexual debut age was related to a higher number of sexual

partners in life. Also, in the female study, the number of pregnancy and sexual abuse experiences was higher for participants with the early sexual debut (Table 1, 2).

Univariate and multivariate analyses found that SES factors such as occupation, income, and academic background were not related to female early sexual debut age. In the male studies, only the early debut age and academic background were significantly related, and college students were more likely to have had sexual experiences earlier than others (Table 3).

DISCUSSION

Sexual or sexual behavior is a social outcome that is learned and expressed through social norms, values, and culture [16]. In other words, human sexual behavior is not in the animal's instinct, but in a controlled social structure, and as society changes, its values and norms change together. Eventually, sexual behavior also changes. The perception or evaluation of early sexual intercourse is the best indicator of the values or norms in which society belongs [16].

It is well known that early sexual debut is related to numerous harmful health problems [1-5]. However, in-

Table 2. Characteristics of 2006 and 2016 male study

Variable	2006			2016		
	Sexual debut age <19 y (n=21)	Sexual debut age ≥19 y (n=66)	p-value	Sexual debut age <19 y (n=39)	Sexual debut age ≥19 y (n=161)	p-value
Occupation			0.019			0.556
Student	12 (57.1)	19 (28.8)		20 (51.3)	82 (50.9)	
Worker	9 (42.9)	47 (71.2)		19 (48.7)	79 (49.1)	
Income			0.021			0.699
Low level ^a	12 (57.1)	19 (28.8)		18 (46.2)	65 (40.4)	
Medium level ^b	9 (42.9)	35 (53.0)		15 (38.5)	74 (46.0)	
High level ^c	0	12 (18.2)		6 (15.4)	22 (13.7)	
Educational attainment			0.028			0.038
High school	4 (19.0)	2 (3.0)		7 (17.9)	11 (6.8)	
College/graduate school	17 (81.0)	64 (97.0)		32 (82.1)	150 (93.2)	
Marriage status			0.124			0.434
Single	19 (90.5)	50 (75.8)		34 (87.2)	144 (89.4)	
Married	2 (9.5)	16 (24.2)		5 (12.8)	17 (10.6)	
Sexual abuse history	N/A	N/A	N/A	4 (10.3)	7 (4.3)	0.144
Total number of partners in life	6.6±6.2	3.8±3.4	0.038	8.0±8.6	4.8±6.6	<0.001
Frequency of intercourse per month	8.0±6.9	6.4±6.1	0.166	8.0±7.0	5.6±5.8	0.009

Values are presented as number (%) or mean±standard error.

N/A: not available.

^aLow level: under 990,000 won. ^bMedium level: 990,000–2,990,000 won. ^cHigh level: over 3,000,000 won. 1 USD=1,203 won.

Patients were divided according to the sexual debut age.

Table 3. Univariate and multivariate logistic regression analysis for sexual debut age <19 years

Variable	Univariate		p-value	Multivariate	
	OR (95% CI)			OR (95% CI)	
Female					
2004 vs. 2014		0.773 (0.389–1.538)	0.464	0.773 (0.361–1.656)	0.508
Educational attainment	High school	Reference		Reference	
	College	1.202 (0.544–2.654)	0.649	1.859 (0.739–4.689)	0.189
Occupation	Worker	Reference		Reference	
	Housewife	0.663 (0.272–1.617)	0.367	0.630 (0.249–1.595)	0.329
	Student	0.449 (0.207–0.973)	0.042	0.387 (0.141–1.057)	0.064
Income	Low ^a	Reference		Reference	
	Medium ^b	1.821 (0.765–4.337)	0.176	1.418 (0.521–3.854)	0.494
	High ^c	0.900 (0.324–2.497)	0.840	0.506 (0.156–1.645)	0.258
Male					
2006 vs. 2016		1.314 (0.719–2.400)	0.375	1.421 (0.753–2.682)	0.278
Educational attainment	High school	Reference		Reference	
	College	3.695 (1.562–8.740)	0.003	4.924 (1.952–12.423)	0.001
Occupation	Worker	Reference		Reference	
	Student	0.701 (0.396–1.241)	0.223	1.189 (0.306–4.628)	0.803
Income	Low ^a	Reference		Reference	
	Medium ^b	0.494 (0.189–1.294)	0.151	2.250 (0.601–8.421)	0.228
	High ^c	0.801 (0.303–2.123)	0.656	3.399 (0.643–17.962)	0.150

OR: odds ratio, CI: confidence interval.

^aLow level: under 990,000 won. ^bMedium level: 990,000–2,990,000 won. ^cHigh level: over 3,000,000 won. 1 USD=1,203 won.

depth research on these sociocultural issues has been lacking in Korea [1,6]. Nevertheless, useful information could be obtained from the annual Korean youth risk behavior web-based survey or the survey conducted as part of a global business marketing program [11].

According to the results of the 2012 Durex Global Sexual-Wellbeing Survey, the average age at which Koreans experience their first sexual intercourse is 22.1 years old [11]. The internet survey was conducted on 30,000 adults from 37 countries across the world, and 1,010 people participated in Korea. In Korea, the younger the age group surveyed, the earlier the sexual debut. Namely, the average age for first sexual intercourse by age group is as follows: 19.5 years old for the 18- to 24-year-old group; 21.9 years old for the 25- to 34-year-old group; 22.8 years old for the 35- to 49-year-old group; and 23.8 years old for the 50- to 64-year-old group [11].

Previous studies have shown that Korea's first sex age is later than foreign countries [6,11,16,17]. In general, interest in sex begins at the onset of puberty in elementary or middle school. However, young Koreans can do free dating after completing college entrance exams due to the burden of studying. During this period, college students are recognized as adults, have few re-

strictions on their behavior, and have their first sexual experience. In the current study, the early sexual debut was defined as having sex before being recognized as an adult in society (sexual debut age <19).

The Korean youth risk behavior web-based survey showed that drinking, smoking, and family composition were significantly associated with sexual experience status, although these factors did not show the relationship with age at first sexual intercourse [1,6]. In other words, students who had experienced drinking and smoking and who do not live with their families have a high rate of sexual intercourse [1,6]. These findings suggest that adolescents are often exposed to sexual experience in less caring environments, but as it is often difficult to accurately understand the specific situations without asking directly, it is difficult to judge which adolescents need help. The SES factor and family composition are generally similar and linked factors, but they can be different and should be checked together. It is unreasonable to judge that early sexual debut in adolescence can be predicted only by SES factors. Any youth could have an early sexual debut. Therefore, rather than focusing on education for a small number of vulnerable groups, health providers should adopt educational strategies for all adolescents.

In the current study, the rates of early sexual debut between males and females were quite different. In general, men had a higher rate of early sexual debut age than women. It is believed that this cause is related to the popular sexual role norms and stereotypes in Korean society.

In a 2015 Korean Internet survey study conducted by Ahn et al [17], it was confirmed that men had a younger sexual debut age than women. That study was conducted with men and women aged 18 to 69 years old. Males had a mean sexual debut age of 21.9 years and females were 24.1 years old [17].

In 2005, a questionnaire study conducted by Sohn and Chun [16] of 2,399 Korean college students found that the rate of early sexual debut was 9.3% for men and 3.2% for women. In that study, an interesting analysis was additionally presented. In the case of male students, only 8.0% of respondents had the first sex on the premise of marriage, whereas 19.5% were females. In addition, 39.6% of male students and 52.4% of female students had their first sex with a "loved person". In other words, almost half of women (72.0%) reported that they had first sex with a spouse or loved one, whereas men had less than half (47.6%) who had their first sex for the marriage or love. The researchers analyzed that the statistical differences in sexual experience according to the male and female gender stereotypes [16].

In our study, only educational attainment (in the male analysis) had a significant correlation with the early sexual debut. Consequently, it is difficult to predict the age of a first sexual experience according to SES. The problem is that this unpredictable early sexual debut is deeply related to social problems such as sexual abuse and sexual violence [3,4]. Every year, more than 1,000 child sexual assault victims are reported to investigative agencies in Korea, and there are even more unreported child sexual abuse cases. Reports show that 28.5% of Korean adult women have experienced at least one incident of sexual abuse during their childhood [18]. In our study of females, the number of sexual abuse experiences and pregnancies was higher in the early sexual debut group. Additionally, in both the male and female analyses, early sexual debut related to a higher number of partners.

It is reported that the more sexual experiences one has at a young age (both in terms of the number of sexual partners and the number of sexual acts), along

with a lack of proper knowledge about sex, the higher the likelihood of unsafe sex and sexually transmitted infections [1-4]. To promote the sexual health of Korean adolescents and to implement proper health education, particularly for female adolescents, consideration of nocturnal emissions and the age of menarche is essential, since it is highly likely that early sexual experiences lead to unwanted pregnancy and sexual intermediation [1,4-6]. To prevent infectious diseases, sexual health promotion interventions tailored to adolescents' physical and mental ages should be provided.

Although the current study presented interesting results, it had some limitations due to the research characteristics. First, as an Internet-based self-completed survey was used, responders may have answered unreliably or dishonestly to uncomfortable questions about sexual experiences, academic background, income, and career. To overcome this issue, we sorted the quick responses as unreliable data when the average response time was determined to be less than 10%, as mentioned above [12-15]. Second, recall bias may occur because the respondents may not have recalled how they had answered in the past. However, because only respondents in their 20s were extracted, the likelihood of errors due to memory problems was low. If they responded that they had their first sexual experience before becoming a consenting adult, their job, income, education level may have changed when they actually did the first sexual experience. In the first sexual experience and the twenties, the change in SES was continuous, so the change was not expected to be significant. Third, the same income category was used to compare the 10-year interval studies. Income classification was performed according to the national income index data, but there is a disadvantage that the difference according to the actual income may be overlooked. Lastly, a disadvantage of our extracting from among the previous four Internet surveys only respondents in their 20s was that some groups had small numbers of respondents. The total population who we sent the e-mails for Internet surveys were 47,000 in 2004, 30,000 in 2006, 50,000 in 2014, and 100,000 in 2016. Although the total number of participants in the total of four studies was large, we extracted the only the responses of men and women in their 20s who answered the questionnaire and compared them at 10-year intervals. Therefore, the number used in the final analysis became smaller. Nevertheless, all four Internet surveys were conducted

on the same respondents, and the question format was similar, making it relatively uniform with the group of respondents and having the advantage of high reliability in comparing the answers.

Consequently, despite the above limitations, the major factors affecting the age of first sexual experiences were explored by comparative methods in 10-year cycles in each of the male and female cohorts, so we could determine the changing trends between sexual debut age and SES.

CONCLUSIONS

Factors influencing early sexual debut were different in time and between men and women. In particular, there was no significant association between SES factors and early sexual debut age in women. However, it is obvious that early sexual debut causes multiple problems, especially in young women. Therefore, it is important to address these issues by creating effective and suitable strategies.

Conflict of Interest

The authors have nothing to disclose.

Author Contribution

Conceptualization: JP, SHP, SJL, HS. Data curation: JP, WHS, HS. Formal analysis: JP, SHP, SJL. Methodology: WHS, WSC, HS. Project administration: WHS, HS. Resources: WHS, HS. Supervision: MCC, HS. Writing – original draft: JP, SHP, SJL. Writing – review & editing: WHS, WSC, MCC, HS.

Data Sharing Statement

The data required to reproduce these findings cannot be shared at this time due to legal and ethical reasons.

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