

Relationships between Sexual Behaviors and Psychosocial Variables among Junior High School Students in Shanghai, China

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Purpose: This study aimed to clarify the prevalence and influential factors of sexual behaviors among Chinese junior high school students using the validated measures and research methods employed in the Japanese study for the purpose of developing an effective sex education program to prevent premature sexual behaviors among Chinese junior high school students.

Methods: The study sample was comprised of 681 students from the seventh to the ninth grade of five junior high schools in Shanghai, China. The data were collected in October 2011, using anonymous and self-administered questionnaires.

Results: For the experience of kissing, there was no gender difference. For sexual intercourse, it was found that there was a gender difference, showing that the percentage of males who had ever experienced sexual intercourse was higher than that of females. According to the results of univariate analysis, significant relationships were found between the experience of ever kissing and cigarette smoking for males and alcohol drinking for both genders, showing that students with the experience of kissing were more likely to smoke and drink in the past month than those with no experience of kissing. In regard to social skills, students with the experience of kissing showed higher scores on aggressive behavior compared to those with no experience of kissing for females. In regard to stress coping skills, students with the experience of kissing showed higher scores on behavioral avoidance for males and distraction for females compared to those with no experience of kissing. In regard to psychosocial variables concerning sexual intercourse, students with the experience of kissing tended to have stronger behavioral intention about sexual intercourse while in their teen years and to have more positive attitudes toward sexual intercourse before marriage compared to those with no experience of kissing for both genders. According to the results of the multivariate analysis, male students who had drunk alcohol in the past month, had higher scores in behavioral avoidance of stress coping skills and had strong behavioral intention about sexual intercourse, and female students who had drunk alcohol in the past month, had higher scores in distraction of stress coping skills and recognized that their friends had experiences of sexual intercourse were likely to experience kissing.

Conclusions: The results of this study suggest that educational contents related to the prevention of alcohol drinking, the enhancement of problem-focused coping skills and the decrease of behavioral intention about sexual intercourse should be included in sex education for preventing premature sexual behaviors among Chinese junior high school students.

Keywords: junior high school students, sexual behaviors, psychosocial variables, life skills, Shanghai

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I. Introduction

The CDC (Center for Disease Control and Prevention) of USA regards sexual behaviors of adolescents related to unintended pregnancy and sexually transmitted infections including HIV as one of six types of health-risk behaviors among youth that can undermine their current and future health and significantly impact society¹⁾. Suppressing such

health-risk behaviors is considered to be a solid strategy to resolve health problems of our society.

In China, due to the rapid economic development and the liberalization and diversification of information after the 1980's, the awareness of adolescents in respect to sex has changed dramatically and the seriousness and acceleration of sexual risk behaviors among adolescents has become a serious social concern. However, according to the results of

a review²⁾ about previous studies on the prevalence and influential factors of sexual behaviors among Chinese adolescents, there are few reliable studies on the prevalence of sexual behaviors among junior and senior high school students in China. In particular, in surveys for junior high school students, questions regarding sexual behaviors were often omitted from survey items.

Generally, in order to effectively suppress risk behaviors of adolescents, it is vital to clarify factors related to risk behaviors and to take an appropriate approach to intervene such factors. In China, however, lack of knowledge is most emphasized as the cause of premature sexual behaviors and the most common approaches to prevent sexual risk behaviors of adolescents are inclined towards the transfer of knowledge or moral education²⁾. Accordingly, in order to improve education in schools for preventing sexual risk behaviors or premature sexual behaviors of adolescents in China, it is urgent that the prevalence and influential factors of sexual behaviors among Chinese adolescents are clarified by a survey using validated measures and research methods.

In Japan, according to the results of a cross-sectional survey on 909 junior high school students in Niigata and Saitama Prefectures conducted in 2011, there were significant relationships between experience of ever kissing and family-related self-esteem, social skills, stress coping skills and self-efficacy with regard to sexual intercourse³⁾. Specifically, the students who had the experience of ever kissing tended to have lower family-related self-esteem, to have higher social skills, to have higher emotion-focused coping skills and to have lower self-efficacy with regard to sexual intercourse compared to those who did not have. Additionally, the students who had the experience of ever kissing tended to have stronger behavioral intention about sexual intercourse while in their teen years, to have more positive attitudes toward premarital sexual intercourse, to perceive that close friends have the experience of

sexual intercourse and to predict the rate of sexual experience among their peers higher than the actual rate compared to those who did not have such experience.

This study aimed to clarify the prevalence and influential factors of sexual behaviors among Chinese junior high school students for the purpose of developing an effective sex education program to prevent premature sexual behaviors among Chinese junior high school students.

II. Methods

1. Participants

Five junior high schools in the Yangpu District of Shanghai were recruited. The Yangpu District is located in the Northeast area of central Shanghai and the population is about 1,300,000. In the district, there are 50 elementary schools, 48 junior high schools, 22 high schools and many prestigious universities. The level of economy, education and other fields in the district is rather high and the district is called “YangPu of Knowledge”. The classes for the survey were chosen taking into consideration the requests of the selected schools as well as the number of students of each grade.

In the following, for the sake of comparison, the results of the survey in Japan³⁾ will be presented as necessary. **Table 1** shows the number of participants by gender, grade and country.

2. Data collection

As to the preparation for the Chinese version of the questionnaire; 1) the first author who is bilingual in Chinese and Japanese translated the Japanese version of the questionnaire developed by Li et al³⁾ into Chinese, 2) its translation appropriateness has been confirmed by the other university students from China who are fluent in both Chinese and Japanese.

Table 1 Number of participants by gender, grade and country

	China	Japan
Grade1	243(127,116)	300(160,140)
Grade2	219(93,126)	287(137,150)
Grade3	219(113,106)	322(172,150)
Total	681(333,348)	909(469,440)

The figure in the parenthesis is the number of participants by gender(Male, Female).

Thereafter, 3) several college students and junior high school teachers from Shanghai city in China answered the questionnaire and reviewed the appropriateness of the Chinese expressions, 4) we have reconfirmed the final Chinese version with the above-mentioned respondents.

The survey was conducted in October 2011. Six university students from Shanghai University who had received training in relation to the survey procedure in advance carried out the survey. In order to consolidate the method of the survey, a manual for survey administrators was developed. It described specific explanations and instructions for survey administrators on what to tell participants and also requested them not to do or say anything other than instructed.

Because there are some items that might be difficult for junior high school students to answer honestly, the responses of a participant were kept confidential. First, the survey was conducted using anonymous and self-administered questionnaires. Second, after filling out the questionnaire, the participant placed the completed questionnaire into an envelope with no identification distributed to each participant in advance and sealed it. Third, survey administrators were asked not to walk around classrooms during the survey. Additionally, it was written on the cover page of the questionnaire that participants do not have to answer any questions that they do not want to and that all answers would be kept strictly confidential. Lastly, survey administrators were requested in the survey manual to explain orally it to participants.

3. Measures

The main questions used in this survey are briefly described below. The details of the response choices to each question and the procedure of scoring scales are described by Li et al.³⁾

(1) Risk behaviors

For risk behaviors, it was asked if they had the experience of kissing or had the experience of engaging in sexual intercourse in their lifetime, had smoked a cigarette in the past month and had drunk alcohol in the past month.

(2) Self-esteem and life skills

For self-esteem, three subscales named "General"⁴⁾, "Family"⁵⁾ and "Body"⁵⁾ were measured. For life skills, social skills⁶⁾ including three subscales: Pro-social skills, Withdrawal behavior and Aggressive

behavior, stress coping skills⁷⁾ including six subscales: Support seeking, Problem solving, Distraction, Emotional avoidance, Behavioral avoidance and Cognitive avoidance, and decision-making skills⁸⁾ were measured.

(3) Psychosocial variables with regard to sexual behaviors

Three items were used to assess the self-efficacy⁹⁾ with regard to sexual behaviors: the confidence in the ability to resist sexual pressures, the confidence in the ability to avoid AIDS and other sexually transmitted infections and the confidence in the ability to avoid unwanted pregnancies.

For behavioral intention about sexual intercourse while in their teen years, the question of "the possibility of having sexual intercourse while in their teen years" was used. For attitudes toward premarital sexual intercourse, four items: 1)"It would be all right to have sex before marriage if they love each other", 2)"It would be all right to have sex before marriage if they have strong affection for their partners", 3)"It would be all right to have sex before marriage if they have some affection for their partners" and 4)"It would be all right to have sex before marriage even if they don't care so much for their partners", were used. For the perceived sexual behavior of friends, the perception of close friends' experiences of sexual intercourse was asked. For normative beliefs, the prediction of the rate of same-aged peers who have experienced sexual intercourse was asked.

(4) Demographic characteristics

Gender, age and grade were asked regarding demographic characteristics.

4. Data analysis

First, the rates of the students who have experienced kissing, sexual intercourse, smoking in the past month and drinking alcohol in the past month were determined by gender and grade. Chi-square test was used to test the gender difference of the prevalence of risk behaviors.

Second, the mean values of self-esteem, life skills and psychosocial variables regarding sexual risk behaviors were calculated by gender and grade. T-test was used to test the gender differences of the mean values.

Third, the relationships between sexual behaviors and influential factors were examined. Considering the very low rate of the experience of sexual intercourse

and the strong relationship between kissing and sexual intercourse experiences, the experience of kissing was used as a dependent variable. Risk behaviors other than sexual behaviors, self-esteem, social skills, stress coping skills, decision-making skills and psychosocial variables with regard to sexual behaviors (self-efficacy, behavioral intention, attitudes toward sexual behaviors, perceived sexual behavior of friends and normative beliefs) were used as independent variables.

In the analysis, participants were divided into the two groups by the experience of kissing for each gender and the mean values or the frequencies of the independent variables in each group were calculated. In order to test for significant differences between the two groups, t-test for the mean value and chi-square test for the frequency were used.

Since it was assumed that the independent variables were correlated to each other, the multiple logistic regression analysis (forced entry method) was used to control the influences of other variables.

In order to limit the number of the independent variables in the multivariate analysis, only variables that were statistically significant for either gender in the univariate analysis were used. Further, for the variables related to attitudes toward sexual intercourse before marriage, the variables that were significant at the 0.01 level for both genders were used.

As for perceived sexual behavior of friends, both "have no close friends" and "have close friends but no one has sexual intercourse experience" were grouped into one category of "have no friends with any sexual intercourse experience" in the multiple logistic regression analysis.

Statistical analysis was conducted using SPSS 18.0 for Windows. The level of significance was 0.05.

III. Results

1. Risk behaviors, self-esteem, life skills and psychosocial variables

Table 2 shows the rates of the students who have smoked one or more cigarettes in the past month (monthly smokers), drunk alcohol one or more times in the past month (monthly drinkers), ever experienced kissing and ever experienced sexual intercourse by gender and country.

For smoking behavior, there was a gender difference ($\chi^2=5.799$, $df=1$, $p=.016$ for Chinese students; $\chi^2=10.445$, $df=1$, $p=.019$ for Japanese students), showing higher percentage of monthly smokers among males than females in both countries. For drinking behavior, there was a gender difference ($\chi^2=10.039$, $df=1$, $p=.002$) in China, showing higher rate of monthly drinkers among males than females. Furthermore, the rate of monthly drinkers of Chinese students compared to that of Japanese students was more than four times higher for both genders.

For kissing, there was no gender difference in neither of the countries. Additionally, the rate of Japanese students who had experienced kissing was two times higher for males and three times higher for females compared to that of Chinese students. For sexual intercourse, it was shown that there was a gender difference ($\chi^2=4.464$, $df=1$, $p=.035$) in China, showing that the rate of males who had ever experienced sexual intercourse was higher than that of females.

Table 3 shows the mean values of self-esteem, life skills and psychosocial variables regarding sexual behaviors by gender and country.

Regarding self-esteem, there was no gender difference for any subscales in China. On the other hand, in Japan the gender difference was found regarding self-esteem "General" ($t=2.608$, $df=868.5$, $p=.009$) and "Body" ($t=7.097$, $df=886$, $p<.001$), showing higher scores among males than females. Additionally, Chinese students showed higher scores

Table 2 Percentages of those who experienced risk behaviors by gender and country

	Smoked in the past month		Drank in the past month		Ever experienced kissing		Ever experienced sexual intercourse	
	Male	Female	Male	Female	Male	Female	Male	Female
China	*3.0(10/331)	0.6(2/346)	**26.7(88/329)	16.7(58/347)	12.0(40/332)	8.7(30/344)	*4.5(15/330)	1.7(6/347)
Japan	**2.4(11/468)	0.0(0/439)	6.2(29/469)	4.3(19/439)	24.5(113/462)	24.2(105/433)	3.9(18/462)	2.3(10/435)

The figure in the parenthesis shows that for example, 10 in 331(3.0%) in Chinese male students smoked at least one cigarette in the past month.

* : The gender difference is statistically significant by chi-square test($p<.05$).

* * : The gender difference is statistically significant by chi-square test($p<.01$).

Table 3 Mean values of self-esteem, social skills, stress coping skills, decision-making skills, self-efficacy, behavioral intention and attitudes toward premarital sexual intercourse by gender and country

	China						Japan					
	Male			Female			Male			Female		
	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD
{Self-esteem}												
General	330	23.1	3.3	347	22.7	3.4	460	**20.1	3.4	431	19.5	3.7
Family	330	23.3	3.9	344	23.9	4.0	454	22.9	3.9	429	22.8	4.5
Body	327	22.2	3.7	343	21.8	3.7	461	**19.0	3.3	427	17.3	3.6
{Social Skills}												
Pro-social skills	331	22.8	3.0	348	**23.5	2.5	462	20.9	3.4	433	**22.9	2.7
Withdrawal behavior	332	7.3	2.5	348	7.6	2.7	464	6.4	2.5	435	* 6.8	2.3
Aggressive behavior	329	**6.6	1.8	348	6.2	1.7	466	**8.0	2.1	437	7.1	2.0
{Stress Coping Skills }												
Support seeking	332	5.7	1.5	348	5.6	1.4	465	5.2	1.6	436	**5.8	1.7
Problem solving	333	6.0	1.4	347	6.0	1.3	467	5.9	1.4	437	**6.5	1.2
Distraction	332	**5.5	1.8	346	4.7	1.6	468	**6.1	1.6	438	5.0	1.5
Emotional avoidance	332	4.5	1.7	347	**5.4	1.6	467	4.2	1.6	434	**5.3	1.7
Behavioral avoidance	333	4.0	1.5	345	**4.4	1.4	468	3.3	1.2	436	**3.7	1.4
Cognitive avoidance	333	4.5	1.4	347	4.4	1.4	467	*4.8	1.5	434	4.6	1.5
{Decision-making skills}	327	23.7	3.9	346	24.2	3.6	451	20.8	4.3	423	**22.3	4.0
{Self-efficacy}												
Sexual pressure	327	3.7	1.5	341	4.0	1.4	460	3.7	1.2	431	*3.9	1.0
Transmitted disease	325	4.2	1.4	343	4.5	1.2	456	4.0	1.0	430	4.0	0.9
Unwanted pregnancy	291	3.9	1.6	343	4.4	1.1	427	4.0	1.1	429	4.1	0.9
{Behavioral intention about sexual intercourse while in their teen years}	330	**2.1	1.2	343	1.7	1.0	460	2.2	1.2	430	2.3	1.2
{Attitudes toward sexual intercourse before marriage}												
1)Love each other	321	*3.5	1.8	344	3.2	1.6	454	3.5	1.7	424	*3.8	1.6
2)Have strong affection	321	**3.1	1.7	344	2.7	1.5	452	3.2	1.7	426	3.2	1.6
3)Have some affection	321	**2.2	1.5	343	1.8	1.0	452	**2.5	1.5	425	2.1	1.2
4)Have no affection	322	**1.7	1.2	343	1.3	0.7	451	**1.9	1.3	426	1.5	0.9

* : The gender difference is statistically significant by t-test($p < .05$).

* * : The gender difference is statistically significant by t-test($p < .01$).

than Japanese students in all three subscales for both genders.

In regards to social skills, the gender difference was found in China for pro-social skills ($t = -3.063$, $df = 633.3$, $p = .002$) and aggressive behavior ($t = 2.836$, $df = 675$, $p = .005$), showing that the score of pro-social skills was higher for females, while the score of aggressive behavior was higher for males. In Japan, the gender difference was found in all subscales, showing that the scores of pro-social skills ($t = -9.928$, $df = 872$, $p < .001$) and withdrawal behavior ($t = -2.504$, $df = 897$, $p = .012$) were higher for females, while the score of aggressive behavior ($t = 6.466$, $df = 901$, $p < .001$) was higher for males.

Regarding stress coping skills, the gender difference was found in China for distraction ($t = 5.836$, $df = 665$, $p < .001$), emotional avoidance ($t = -7.280$, $df = 677$, $p < .001$) and behavioral avoidance ($t =$

3.493 , $df = 676$, $p = .001$), showing that the score of distraction was higher for males, while the scores of emotional avoidance and behavioral avoidance were higher for females. In Japan, the gender difference was found in all subscales, showing that the scores of support seeking ($t = -5.370$, $df = 899$, $p < .001$), problem solving ($t = -6.433$, $df = 902$, $p < .001$), emotional avoidance ($t = -10.391$, $df = 902$, $p < .001$) and behavioral avoidance ($t = -4.596$, $df = 854.8$, $p < .001$) were higher for females, while the scores of distraction ($t = 11.094$, $df = 904$, $p < .001$) and cognitive avoidance ($t = 1.976$, $df = 899$, $p = .048$) were higher for males.

In regards to decision-making skills, there was no gender difference in China. In Japan, the gender difference ($t = -5.148$, $df = 872$, $p < .001$) was found with higher scores for females.

For self-efficacy with regard to sexual behaviors, there was no gender difference in China. In Japan, the

gender difference was found for the confidence in the ability to resist sexual pressures ($t=-2.406$, $df=885.2$, $p=.016$), showing a higher score for females.

In regards to behavioral intention about sexual intercourse while in their teen years, only in China the gender difference ($t=4.193$, $df=652.5$, $p<.001$) was found with a higher score for males.

In regards to attitudes toward sexual behaviors before marriage, the gender difference was found in all scales ($t=2.482$, $df=644.8$, $p=.013$ for item1; $t=3.167$, $df=633.7$, $p=.002$ for item2; $t=4.815$, $df=576.7$, $p<.001$ for item3; $t=5.011$, $df=516.7$, $p<.001$ for item4) with higher scores for males in China. In Japan, there were gender differences except for item2 ($t=-2.074$, $df=875.8$, $p=.038$ for item1; $t=4.637$, $df=858.8$, $p<.001$ for item3; $t=5.811$, $df=809.6$, $p<.001$ for item4), showing that the score of item 1 was higher for females, while the scores of item 3 and item 4 were higher for males.

2. Univariate analysis of influential factors regarding kissing experience

In this study, considering the very low rate of sexual intercourse experience and the strong relationship ($\chi^2=67.972$, $df=1$, $p<.001$ for males;

$\chi^2=4.647$, $df=1$, $p=.031$ for females) between kissing and sexual intercourse experiences, the experience of kissing was used as a dependent variable.

(1) Smoking and alcohol drinking behavior

In regards to smoking behavior, there was a significant difference between the two groups for males ($\chi^2=7.563$, $df=1$, $p=.006$), showing a higher percentage of monthly smokers for the kissing experience group (10.0% for the experience group, 2.1% for the no-experience group).

Figure 1 shows the rate of monthly drinkers by kissing experience and gender. There was a significant difference between the two groups ($\chi^2=18.551$, $df=1$, $p<.001$ for males; $\chi^2=18.196$, $df=1$, $p<.001$ for females), showing a higher rate of monthly drinkers for the kissing experience group for both genders.

(2) Self-esteem and life skills

Table 4 shows the mean values of self-esteem and life skills by kissing experience and gender.

There was no difference between the two groups for any self-esteem scales in neither of genders.

In regards to social skills, there was a significant difference between the two groups for aggressive behavior for females ($t=-2.267$, $df=342$, $p=.024$), showing a higher score for the kissing experience group.

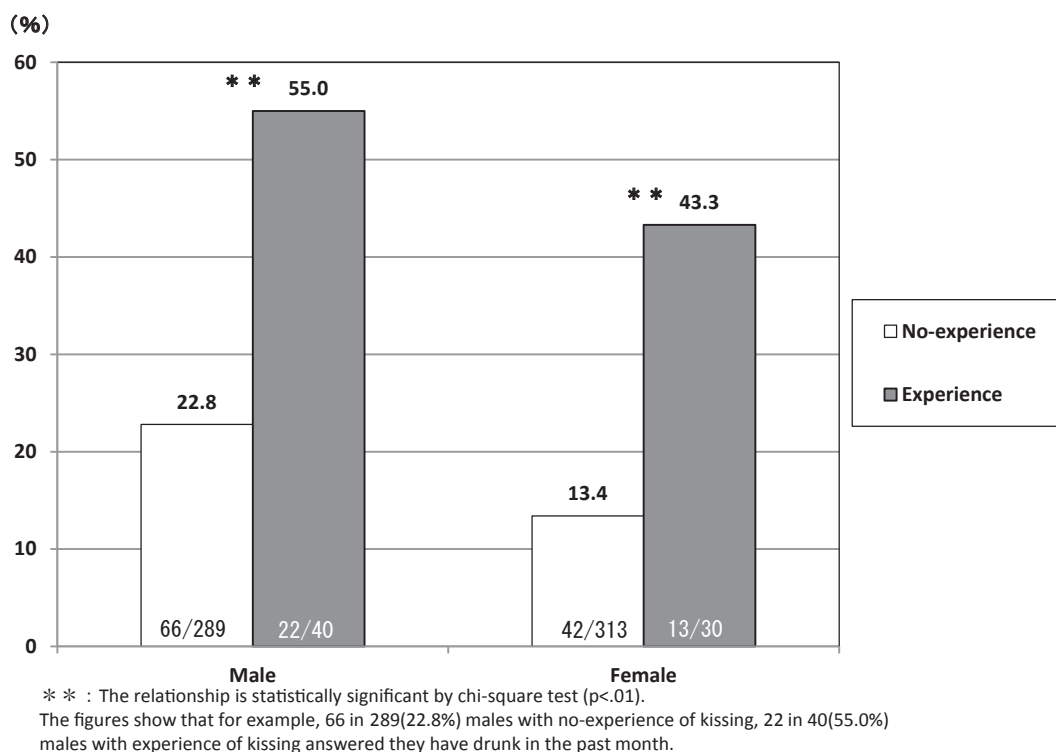


Figure 1 Percentages of monthly drinkers by kissing experience and gender

Table 4 Mean values of self-esteem, social skills, stress coping skills and decision-making skills by kissing experience and gender

	Male						Female					
	No- experience			Experience			No- experience			Experience		
	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD
{Self-esteem}												
General	289	23.1	3.2	40	22.7	4.0	313	22.7	3.4	30	23.5	3.2
Family	289	23.4	3.9	40	22.6	3.9	310	24.0	3.8	30	23.1	4.7
Body	286	22.2	3.7	40	22.2	3.5	310	21.8	3.8	30	22.2	3.4
{Social Skills}												
Pro-social skills	290	22.8	3.1	40	22.7	3.3	314	23.4	2.5	105	24.0	2.7
Withdrawal behavior	291	7.4	2.6	40	6.8	2.3	314	7.6	2.7	30	7.0	2.2
Aggressive behavior	288	6.5	1.8	40	7.0	1.9	314	6.1	1.7	30	*6.9	1.5
{Stress Coping Skills}												
Support seeking	291	5.6	1.5	40	6.0	1.4	314	5.6	1.4	30	5.4	1.9
Problem solving	292	6.0	1.4	40	6.0	1.5	313	6.1	1.2	30	5.8	1.7
Distraction	291	5.4	1.8	40	5.8	1.7	312	4.6	1.6	30	**5.5	1.7
Emotional avoidance	291	4.5	1.7	40	4.8	1.7	313	5.4	1.6	30	5.8	1.7
Behavioral avoidance	292	3.9	1.4	40	**4.7	1.7	311	4.3	1.3	30	4.8	1.5
Cognitive avoidance	292	4.5	1.4	40	4.5	1.5	313	4.4	1.4	30	4.4	1.3
{Decision-making skills}	287	23.7	3.9	39	23.6	3.9	312	24.2	3.5	30	24.0	4.3

* : The difference is statistically significant by t-test ($p < .05$).

* * : The difference is statistically significant by t-test ($p < .01$).

In regards to stress coping skills, there was a significant difference between the two groups for behavioral avoidance ($t = -3.034$, $df = 330$, $p = .003$) for males and distraction ($t = -2.687$, $df = 340$, $p = .008$) for females, showing a higher score for the kissing experience group in both subscales.

(3) Psychosocial variables with regard to sexual behaviors

Table 5 shows the mean values of self-efficacy and behavioral intention by kissing experience and gender.

There was no difference between the two groups for any self-efficacy scales in neither of genders.

In regards to behavioral intention about sexual intercourse, there was a significant difference between the two groups for both genders ($t = -4.063$, $df = 44.3$, $p < .001$ for males; $t = -2.588$, $df = 30.7$, $p = .015$ for females). The kissing experience group showed a higher score or stronger intention about sexual intercourse while in their teen years.

Table 6 shows the mean values for the attitudes

toward sexual intercourse before marriage by kissing experience and gender.

In regards to item 1 "It would be all right to have sex before marriage if they love each other", there was a significant difference between the two groups for both genders ($t = -3.278$, $df = 319$, $p = .001$ for males; $t = -3.342$, $df = 339$, $p = .001$ for females), showing a higher score for the kissing experience group.

In regards to item 2 "It would be all right to have sex before marriage if they have strong affection for their partners", there was a significant difference between the two groups for females ($t = -3.492$, $df = 339$, $p = .001$), showing a higher score for the kissing experience group.

In regards to item 3 "It would be all right to have sex before marriage if they have some affection for their partners", there was a significant difference between the two groups for males ($t = -2.967$, $df = 319$, $p = .003$), showing a higher score for the kissing experience group.

In regards to item 4 "It would be all right to have

Table 5 Mean values of self-efficacy and behavioral intention by kissing experience and gender

	Male						Female					
	No-experience			Experience			No-experience			Experience		
	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD
{Self-efficacy}												
Sexual pressure	287	3.7	1.5	40	3.6	1.4	307	4.1	1.4	30	3.9	1.3
Transmitted disease	285	4.1	1.4	40	4.3	1.2	310	4.5	1.1	30	4.2	1.3
Unwanted pregnancy	253	3.9	1.6	38	3.6	1.6	310	4.4	1.1	30	4.5	0.7
{Behavioral intention about sexual intercourse while in their teen years}	290	2.0	1.1	40	**3.0	1.5	310	1.7	1.0	29	**2.3	1.4

* * : The difference is statistically significant by t-test($p < .01$).

Table 6 Mean values of attitudes toward sexual intercourse before marriage by kissing experience and gender

	Male						Female					
	No-experience			Experience			No-experience			Experience		
	n	Mean	SD	n	Mean	SD	n	Mean	SD	n	Mean	SD
1)Love each other	281	3.4	1.7	40	**4.4	1.7	311	3.1	1.6	30	**4.1	1.6
2)Have strong affection	281	3.0	1.7	40	3.5	1.8	311	2.6	1.4	30	**3.6	1.5
3)Have some affection	281	2.2	1.4	40	**2.9	1.7	310	1.7	1.0	30	2.0	1.1
4)Have no affection	282	1.7	1.2	40	*2.2	1.4	310	1.3	0.7	30	*1.7	0.8

* : The difference is statistically significant by t-test ($p < .05$).

* * : The difference is statistically significant by t-test($p < .01$).

sex before marriage even if they don't care so much", there was a significant difference between the two groups for both genders ($t = -2.317$, $df = 320$, $p = .021$ for males; $t = -2.221$, $df = 33.1$, $p = .033$ for females), showing a higher score for the kissing experience group.

Figure 2 shows the perceived sexual behavior of friends by kissing experience and gender. There was a significant difference between the two groups for both genders ($\chi^2 = 16.437$, $df = 2$, $p < .001$ for males; $\chi^2 = 21.750$, $df = 2$, $p < .001$ for females). The kissing experience group tended to recognize that their friends had experienced sexual intercourse.

3. Multivariate analysis of influential factors regarding kissing experience

Table 7 shows the results of the multiple logistic regression analysis by gender with the experience of kissing as the dependent variable. For males, in descending order of the chi-square value, behavioral avoidance, behavioral intention about sexual intercourse and monthly drinking were associated with the experience of kissing and the regression coefficients were positive in all variables. For females, in descending order of the chi-square value, monthly drinking, perceived sexual behavior of friends and distraction as a coping strategy were

associated with the experience of kissing and the regression coefficients were positive in all variables.

IV. Discussion

1. Prevalence of sexual behaviors

In this study, the participants were asked about their experiences of kissing and engaging in sexual intercourse. The percentage of those who had the experience of kissing was 12.0% for males and 8.7% for females. For the experience of sexual intercourse, the percentage was 4.5% for males and 1.7% for females, showing a higher rate among males than females with a significant gender difference.

As there has been no research about the experience of kissing among junior high school students in China, it was not possible to compare the results of this study with those of previous studies in China. Compared to the results of the study reported before, the rate of the experience of kissing among Japanese students was two times higher for males and three times higher for females than that of Chinese students. In China, as people have strong negative attitudes toward expression of affection such as hugging and kissing in public places, therefore the low rate of the experience of kissing among Chinese students is not surprising.

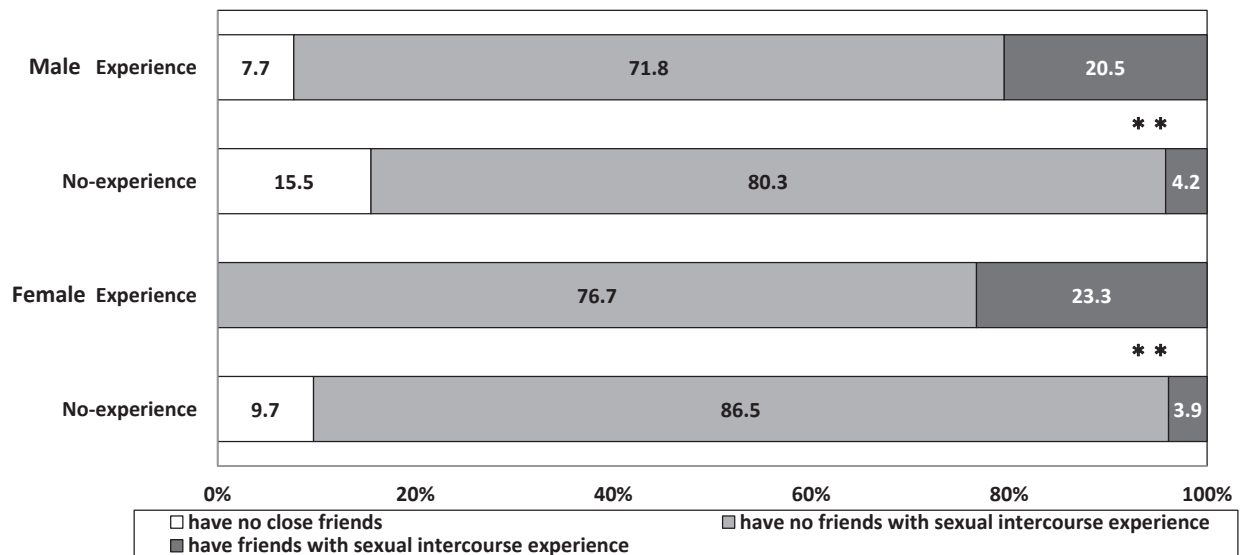


Figure 2 Perceived sexual behaviors of friends by kissing experience and gender

Table 7 Variables associated with kissing experience by multiple logistic regression analysis

Variable	β	χ^2	p	OR	(95%CI)
{Male}					
Monthly drinking	1.131	7.493	.006	3.099	1.379~6.967
Behavioral avoidance	.373	8.650	.003	1.452	1.133~1.862
Behavioral intention	.457	7.690	.006	1.580	1.144~2.183
{Female}					
Monthly drinking	1.489	10.304	.001	4.434	1.786~11.010
Distraction	.316	4.992	.025	1.371	1.039~1.808
Perceived sexual behavior of friends	1.715	6.594	.010	5.557	1.50~20.572

Experiences of ever kissing: 1 "no-experience", 2 "experience"

Monthly drinking: 1 "not drank", 2 "drank"

Behavioral avoidance: 2~8

Distraction: 2~8

Behavioral intention: 1 "absolutely will not" ~5 "absolutely will"

Perceived sexual behavior of friends:

1 "have no friends with any sexual intercourse experience", 2 "have friends with sexual intercourse experience"

Li et al.²⁾ reviewed studies on sexual risk behaviors among Chinese junior high school students and revealed the percentage of the experience of sexual intercourse ranged from 0.6% to 2.6%. According to the results of the survey on 1,171 junior high school students in Beijing by Zhou et al.¹⁰⁾ (published in 2001), the overall percentage of those who had engaged in sexual intercourse was 1.0%. According to the results of the survey conducted in March 2003 by Tao et al.¹¹⁾ on 3,208 students in the first grade of junior high school to the third grade of senior high school in Hefei of Anhui, the percentage was 2.4% for

males and 0.6% for females. According to the results of the survey conducted by Zhu et al.¹²⁾ from April to May in 2007 on 507 junior high school students in Shaoxing of Zhejiang, the overall percentage was 2.6%. According to the results of the survey conducted by Wei et al.¹³⁾ (published in 2008) on 1,896 students in the first grade of junior high school to the third grade of senior high school in Liuzhou of Guangxi, the overall percentage was 0.9%.

This study showed a higher rate of the experience of sexual intercourse compared to the results of previous studies on junior high school students

in China. The following explanations about the difference of the results might be possible. First, the surveys by Tao et al.¹¹⁾ and by Zhu et al.¹²⁾ were conducted in 2003 and 2007, respectively. Although the survey year is not clarified in the research papers of Zhou et al.¹⁰⁾ and Wei et al.¹³⁾, from the date of publication of the research papers, it can be guessed that these surveys were conducted prior to 2001 and prior to 2008, respectively. In other words, these surveys were conducted more than four years before of our study and the rate of the experience of sexual intercourse among Chinese junior high school students may have increased during this period. Next, in regards to the survey method, in all surveys mentioned above, the data were collected using anonymous and self-administered questionnaires with the classroom teachers absent. However, a return envelope to place the completed questionnaire into was not used in the previous Chinese surveys. Additionally, in the survey by Zhu et al.¹²⁾, survey administrators checked the number of completed questionnaires in classrooms in front of participants. Therefore, there was a possibility that students did not answer honestly, which could have led students to underreport their sexual experiences.

Compared to the results of the study by Li et al.³⁾, there was no difference in regard to the rate of the experience of sexual intercourse between Japan and China.

2. Factors related to kissing experience

In this study, since the rate of the experience of sexual intercourse was very low and there was a strong relationship between the kissing and sexual intercourse experiences, the experience of kissing was used as the dependent variable. The independent variables were smoking behavior, drinking behavior, self-esteem, life skills and psychosocial variables with regard to sexual behaviors.

(1) Smoking and drinking behavior

According to the results of the univariate analysis, the experience of kissing showed a significant association with monthly smoking for males and with monthly drinking for both genders. Specifically, the students with the experience of kissing tended to smoke or drink alcohol in the past month compared to those with no experience of kissing. Additionally, in the results of the multiple logistic regression analysis, there was a significant association between alcohol

drinking behavior and the experience of kissing for both genders, showing a higher experience of kissing among monthly drinkers.

According to the review²⁾ of previous research regarding influential factors of sexual risk behaviors of Chinese adolescents, it was shown that the rates of smoking and drinking were higher for those with the experience of sexual intercourse and they started smoking and drinking at an earlier age. Also, in the results of the survey³⁾ on Japanese junior high school students those with the experience of kissing tended to smoke for males and to drink for females in the past month. These results generally coincided with the results of our study.

In regards to the relationships between sexual behaviors, smoking and drinking, the following explanations would be possible. First, in regards to drinking alcohol, sexual behaviors may be likely to occur under the influences of alcohol where adolescents are released from inhibitions. In other words, by drinking alcohol, the self control of adolescents is decreased and they can no longer suppress their sexual impulses^{14) 15)}, which in turn heightens the possibility of their engaging in sexual behaviors. Second, adolescents typically begin the use of tobacco and alcohol known as "Gateway Drugs"¹⁶⁾, which they perceive the society is relatively tolerant of, and they gradually progress to risk behaviors which they perceive are not tolerated in society.

In this study, the percentage of monthly drinkers was 26.7% for males and 16.7% for females and was much higher than that of Japanese students³⁾ for both genders. Therefore, especially in China, it is considered that alcohol drinking is an important risk factor of the experience of kissing among junior high school students. In China, the social tolerance for drinking alcohol is extremely high and alcohol is indispensable for events and celebrations for family, school and regions. In such a situation, minors are permitted to drink a little of low concentration alcohol if adults are present. With this in the background, adolescents have positive attitudes toward drinking alcohol and there is very little education in schools to prevent students from initiating drinking alcohol. Even if drinking prevention education is conducted, the effectiveness of education might be limited. Therefore, for preventing premature sexual behaviors in China, it is very important to increase the awareness of parents and teachers in respect to minor's drinking and prevent students from initiating

drinking alcohol.

(2) Self-esteem and life skills

In the results of this study, a significant association between self-esteem and kissing experience was not found. On the other hand, in the survey by Li et al.³⁾, a significant association between family-related self-esteem and kissing experience was found. Also, the results of the cross-sectional survey conducted by Kawabata et al.¹⁴⁾ from November 2000 through February 2001 on 4,367 students of junior high school and senior high school students throughout Japan showed that the score of family-related self-esteem of those having experienced sexual intercourse was significantly lower than those not having any experience, regardless of gender and grade. The results of a longitudinal survey conducted by Song et al.¹⁷⁾ from May 2006 through May 2010 on 536 Japanese students that entered junior high school from 2005 to 2007, showed that the lower the score of family-related self-esteem in the first grade, the higher the risk of experiencing sexual intercourse by the third grade. Additionally, according to the results of the study conducted by Wild et al.¹⁸⁾ on 939 students in the 8th grade and the 11th grade in South Africa, it was shown that the lower the score of family-related self-esteem, the higher the risk of smoking, alcohol drinking, suicidal ideation and attempts and sexual behavior was for both genders. As shown above, the previous studies recognized the association between sexual risk behaviors and family-related self-esteem among adolescents. However, such a relationship was not found in our study. The following explanations of the difference of the results would be possible.

First, self-esteem which is recognized to be strongly associated with various risk behaviors among adolescents including sexual behaviors in many studies conducted in other countries may not be an important risk factor in junior high school students in China. As shown in Table 3, the self-esteem scores for all three subscales among junior high school students in China were higher than those in Japan. One reason for that there was no relationship between kissing and self-esteem might be that because the level of self-esteem among Chinese students in this study was relatively high.

Second, the measure of self-esteem used in this study may not correctly reflect the true status of self-esteem among Chinese junior high school students. In the background of the "high self-esteem" of Chinese students, there might be the unique "One

Child Policy" of China. Wang et al.¹⁹⁾ mentions that "doting" or "fàn lái zhāng kǒu, yī lái shēn shǒu" (food comes to open mouth, clothing to outstretched hand) is a characteristic of the "One Child Family". They point out that the increase of children who have been grown up in such a family environment, lack a sense of independence and communication skills, are self-centered and are not socially matured is becoming a serious problem in China. In order to accurately evaluate the true status of self-esteem among Chinese junior high school students grown up in such a family environment, it may be necessary to develop a validated measure of self-esteem for Chinese adolescents.

According to the results of the univariate analysis, a significant association between aggressive behavior and the experience of kissing was found for females. The scale of aggressive behavior⁶⁾ used in this study measures generally undesirable interpersonal behavior such as "use of coarse language against friends" and "blaming everything on friends". The results of this study indicate that the students with the experience of kissing were more likely to adopt such aggressive interpersonal behaviors. Due to their aggressive behaviors, they are not accepted from a normative peer group, instead they have to belong to a non-normative peer group. Consequently, the possibility of their undertaking risk behaviors such as smoking, drinking alcohol or premature sexual behaviors would increase.

In regards to stress coping skills, both results of the univariate analysis and the multiple logistic regression analysis indicated that the experience of kissing was significantly associated with behavioral avoidance for males and distraction for females. These results are consistent with the survey results by Li et al.³⁾. According to Otake et al.²⁰⁾, stress coping strategies are divided into two types. One is a problem-focused coping such as problem solving and support seeking, focusing on resolving causes of stress and the other is an emotion-focused coping such as distraction, emotional avoidance, behavioral avoidance and cognitive avoidance, focusing on changing the unpleasant emotions caused by stress. Both results in China and in Japan coincide and suggest that students with sexual experience are more likely to adopt emotion-focused stress coping strategies.

Deng²¹⁾ cites that the academic burden in school life and inappropriate guidance of students might trigger various risk behaviors of minors. In the surveyed

district, the Yangpu District of Shanghai, there are a lot of higher education institutions including Fudan University, one of the three most prestigious universities in China along with their affiliated elementary schools and junior high schools. As the district is known as "YangPu of Knowledge", all efforts for developing and improving various abilities of children to prepare for examinations begin from a relatively early stage. For example, in the Yangpu District²²⁾, there is a policy of adding points to the scores of university entrance examinations if a senior high school student has an award for "Sanho Student" (Sanho meaning the excellence in three areas: intellectual education, moral education and physical education). The awards evaluate not only academic achievement but also intellectual abilities, morals and other areas of abilities among students and can not be easily attained.

In addition, from the junior high school stage, exchanges with oversea schools are actively introduced and selected students go overseas to experience classes and to study languages in long vacations.

In this manner, in order to acquire preferential treatment for university entrance examinations and to be selected as a member for overseas studies, children in the district are under high stress caused by studies, discipline and so on in their daily lives. Students who can not appropriately cope with such stressors might adopt risk behaviors to change the unpleasant emotions caused by the strong stress. Accordingly, in order to prevent various risk behaviors including sexual behaviors among Chinese adolescents, it is necessary to introduce educational contents to enhance problem-focused coping skills among students to deal with daily stressors positively.

(3) Psychosocial variables with regard to sexual behaviors

According to the results of the univariate analysis, a significant association was found between the experience of kissing and attitudes toward sexual intercourse before marriage in both genders or either of the genders. In the survey³⁾ on Japanese junior high school students, the same association was found in all items of sexual attitudes for males and in the two items for females, "It would be all right to have sex before marriage if they love each other" and "It would be all right to have sex before marriage if they have strong affection for their partners". According to the results of the review²⁾ about influential factors

of sexual risk behaviors among Chinese adolescents, the percentage of junior high school students who showed positive attitudes of "don't mind" and "agree" toward sexual intercourse before marriage ranged from 27.0% to 47.1%. Although the experience of sexual intercourse among junior high school students was less than 5%, their attitudes toward sexual intercourse was relatively positive, which increases the concern of activation of sexual behaviors among adolescents. Therefore, it is urgent to clarify factors related to the attitudes toward sexual behaviors and introduce educational contents related to such factors into sex education in Chinese schools.

According to the results of the univariate analysis, the kissing experience group tended to recognize that their friends had experienced sexual intercourse for both genders compared to the no-experience group. The survey by Li et al.³⁾ showed same results. For this matter, it would be considered that in adolescence when the relationship with friends is very important and adolescents might feel difficult to refuse the pressures from their friends because of the fear of losing their friendships, they might easily take risk behaviors such as smoking, drinking alcohol and sexual behaviors even if they know the risks of the outcome of such behaviors. Therefore, it would be also effective to correct the belief about the sexual behaviors of their friends.

According to the results of the univariate analysis, the kissing experience group showed a higher score for behavioral intention about sexual intercourse than the no-experience group for both genders. In the results of the multiple logistic regression analysis, the higher the behavioral intention about sexual intercourse, the higher the risk of the experience of kissing for males. In the survey in Japan³⁾, the same results were found. Li et al.³⁾ interpreted the results, using the theory of reasoned action by Ajzen²³⁾. Namely, it is considered that students who have positive attitudes toward premarital sexual intercourse and perceive their friends have the experience of sexual intercourse are likely to have a belief that their friends expect them to be sexually active. Li et al. suggest that students might also guess that responding to expectations from their friends and undertaking sexual behaviors like kissing would result positively such as receiving admiration from friends and improving relationships, which in turn makes students have stronger intention toward sexual behaviors and engage in the actual act of kissing.

3. Implications and limitations

According to the results of the multivariate analysis, male students who had drunk alcohol in the past month, had higher scores in behavioral avoidance of stress coping skills, had strong behavioral intention about sexual intercourse, and female students who had drunk alcohol in the past month, had higher scores in distraction of stress coping skills, recognized that their friends had experiences of sexual intercourse were likely to experience kissing.

These results suggest that educational contents related to the prevention of alcohol drinking, the enhancement of problem-focused coping skills and the decrease of behavioral intention about sexual intercourse should be included in sex education for preventing premature sexual behaviors among Chinese junior high school students. Especially in China, as people including parents and teachers are tolerant to minor's drinking, it is very important to increase the awareness of parents and teachers in respect to minor's drinking.

This study has some limitations. First, the sampling method is not a random one. For this reason, we should be very careful in generalizing the results of this study. Another limitation of this study is the cross-sectional nature of data, which makes it difficult to refer to the causal relationship among variables.

Despite these limitations, the findings of this study would contribute to the progress of an effective sex education program for Chinese junior high school students.

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