

## Adolescent premarital sex and health outcomes among Taiwanese youth: perception of best friends' sexual behavior and the contextual effect

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This study explores premarital sex among adolescents and its health outcomes in a typical East Asian society, Taiwan. As a collective society in terms of cultural heritage, a particular target of this study was perceived peer pressure and its contextual influence. The data were taken from the Taiwan Youth Project, 2004 and 2007, and never married youth aged 20 years constituted our sample ( $N = 3530$ ). Best friends' sexual behavior and other context-related factors, such as school attendance and community participation, are presumed to influence adolescent premarital sex as well as their health status. Logistic regression models show a positive and significant association between the perception of friends' sexual behavior and the likelihood of adolescent premarital sex engagement, after adjusting for the youth's own sex-related experience and attitudes, individual characteristics, and family background. The analysis also confirms that school attendance and community participation are significantly associated with a lower likelihood of having premarital sex. Furthermore, adolescent premarital sex was found to be linked to the perceived health status of the youth (self-rated health, smoking, and drinking), as expected. These findings demonstrate the importance of peers and social context, which suggests that HIV prevention and health promotion programs for youth need to take friendship networks and social context into consideration.

**Keywords:** adolescent premarital sex; peer influence; never married youth; health status; Taiwan

### Introduction

A rising prevalence of early sexual debut among youth has been witnessed in Taiwan and around the world for the past decade. Although the social context is different, early sexual debut universally increases the risk of teenage pregnancy, maternal mortality and perinatal mortality, and sexually transmitted infection (STI) including HIV (Kahn, Rosenthal, Succop, Ho, & Burk, 2002; Kuo et al., 2010; Paranjothy et al., 2009; Scholl, Hediger, & Belsky, 1994; Smith, 2004; Weinstock, Berman, & Cates, 2004). In order to promote sexual health, delaying the initiation of sex among never married youth has become an important component of youth HIV/AIDS prevention campaigns (Abdullah, Fielding, & Hedley, 2003; Cheluget et al., 2006; Kirungi et al., 2006; Mahomva et al., 2006; UNAIDS & WHO, 2007; Zabin et al., 2009; Zhang et al., 2002).

With regard to adolescent premarital sexual behavior among never married youth, previous studies have identified various factors that are associated with the early onset of sexual activity among youth. These include individual sociodemographic factors, such as age, gender, educational status, and race/ethnicity (Chiao & Mishra, 2009; Cuffee, Hallfors, & Waller,

2007; Mott, Fondell, Hu, Kowaleski-Jones, & Menaghan, 1996; Simbayi, Chauveau, & Shisana, 2004), interpersonal factors related to sexual knowledge, attitudes, beliefs, and expectations (Lammers, Ireland, Resnick, & Blum, 2000; Simbayi et al., 2004; Steele, Bukusi, Cohen, Shell-Duncan, & Holmes, 2006; Upadhyay & Hindin, 2006), family structure, and parental involvement (Aspy et al., 2007; Babalola, Tambashe, & Vondrasek, 2005; Lammers et al., 2000; Mott et al., 1996; Stallworth et al., 2004). Relatively few studies have highlighted the importance of school environment, peer influence, social context, and community involvement (Barnett & Parkhurst, 2005; Chiao, 2010; Chiao & Mishra, 2009; Gregson, Terceira, Mushati, Nyamukapa, & Campbell, 2004; Mensch, Clark, Lloyd, & Erulkar, 2001). Our understanding of such context-related factors in affecting youth sexual behavior remains limited. Furthermore, little is known about what social mechanisms may shape adolescent premarital sex behavior (Campbell, 2003; Chiao, 2010), and, overall, even less is known in the context of Asian countries such as Taiwan.

The Theory of Planned Behavior (TPB) (Ajzen, 1985; 1991; 2002) provides a strong theoretical orientation for the present investigation. TPB asserts that the intention for youth to engage in premarital

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sex flows from their perception of his or her best friends' sexual behavior, his or her associated attitudes, and his or her exposure to such behavior, as well as experiences regarding the ability to engage in such behavior. In addition, social context may shape the distribution of social resources among social groups, which disproportionately affects individual or collective actions (Bronfenbrenner, 1979; 1986). Studies have documented that strong community participation, which can be treated as active mobilization of one's social resources, may expose youth extensively to normative expectations. Such exposure often discourages them from having premarital sex (Gregson et al., 2004). Hence, the importance of social context needs to be addressed.

In the East Asia (particularly in Chinese societies), collectivistic orientation is proposed to be a salient social trait (Lieber, Yang, & Lin, 2000; Yang, 2006). Adolescents situated in this particular cultural environment are exposed to higher degrees of contextual influence. For a typical adolescent in Taiwan, school constitutes the major social institution in daily life and in psychological identification (Yi & Wu, 2004). Because of the competitive educational system, youth is expected to spend long hours of study to achieve better performance in the comprehensive entrance examination (Slater, 2004). School attendance represents an accepted and honored life trajectory in this life stage. For those not in the school context, personal feelings of inferiority and negative psychological well-being are often revealed (Yi, Fan, & Chang, 2008; Yi, Wu, Chang, & Chang, 2009), which may enhance the risk of premarital sex among adolescents.

Although researchers have long noted that adolescent problem behaviors tend to cluster and may correlate with their health (Hallfors, Waller, Bauer, Ford, & Halpern, 2005; Jessor & Jessor, 1977; Sandfort, Orr, Hirsch, & Santelli, 2008), few studies have actually taken this approach. One exception is about the Mexican youth. Ortiz-Hernandez, Tello, and Valdez (2009) analyzed a population-based survey of Mexican adolescents and youth aged 18–29. Their findings showed a significant association of being sexually active in young adulthood with a poor health rating and substance misuse. Hence, it becomes interesting to explore whether a similar association may occur in an entirely different continent, which might lead to significant implications with respect to universality versus particularity.

The present study hypothesizes that health outcomes resulting from risky sexual behavior reach beyond sexual and reproductive health. We intend to explore whether health status among Taiwanese youth is associated with adolescent premarital sex

and its correlates. In brief, building upon TPB, we seek to delineate the effects of perception of friends' sexual behavior among youth, the youth's own sex-related attitudes and experiences, and various context-related factors such as school attendance, community participation, and cultural exposure to explain adolescent premarital sex among never married Taiwanese youth.

## Methods

### Data

The dataset was extracted from the Taiwan Youth Project (TYP). The TYP surveys used a multistage random sampling frame to obtain school-based representative samples of junior high students in Taipei city, Taipei county, and Yi-Lan county. Levels of urbanization were adopted at the first stage of sampling, which divided Taipei city and Taipei county into three strata and Yi-Lan county into two strata. In order to capture the peer dynamics, instead of random students within each class, we decided to sample the whole class in school. We first calculated the mean student number of the classes in each stratum and applied it to the derived sampling number to determine the class number needed to be drawn. Then, a random sampling procedure was carried out to gather specific schools. Our final sample included 16 schools from Taipei city, 15 schools from Taipei county, and nine schools from Yi-Lan county. In each school, two classes were randomly selected from grade one (G1) and grade three (G3), and all students of the selected classes were interviewed. The baseline interview was conducted in 2000 with annual follow-up surveys until 2009.

TYP consisted of two cohorts of students: 2690 seventh graders (G1 of junior high) and 2851 ninth graders (G3 of junior high) in 2000. Before the field interview, all surveys were approved by the school principal, the designated teacher of the class, and the students' parents. Information was obtained through a self-reported questionnaire that took approximately 50 min to complete. However, if the questionnaire was not returned in three months, experienced interviewers were asked to visit the household at least three times to maintain a good response rate. Although a few samples were lost during the nine waves, especially among those who dropped out from school or moved without notice, a special effort was made in each survey to contact all the original youth samples. The final attrition rate was 34% of the original sample, or 85–97% as compared with the

previous wave, which is comparable to youth panel surveys in the West.

This study focused on adolescent premarital sex. In 2004 and 2007, TYP collected information about students' sexual and romantic relationships. Our analytical sample thus excluded ever married youths ( $n = 22$ ); this yielded 1816 individuals in 2004 for G3 cohort and 1714 individuals in 2007 for G1 cohort, aged 20 at the end of adolescence.

### Measures

The outcome measure of *adolescent premarital sex* was defined by whether the never married 20-year-old youth had had sexual intercourse. This information was obtained directly from the questionnaire via the question "Have you ever had sex?"

According to TPB, the first sets of main explanatory variables are related to the subjective norm, perceived behavioral control, and attitude toward behavior that includes the youths' perceptions of their best friends' sexual behavior together with their sex-related experience, exposure, and attitude. Information about their perceptions of their best friends' sexual behavior was obtained by asking whether they knew what proportion of their best friends had engaged in sex. Youths' sex-related experience, exposure, and attitude were measured by three dichotomous variables: dating (ever vs. never), exposure to pornography (ever in the past year vs. never in the past year), and attitude to premarital sex (acceptable vs. unacceptable).

The present study hypothesized that social context affects adolescent premarital sex. The second sets of main explanatory variables were related to contextual factors, namely, school attendance, community participation, and cultural exposure. Community participation was measured by whether the youth had participated in any one of three types of community activity in the past year, namely, a social club, a religious group, or a volunteering group. Responses that were positive for any one activity were coded as 1 and otherwise as 0. The youth's culture, which encompasses a constellation of expression such as clothing style and music preferences, is often suggested to lead to an increase in risky sexual behavior (Martino et al., 2006). We assessed cultural exposure by examining the music preference of the youth (Muñoz-Laboy et al., 2008). Three specific types of pop music preference were investigated, namely, Western, Japanese, and Taiwanese pop music. In the multivariate models, we also included various control variables for sociodemographic and economic characteristics, such as sex, birth cohort, family structure, and geographical region, which have been

shown to be related to adolescent premarital sex in the literature (Aspy et al., 2007; Babalola et al., 2005; Chiao & Mishra, 2009; Cuffee et al., 2007; Lammers et al., 2000; Mott et al., 1996; Simbayi et al., 2004; Stallworth et al., 2004).

### Analysis

We examine the effects of perceptions of best friends' sexual behavior and context-related factors on adolescent premarital sex and then, in turn, how these relationships may affect their health status. We began with bivariate analyses that characterize the prevalence of adolescent premarital sex among the 3530 never married youth. Next, the binary outcomes were employed in multivariate logistic regression. Adolescent premarital sex was analyzed with a sequential modeling strategy to differentiate the relative effects of the youths' perception of best friends' sexual behavior versus the context-related factors. The basic model only included sociodemographic characteristics. In order to determine the influence of peer norms and attitudes on adolescent premarital sex, Model 1 then added the effect of one set of main explanatory variables, suggested by TPB, to the basic model. In contrast, Model 2 added a different set of variables related to social context to the basic model to assess the effect of context-related factors on adolescent premarital sex. The final Model 3 included three sets of variables to delineate the relative effects of peer norms and attitudes versus context-related factors, after adjusting for sociodemographic and economic characteristics.

To understand the correlations of adolescent premarital sex with health status, multivariate logistic regression models were employed to estimate the adjusted effects (odds ratios) of adolescent sex engagement, the youth's perception of their best friends' sexual behavior, the effects of context-related factors, and the effects of other selected socioeconomic and family characteristics on the health status of the youth. This was carried out separately for self-reported poor health, smoking, and drinking. All models took into account sample clustering in the survey design and used STATA 9.0 (StataCorp, 2005). Statistical significance was set at a  $p$ -value lower than 0.10.

### Results

Table 1 shows the sample characteristics and the prevalence of adolescent premarital sex in terms of selected characteristics by gender. The sample consists of 50.4% males ( $n = 1776$ ) and 49.6% females

Table 1. Participant characteristics and reported premarital sex, Taiwan Youth Project 2004–2007.

Characteristic	Total		Youth with sexual experience				<i>p</i>
	<i>n</i>	%	Males		Females		
			<i>n</i>	% of premarital sex	<i>n</i>	% of premarital sex	
Gender							<0.001
Male	1776	50.38	487	27.42	–	–	
Female	1749	49.62	–	–	303	17.32	
Birth cohort							<0.001
Younger: G1	1713	48.60	264	30.17	172	20.53	
Older: G3	1812	51.40	223	24.75	131	14.38	
Ever divorced biological parents							<0.001
Ever	309	8.77	51	37.50	61	35.26	
Never	3216	91.23	436	26.59	242	15.36	
Place of residence							0.761
Taipei city	1319	37.42	187	27.46	104	16.30	
Taipei county	1315	37.30	178	28.30	122	17.78	
Yilan county	891	25.28	122	26.18	77	18.12	
Perceived peer pressure							<0.001
Known proportion of best friends who ever had sex							
None or unknown	1978	56.11	105	11.23	73	7.00	
Less than half	1156	32.79	196	32.56	134	24.19	
Half or greater	391	11.09	186	77.82	96	63.16	
Sex-related experience, exposure, and attitude							<0.001
Dating							
Ever	2014	57.13	474	46.98	300	29.85	
Never	1511	42.87	13	1.69	3	0.40	
Pornography exposure in past year							<0.001
Ever	679	19.26	217	34.66	22	41.51	
Never	2846	80.74	270	23.48	281	16.57	
Attitudes toward premarital sex							<0.001
Accepted	2318	65.81	471	34.08	275	29.38	
Unaccepted	1204	34.19	015	3.83	28	3.45	
Context-related factors							<0.001
Current school enrollment							
Enrolled	2757	78.28	307	22.77	191	13.56	
Not enrolled	765	21.72	180	42.06	111	32.94	
Community participation in previous year							<0.001
Yes	976	27.69	124	24.12	57	12.34	
No	2549	72.31	363	28.76	246	19.11	
Cultural exposure: Favorite music							0.228
Prefers Western pop music							
Yes	1732	49.13	224	29.28	168	17.37	
No	1793	50.87	263	26.01	135	17.26	
Prefers Japanese pop music							<0.001
Yes	788	22.35	73	16.40	37	10.79	
No	2737	77.65	414	31.10	266	18.92	
Prefers Taiwanese pop music							0.004
Yes	417	11.83	88	31.65	35	25.18	
No	3108	88.17	399	26.64	268	16.65	
Health outcomes							<0.001
Self-rated poor current health							
Poor	523	14.84	86	35.64	72	25.53	
Not poor	3002	85.16	401	26.12	231	15.75	

Table 1 (Continued)

Characteristic	Total		Youth with sexual experience				<i>p</i>
			Males		Females		
	<i>n</i>	%	<i>n</i>	% of premarital sex	<i>n</i>	% of premarital sex	
Smoking during last week							<0.001
Yes	531	15.06	221	52.62	66	59.46	
No	2994	84.94	266	19.62	237	14.47	
Drinking during last month							<0.001
Yes	970	27.52	233	40.03	125	32.22	
No	2555	72.48	254	21.27	178	13.08	

Notes: Percentages may not add up to 100 due to rounding. Because of missing values on premarital sex outcome and covariates, the total number may not add up to 3525. Two-way ANOVA was used for each of the covariates with gender relative to premarital sex.

( $n = 1749$ ). About 56% of the sample reported not knowing any best friends who had had sex by age 20, while 32.8% reported knowing less than half of their best friends who had had sex, and 11.1% reported knowing half or more of their best friends who had had sex. Overall, 57.1% of the participants had taken part in a dating experience. About one-fifth had been exposed to pornography in past year. Of these never married youth, 65.8% reported an accepting attitude toward premarital sex.

With regard to their own sex experience, 22.4% of the participants reported having had sex by age 20, this being 27.4% for males and 17.3% for females. As expected, the adolescent premarital sex prevalence was found to be higher among youth who indicated knowing half or more of their best friends having had sex (72.8% for males; 63.2% for females), who had dated, who were exposed to pornography, and who held a permissive attitude toward premarital sex. In terms of context variables, the prevalence of adolescent premarital sex was found to be higher among youth who were not enrolled in school (42.1% for males; 32.9% for females), who did not participate in any community activity, and who favored Taiwanese pop music.

#### **Factors associated with adolescent premarital sex**

In Table 2, the basic model investigates the effects of sociodemographic characteristics on adolescent premarital sex. Model 1 clearly indicates significant effects for the youths' perception of their best friends' sexual behavior, their own sex-related experience, pornography exposure, and attitude toward premarital sex. To be specific, youth who perceived their best friends as being sexually active had higher odds of having premarital sex. Youth who dated and who had been exposed to pornography were also more likely to engage in adolescent premarital sex than their coun-

terparts. In contrast, adolescents who held a negative attitude toward premarital sex were associated with lower odds of having premarital sex.

The results from Model 2 demonstrate significant effects associated with context-related factors on the likelihood of adolescent premarital sex. Not-in-school youth were 2.7 times more likely to have engaged in adolescent premarital sex than in-school youth. Furthermore, community participation and Japanese pop music preference were associated with significantly lower odds of adolescent premarital sex engagement. In Model 3, when all explanatory variables are simultaneously examined, the result shows that the significant association between perceived peer influence, romantic-related characteristics, and context-related factors with adolescent premarital sex engagement remained. This implies that the expected relationships indicated earlier do produce independent effects on the likelihood of adolescent premarital sex although community participation did lose its significance. In addition, comparing Model 3 with the basic model finds that the G1 cohort and those whose biological parents were divorced were more likely to engage in adolescent premarital sex than their counterparts.

#### **Adolescent premarital sex and health outcomes**

Table 3 shows, with all other factors controlled, that adolescent premarital sex engagement is significantly associated with higher odds of reporting a poor health outcome. In other words, those having premarital sex by age 20 also rate their health status to be poorer and report having experienced smoking and drinking. With regard to other explanatory factors, the perception of best friends' sexual behavior produces a similar significant effect on all three aspects of health outcomes. Peer influence, sex-related variables, and context-related variables, on

Table 2. Multivariate analysis of factors associated with reported premarital sex ( $n = 3525$ ).

Explanatory variables	Adolescent premarital sex engagement							
	Basic model		Model 1		Model 2		Model 3	
	aOR	95% CI	aOR	95% CI	aOR	95% CI	aOR	95% CI
Sociodemographic & economic background								
Gender								
Female	0.54**	0.46, 0.64					0.82**	0.64, 1.04
Male	1.00						1.00	
Birth cohort								
Younger: G1	1.39**	1.15, 1.67					1.36**	1.09, 1.70
Older: G3	1.00						1.00	
Biological parents divorced								
Divorced	2.23**	1.72, 2.89					1.93**	1.35, 2.75
No	1.00						1.00	
Place of residence								
Taipei county	1.07	0.88, 1.31					1.13	0.88, 1.45
Yilan county	1.01	0.78, 1.30					1.01*	0.75, 1.37
Taipei city	1.00						1.00	
Perceived peer pressure								
Known proportion of best friends who ever had sex								
Less than half			2.46**	1.99, 3.04			2.57**	2.06, 3.21
Half or greater			14.92**	10.81, 20.58			13.89**	10.02, 19.25
None or unknown			1.00				1.00	
Romantic-related characteristics								
Dating								
Ever			52.93**	30.77, 91.03			54.80**	31.26, 96.09
Never			1.00				1.00	
Sex-related experience, exposure, and attitude								
Pornography exposure in past year								
Yes			1.88**	1.45, 2.44			2.03**	1.55, 2.67
No			1.00				1.00	
Accepting of premarital sex								
Unacceptable			0.15**	0.11, 0.22			0.16**	0.11, 0.23
Acceptable			1.00				1.00	
Context-related factors								
School enrollment								
No					2.66**	2.24, 3.17	1.94**	1.55, 2.43
Enrolled					1.00		1.00	
Community participation in previous year								
Yes					0.75**	0.62, 0.92	0.82	0.62, 1.07
No					1.00		1.00	
Cultural exposure: Favorite music								
Prefers Western pop music								
Preferred					0.96	0.81, 1.15	0.76*	0.60, 0.96
No					1.00		1.00	
Prefers Japanese pop music								
Preferred					0.50**	0.38, 0.66	0.48**	0.33, 0.68
No					1.00		1.00	
Prefers Taiwanese pop music								
Preferred					1.10	0.85, 1.43	0.999	0.70, 1.42
No					1.00		1.00	

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.10$ .

Notes: All logistic regression models adjust for sampling cluster; aOR represents adjusted odds ratios for sample cluster; CI represents confidence interval.

Table 3. Multivariate analysis of factors associated with self-rated poor health, smoking, and drinking ( $n = 3525$ ).

Explanatory variables	Self-rated poor health		Smoking		Drinking	
	aOR	95% CI	aOR	95% CI	aOR	95% CI
Premarital sex outcome						
Adolescent premarital sex engagement						
Yes	1.26***	0.96, 1.65	2.15**	1.62, 2.85	1.37**	1.10, 1.72
No	1.00		1.00		1.00	
Perceived peer pressure						
Known proportion of best friends who ever had sex						
Less than half	1.24***	0.996, 1.55	1.44**	1.11, 1.86	1.66**	1.40, 1.97
Half or greater	2.08**	1.52, 2.83	2.96**	2.11, 4.15	2.23**	1.74, 2.87
None or unknown	1.00		1.00		1.00	
Romantic-related characteristics						
Dating						
Ever	1.01	0.83, 1.24	1.60**	1.18, 2.17	1.48**	1.24, 1.75
Never	1.00		1.00		1.00	
Sex-related experience, exposure, and attitude						
Pornography exposure in past year						
Yes	1.55**	1.20, 2.00	1.02*	0.81, 1.29	1.71**	1.38, 2.11
No	1.00		1.00		1.00	
Accepting of sex						
Unacceptable	1.10	0.87, 1.38	0.63**	0.47, 0.86	0.68**	0.56, 0.83
Acceptable	1.00		1.00		1.00	
Context-related factors						
School enrollment						
No	1.18**	0.94, 1.48	3.46**	2.81, 4.26	1.07	0.89, 1.28
Enrolled	1.00		1.00		1.00	
Community participation in previous year						
Yes	0.87	0.71, 1.06	0.72**	0.56, 0.92	0.95	0.80, 1.13
No	1.00		1.00		1.00	
Cultural exposure: Favorite music						
Prefers Western pop music						
Preferred	0.93	0.74, 1.18	1.00	0.76, 1.31	1.18***	0.977, 1.44
No	1.00		1.00		1.00	
Prefers Japanese pop music						
Preferred	1.14	0.86, 1.50	0.53**	0.38, 0.73	0.91	0.73, 1.15
No	1.00		1.00		1.00	
Prefers Taiwanese pop music						
Preferred	0.71***	0.48, 1.05	1.33	0.94, 1.88	1.31*	1.01, 1.69
No	1.00		1.00		1.00	

\*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.10$ .

Notes: Logistic regression models adjust for sampling cluster; aOR represents adjusted odds ratios for sample cluster. All models also controlled for sociodemographic and socioeconomic background variables (including gender, birth cohort, ever divorced biological parents, and place of residence).

the other hand, exert their expected significant but different effects on various health outcomes.

## Discussion

Our findings provide partial support for TPB. The analysis demonstrates that perceived peer pressure, as measured by youth's perception of their friends' sexual behavior, is strongly associated with engagement in adolescent premarital sex. In addition, youth's own

attitude and experience produce their expected effects on the likelihood of having premarital sex.

Regarding the relative importance of context versus peer influence, our findings indicate that peer pressure has a stronger effect on adolescent premarital sex. However, the salience of youth's own views and various context-related factors suggest that the youth may be invested with and affected by beliefs concerning adolescent premarital sex and the community they live in (Kirby, Obasi, & Laris,

2006). Specifically, more community participation significantly lowers the likelihood of engaging in risky premarital sex, although the magnitude of association decreases after adjusting for peer influence. In-school youth are also much less likely to have adolescent premarital sex than out-of-school youth. This is consistent with evidence from other countries (Chiao & Mishra, 2009; Gregson et al., 2004; Kirby et al., 2006) and supports a possible explanation based on the ecology model (Bronfenbrenner, 1979, 1986). The ecology model, which emphasizes the importance of social context, contends that strong functional support from the school and the community may delay youth's sexual debut until marriage. This fits well with the sexual education program in Taiwan, which was implemented nationally since 1973. A series of comprehensive courses on sexuality and sexual health have been taught to in-school youth from middle school to high school (Taiwan Ministry of Education, 2008), and school thus serves as an important protective social context for youth.

This study addressed a less explored subject with regard to the linkage between adolescent premarital sex and health outcomes, which is differentiated into self-rated health and substance use. Overall, adolescent premarital sex was associated with poorer health outcomes. Our findings agree with the hypothesis that adolescent problem behaviors tend to cluster (Jessor & Jessor, 1977). Premarital sex engagement was shown to be associated with an increased likelihood of drinking (aOR = 1.4;  $p < 0.01$ ) and smoking (aOR = 2.2;  $p < 0.01$ ). Additional analyses on inconsistent condom use in the study sample also show that over half (56.4%) of the sexually active youth used condoms inconsistently or even never used them. In addition, youths who perceived a greater proportion of sexually active friends are more likely to rate their health as poorer and to indulge in substance use than their counterparts. Not only is youth's own sexual behavior a significant predictor of their health status, their perception of their best friends' sexual behavior also has a pronounced effect.

Unexpectedly, this study did not find gender differentials in adolescent premarital sex in the multivariate analyses. Although findings from the basic model did demonstrate a significant gender difference, this association was reduced significantly after adding primary explanatory variables such as perceived peer pressure, romantic-related characteristics, and contextual factors in Model 3. This implies that most association between gender and adolescent premarital sex is explained by these primary variables. Furthermore, there were no significant differences for adolescent premarital sex across the rural-urban divide as well as various socioeconomic backgrounds. One

possible explanation is the opposing effects of school attendance (82.2% for Taipei city, 77.2% for Taipei county, and 74.0% for I-Lan county) and community participation (33.6% for I-Lan county, 26.8% for Taipei county, and 24.4% for Taipei city). That is, while school attendance and community participation both protect adolescents from premarital sex involvement, their contradictory effects in terms of penetration at the three research sites may have canceled each other out and result in an insignificant difference.

There are two major limitations in this study. First, endogeneity may be present in the data we use pertaining to specific years. Hence, the data may not be sufficient to disentangle simultaneous causation between explanatory variables and adolescent premarital sex. Although several other relevant variables could be included in the model, our research focus on the contextual influence is able to demonstrate the importance of peer pressure, school effects, and community effects. Second, in a Taiwanese context, our results may suffer from underreporting of sexual behavior by the youth due to social desirability/undesirability (Mensch, Hewett, & Erulkar, 2003). However, it should be noted that not only were extensive efforts made to retain samples in the process, our long-term cooperative relationship with the participants since early adolescence helped to gain their trust as well. Supportive evidence comes from the reliability of our results in that only less than 3% provide inconsistent answers when comparing reported sexual experience in two consecutive surveys.

In summary, our proposal that adolescent premarital sex is shaped by or is associated with contextual factors in Taiwan receives general support from the analysis. The perception of friends' sexual behavior is most significant in explaining adolescent premarital sex as well as poor health outcomes among Taiwanese youth. In addition, the fact that in-school youth and youth with more community participation are less likely to engage in risky sexual behaviors suggests that future educational programs need to take friendship networks and contextual factors into account. Another important finding is that adolescent premarital sex and perceived peer pressure have salient linkages to health outcomes not related to sex. Since general health status among adolescents has been inadequately investigated, our findings urge the future HIV field to extend the view from specific sexual health factors to factors concerning health in general.

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