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Socio-Environmental and Behavioral Correlates of Having Ever Had Sexual Intercourse Among Adolescents in Peru: A School-Based Cross-Sectional Study

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ABSTRACT

Objective: We assessed the socio-environmental and behavioral correlates of having ever had sexual intercourse among Peruvian adolescents aged 12–18 years in Lima. *Methods*: A cross-sectional study was conducted in 2014. *Result*: Of 950 participants, 26.5% of males and 13.0% of females had ever had sexual intercourse. Early adolescents who ever had sexual intercourse had higher odds of being insulted, being involved in a fight, and smoking; whereas late adolescents having sexual experiences were more likely to be male and to report smoking, alcohol consumption, involvment in a fight, and having no/low parental understanding. *Conclusion*: An integrated approach is useful in addressing risk behaviors in adolescents.

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Introduction

Puberty is an important landmark of sexual development that occurs in adolescence, at which adolescents explore and understand sexuality (Kar, Choudhury, & Singh, 2015). Sexual intercourse during late adolescence can be considered as normal development of sexuality (Fortenberry, 2013). However, adolescents face the highest risk for some negative health consequences due to their sexual behaviors (Bearinger, Sieving, Ferguson, & Sharma, 2007). Unsafe sexual behavior and teenage pregnancy are important public health concerns of adolescents in many developing as well as developed countries (Chandra-Mouli, Camacho, & Michaud, 2013; Dessie, Berhane, & Worku, 2014; Exavery et al., 2011; Finer & Zolna, 2011; Sanchez et al., 2013). Globally, about 60% of HIV infection occurs among young people (Da Ros & da Silva Schmitt, 2008). Early initiation of sexual intercourse exposes adolescents to the risk of sexually transmitted infections (STIs), including human immunodeficiency virus (HIV; Da Ros & da Silva Schmitt, 2008; Ma et al., 2009) along with unintended pregnancy (Finer & Zolna, 2011; Okigbo & Speizer, 2015; Ma et al., 2009). In addition, those who experience early sexual activity are more likely to have a greater number of sexual partners and use condoms and contraceptives less frequently compared to late initiators (Ma et al., 2009).

In Peru, 21.8% females, 41.8% males 15–19 years old, and 1.4% females, 4.1% males 12–14 years old reported having had sex. However, only one third of adolescents reported using a condom on sexual debut and about 6.5% of males and 43% of females reported STI-related symptoms (Garcia, Cotrina, Shah, & Cárcamo, 2009). Other studies found that 17.5% of Peruvian adolescents were sexually initiated by age 18 (Osorio, Lopez-del Burgo, Ruiz-Canela, Carlos, & de Irala, 2015), and an average age at first sexual initiation of male adolescents was 13 years in Lima (Chirinos, Salazar, & Brindis, 2000). The Global School-Based Student Health Survey in Peru in 2010 observed 16.9% of adolescents 13–15 years old had ever had sexual intercourse, and of them, 53.9% had sexual intercourse for the first time before age 14 years (Centers for Disease Control and Prevention, 2010). Having sexual intercourse in adolescents, especially in older adolescents, may not be considered a health problem when it is protected against pregnancy and STIs. The 2008 United Nations Children's Fund (UNICEF) report showed that 34% adolescents aged 15–19 years do not know how to

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prevent the HIV infection (UNICEF, 2008). A study by Kostrzewa (2008) shows over 30% of women in Peru give birth before age 20; and HIV prevalence rate among male and female of 15–24 years was 0.42% and 0.18%, respectively, which was less than the prevalence of Brazil and Argentina (Kostrzewa, 2008).

Ensuring universal access to sexual and reproductive health services and rights is one of the targets of sustainable development goals (SDGs), and strategies are developed for 2016–2030 (United Nations Sustainable Development Goals, 2015; World Health Organization, 2015). United Nations Educational, Scientific and Cultural Organization focuses on education sector responses to the HIV epidemic by developing an adequate level of HIV prevention knowledge among children and young people through school (United Nations Educational, Scientific and Cultural Organization, 2014). Comprehensive sex education and condom promotion are two important strategies to prevent adolescent pregnancy and STIs (Chandra-Mouli et al., 2013; World Health Organization, 2007). Along with this, a number of previous studies have suggested that adolescent sexual behaviors are associated with non-sexual health risk behaviors (Sanchez et al., 2013; Tu, Lou, Gao, Li, & Zabin, 2012) and socio-environmental factors, especially family and school-level influences (Oliveira-Campos, Giatti, Malta, & Barreto, 2013; White & Warner, 2015). On the other hand, studies also report that sexually experienced adolescents were more likely to engage in other risky behavior, such as smoking, using illegal drugs and drinking (Hellerstedt, Peterson-Hickey, Rhodes, & Garwick, 2006; Ohene, Ireland, & Blum, 2005). Thus an understanding of associated behaviors may help for the development and implementation of better intervention packages. The objective of the study was to assess socio-environmental and behavioral correlates of having ever had sexual intercourse among adolescents in Lima and Callao, Peru.

Methods

Study area, design, and sampling

The information analyzed in the present study was collected as part of a school health survey among secondary school students in Lima and Callao, Peru. The field study was conducted from September 15 to October 31, 2014 in collaboration with the Korea International Cooperation Agency, Peru office. This was a cross-sectional study conducted in one district of North Lima (Comas) and three districts of Callao (Bellavista, Mi Peru, and Ventanilla). Three areas from Comas (Santa Luzmila II, Laura Rodriguez Dulanto, and Carlos Phillips), one area from Bellavista (Bellavista), one from Mi Peru (Mi Peru), and another area from Ventanilla (Pachacutec) were included in the study. The target population was public secondary school adolescents. Of the 17 secondary schools in the study areas, 11 were randomly selected for the study. Five secondary level grades were considered as strata. One stratum from each school was taken randomly; and then students from each stratum were selected randomly using a proportionate simple random sampling technique based on the number of students in each stratum.

The total calculated sample size was 975 using the following formula, $m = [Z^2 \times V \times M] / [d^2 (M - 1) + Z^2 \times V] \times (def) \times (tnr)$. In the formula, m = the estimated student sample; Z = the normal distribution value (Z = 1.96 for a standard normal distribution at 95% confidence level); P = prevalence of smoking and/or drinking among students in Peru ($p = 0.23$: a study conducted in Peru showed that 23% of students had tried smoking or drinking, or both, within 1 year preceding the survey (DEVIDA, 2012); $V = P \times Q$, $Q = 1 - P = 0.77$; M = total number of students in the study area (M = 14,787); d = margin of error (d = 0.0307); def = clustering effect for the distribution of estimates (def = 1.2); and tnr = adjustment factor due to non-responses (tnr = 1.18). A total of 981 students was randomly selected and asked to participate in our study. However, some students were absent on the day of data collection, and some samples were excluded from the analysis because of incomplete information; very few samples in age 11 and age 19 years were also excluded. Thus, 950 samples were selected for analysis. Many explanatory variables had missing values; bivariate and multivariate analyses were done excluding the missing values. In addition, the options "do not remember" or "don't know" were considered as missing values. Most of the variables had missing values of less than 2%; however one variable, knowledge on source of contraceptives, had missing values more than 10% (11.5%). Thus, the variable was not included in the bivariate and multivariate analysis. Little's MCAR test was done to know nature of data missing, and we found data were missing at random. Thus, there was no bias due to missing values in the analysis.

Data collection and measurement

A self-administered structured questionnaire was developed based on the World Health Organization Global School-Based Student Health Survey (World Health Organization, 2013). The questionnaire was translated into Spanish. Trained enumerators asked the randomly selected students to fill the questionnaires in their classrooms during regular school hours. Teachers and school staff were not allowed in the classrooms during information collection. Just before the questionnaire survey, a brief orientation was provided to study subjects regarding the study objectives and ways of completing the questionnaire and students were encouraged to read the given instructions carefully. The outcome variable for this study was derived from the response to a single question, "During your life, have you ever had sexual intercourse? " Table 1 provides the measurements of all variables and their classifications.

Statistical analysis

Data were analyzed using SPSS for Windows, version 21. The characteristics of the study population and sexual behaviors were presented as frequencies. Bivariate analysis was done between having ever had sexual intercourse and explanatory variables using Chi-square test. Crude and adjusted odds ratios (OR) were calculated by logistic regression analysis between having ever had sexual intercourse and explanatory variables with a 95% confidence interval (CI). The variables that were significant at a 5% level in bivariate analysis were included in the multivariate analysis. Logistic regression analysis was performed stratifying adolescents by age: early adolescents (aged 12–14 years) and late adolescents (aged 15–18 years). The Hosmer and Lemeshow test was applied to determine the goodness of fit of the model, and the model had a good fit with the observed values.

Table 1. Measurement and Classification of the Study Variables.

Variables	Classification	Survey questions
Sex	Male Female	What is your sex?
Age (in years)	12-14 15-18	What is your age? (Individual age was categorized into two groups of early adolescence and late adolescence.)
Insulted	≥1 times Never	During the past 30 days, on how many days did you receive an insult?
Attacked	Yes No	During the past 12 months, were you physically attacked?
Parental understanding	Most of the time/always Never/rarely/sometimes	During the past 30 days, how often did your parents or guardian try to understand your problems or worries?
Time spending with parents	Most of the time/always Never/rarely/sometimes	During the past 30 days, how often did you spend time with your parents or guardian?
Parental homework checking	Most of the time/always Never/rarely/sometimes	During the past 30 days, how often did your parents or guardian check to see if your homework was done?
School absenteeism	≥1 days Never	During the past 30 days, how many days did you miss school without giving notice?
Involvement in fight	≥1 times Never	During the past 12 month, how many times have you been in a physical fight?
Smoking	Yes No	During the past 12 months, have you smoked?
Alcohol consumption	Yes No	During the past 12 months, have you drunk alcohol (excluding those for religious practices)?
Physical activity in a week	<3 days ≥3 days	During the last 7 days, how many days did do physical activity for at least one hour a day?
Leisure time use	Internet use Television watching Outdoor activities	What do you usually do in your free time?
Having ever had sexual intercourse	Yes No	During your life, have you ever had sexual intercourse?
Number of sexual partners	1 partner ≥2 partners	During your life time, how many partners have you had sex with?
Condom use	Yes No	In your most recent experience of sexual intercourse, did you use a condom?
Education on STIs prevention	Yes No	During the past 12 months, did you receive education on preventing STIs?
*Knowledge on source of contraceptives	Yes No	If you want to use contraceptives, where can you get contraceptive devices?

Note. STI = Sexually transmitted infection.
*Yes: Pharmacy/health facility/convenient store, no: don't know/others.

Table 2. Characteristics of the Study Population and Sexual Behavior ($n = 950$).

Variables	Number	%
Demographic		
Gender		
Male	441	46.4
Female	509	53.6
Age (in years)		
12–14	445	46.8
15–18	505	53.2
Grade (secondary level)		
First	177	18.6
Second	194	20.4
Third	180	18.9
Fourth	200	21.1
Fifth	199	20.9
Socio-environmental		
Insulted		
≥1 times	388	40.8
Never	540	56.8
Missing value	22	2.3
Physical violence		
Yes	254	26.7
No	679	71.5
Missing value	17	1.8
School absenteeism		
≥1 days	232	24.4
Never	705	74.2
Missing value	13	1.4
Parental understanding		
Most of the time/always	325	34.2
Never/rarely/sometimes	608	64.0
Missing value	17	1.8
Time spending with parents		
Most of the time/always	472	49.7
Never/rarely/sometimes	460	48.4
Missing value	18	1.9
Homework checking by parents		
Most of the time/always	332	34.9
Never/rarely/sometimes	605	63.7
Missing value	13	1.4
Education on STI prevention		
Yes	683	71.9
No	256	26.9
Missing value	11	1.2
Knowledge on source of contraceptives		
Yes	531	55.9
No	310	32.6
Missing value	105	11.5
Behavioral smoking		
Yes	137	14.4
No	803	84.5
Missing value	10	1.1
Alcohol consumption		
Yes	279	29.4
No	650	68.4
Missing value	21	2.2
Fighting		
≥1 times	331	34.8
Never	609	64.1
Missing value	10	1.1
Physical activity in a week		
<3 days	428	45.1
≥3 days	500	52.6
Missing value	22	2.3
Leisure time use		
Internet use	143	15.1
TV watching	419	44.1
Outdoor activities	364	38.3
Missing value	24	2.5
Sexual behavior		
Having ever had sexual intercourse		
Yes	183	19.3
No	767	80.7
Number of sexual partners ($n = 183$)		
1	95	51.9
≥2	88	48.1
Condom use ($n = 183$)		
Yes	93	50.8
No	90	49.2

(*Continued on next column*)

Table 2. (*Continued*)

Ethical considerations

Ethical approval for this study was obtained from the Institutional Review Board of Wonju Campus, Yonsei University (1041849-201410-BM-048-02) and the DIRESA Callao (local government of Peru). Prior consent was obtained from each school administration and parents or guardians. Informed consent or assent was obtained from individual participants after being fully informed about the objective and procedure of the study. An anonymous questionnaire was used.

Results

Table 2 shows the characteristic of the study population and sexual behaviors. Of the total 950 students, 53.6% were female; and 53.2% were in 15–18 years with a mean age of 14.5 years. About one fifth students were in each grade (i.e., 18.6% to 21.1%). During the previous 30 days, 40.8% of students reported having been insulted. During the past 1 year, 26.7% had been attacked physically, and 24.4% had missed school without notification to their school. Regarding parental support, 34.2% reported that their parents usually understood their problems, 49.7% stated that they usually spent time with their parents, and 34.9% mentioned that their parents regularly checked to see if they had completed their homework during the last 30 days. During the last 12 months, 71.9% received education on how to prevent STIs, and 55.9% of participants reported the correct places to obtain contraceptives. With respect to behavioral factors, 14.4% smoked, 29.4% drank alcohol, and 34.8% had been in a fight during the previous 12 months. Regarding physical activity, 52.6% of participants did at least 1 hour of physical activity three or more days a week. Of the total respondents, 15.1% usually spent their free time using the internet, 44.1% watched television, and 38.3% participated in outdoor activities. A total 19.3% of study participants, consisting of 26.5% of

males and 13.0% of females had experienced sexual intercourse at least once. Of having ever had sex, 51.9% had engaged with more than one sexual partners in their lives, and 50.8% used a condom during their most recent sexual intercourse.

Table 3 shows the bivariate association between having ever had sexual intercourse and explanatory variables. Gender, age group, grade, being insulted, being attacked, school absenteeism, parental understanding, time spent with parents, parental homework checking, and education on prevention of STIs were found significantly associated with having ever had sexual intercourse. As well as individual behaviors, smoking, drinking, involvement in a fight, and physical activity were also correlated with having ever had sexual intercourse.

Crude and adjusted OR of all explanatory variables for having ever had sexual intercourse with 95% CI are presented in Table 4. As age stratified analysis was done, grade was not included in the multivariate analysis. Multivariate logistic regression analysis was conducted separately for early adolescents and late adolescent. For early adolescents, higher odds of having ever had sexual intercourse was found for those who reported being insulted (adjusted OR [AOR] = 2.84; CI: 1.40–5.74), having education on STIs prevention (AOR = 4.24; CI: 1.77–10.12), smoking (AOR = 5.58; CI: 2.27–13.71, being involved in a fight (AOR = 3.21; CI: 1.62–6.34). Late adolescents having ever had sexual intercourse were more like to be male (AOR = 2.78; CI: 1.66–4.67), report smoking (AOR = 2.66; CI: 1.47–4.81), alcohol consumption (AOR = 2.07; CI: 1.22-3.52) and involvment in a fight (AOR = 2.04; CI: 1.23–3.36) in the past 12 months preceding the survey. Late adolescents having ever had sexual intercourse reported lower odds of parental understanding (AOR = 0.48; CI: 0.26–0.89). This table also shows the Hosmer and Lemeshow goodness of fit test; and both models had a good fit with the observed values ($p > 0.05$).

Table 3. Bivariate Analysis Between Having Ever Had Sexual Intercourse and Explanatory Variables.

Variables	Having ever had sexual intercourse *n* (%)	Never had sexual intercourse *n* (%)	*p* value
Gender			
Male	117 (26.5)	324 (73.5)	0.000
Female	66 (13.0)	443 (87.0)	
Age group (in years)			
12–14	58 (13.0)	387 (87.0)	0.000
15–18	125 (24.8)	380 (75.2)	
Grade (secondary level)			
First	26 (14.7)	151 (85.3)	0.000
Second	24 (12.4)	170 (87.6)	
Third	32 (17.8)	148 (82.2)	
Fourth	35 (17.5)	165 (82.5)	
Fifth	66 (33.2)	133 (66.8)	
Insulted			
≥1 days	103 (26.5)	285 (73.5)	0.000
Never	77 (14.3)	463 (85.7)	
Attacked			
Yes	77 (30.3)	177 (69.7)	0.000
No	104 (15.3)	575 (84.7)	
School absenteeism			
≥1 days	62 (26.7)	170 (73.3)	0.001
Never	121 (17.2)	584 (82.8)	
Parental understanding			
Most of the time/always	43 (13.2)	282 (86.8)	0.000
Never/rarely/sometimes	139 (22.9)	469 (77.1)	
Time spending with parents			
Most of the time/always	71 (15.0)	401 (85.0)	0.000
Never/rarely/sometimes	112 (24.3)	348 (75.7)	
Parental homework checking			
Most of the time/always	50 (15.1)	282 (84.9)	0.012
Never/rarely/sometimes	132 (21.8)	473 (78.2)	
Education on STI prevention			
Yes	147 (21.5)	536 (78.5)	0.010
No	36 (14.1)	220 (85.9)	
Smoking			
Yes	66 (48.2)	71 (51.8)	0.000
No	112 (13.9)	691 (86.1)	
Alcohol consumption			
Yes	92 (33.0)	187 (67.0)	0.000
No	88 (13.5)	562 (86.5)	
Involvement in fight			
Yes	106 (32.0)	225 (68.0)	0.000
No	77 (12.6)	532 (87.4)	
Physical activity in a week			
<3 days	64 (15.0)	364 (85.0)	0.002
≥3 days	115 (23.0)	385 (77.0)	
Leisure time use			
Internet use	24 (16.8)	119 (83.2)	0.105
Television watching	74 (17.7)	345 (82.3)	
Outdoor activities	84 (23.1)	280 (76.9)	

Discussion

Although the proportion of having ever had sexual intercourse is almost similar with the prevalence found in other studies in Peru (Centers for Disease Control and Prevention, 2010; Osorio et al., 2015) and slightly lower than in other countries (Fatusi & Blum, 2008; Goncalves et al., 2015; Oliveira-Campos et al., 2013; Oljira, Berhane, & Worku, 2012), a significant proportion of those who ever had sexual intercourse did not use condoms (49.2%) and more than half (51.9%) were engaged with multiple sexual partners in the study area; as well as only 55.9% of participants reported correct places to obtain contraceptives in the study sample. This may put them at risk of unintended pregnancies and contracting STIs.

In our study, male adolescents of 15–18 years were more likely to report having ever had sexual intercourse than females of the same age. But gender had

Table 4. Crude and Adjusted Odds Ratios of Having Ever Had Sexual Intercourse with Explanatory Variables.

	12–14 years		15–18 years	
Variables	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender				
Male	1.56 (0.89–2.73)	—	3.24 (2.12–4.97)[a]	2.78 (1.66–4.67)[a]
Female	1		1	1
Socio-environmental				
Insulted				
≥1 times	4.10 (2.24–7.49)[a]	2.84 (1.40–5.74)[b]	1.60 (1.06–2.42)[c]	1.30 (0.77–2.20)
Never	1	1	1	1
Attacked				
Yes	3.02 (1.70–5.37)[a]	1.04 (0.49–2.18)	2.01 (1.31–3.08)[b]	1.46 (0.86–2.50)
No	1	1	1	1
School absenteeism				
≥1 days	1.71 (0.94–3.12)	—	1.75 (1.13–2.72)[c]	1.03 (0.60–1.78)
Never	1		1	1
Parental understanding				
Most of the time/always	0.57 (0.31–1.06)	—	0.50 (0.31–0.81)[b]	0.48 (0.26–0.89)[c]
Never/rarely/sometimes	1		1	1
Time spending with parents				
Most of the time/always	0.69 (0.52–0.92)[c]	0.81(0.58–1.14)	0.79 (0.64–0.97)[c]	0.931 (0.72–1.20)
Never/rarely/sometimes	1	1	1	1
Parental homework checking				
Most of the time/always	0 .57 (0.32–1.02)	—	0.87 (0.54–1.40)	—
Never/rarely/sometimes	1	—	1	
Education on STIs prevention				
Yes	4.31(1.99–9.35)[a]	4.24 (1.77–10.12)[b]	0.71 (0.43–1.17)	—
No	1	1	1	—
Behavioral smoking				
Yes	6.42 (3.12–13.19)[a]	5.58 (2.27–13.71)[a]	4.72 (2.95–7.56)[c]	2.66 (1.47–4.81)[b]
No	1	1	1	1
Alcohol consumption				
Yes	2.17 (1.16–4.09)[c]	1.00 (0.45–2.22)	3.04 (2.00–4.63)[c]	2.07 (1.22–3.52)[b]
No	1	1	1	1
Involvement in fight				
Yes	3.53 (1.98–6.29)[a]	3.21(1.62–6.34)[b]	3.48 (2.28–5.30)[a]	2.04 (1.23–3.36)[b]
No	1	1	1	1
Physical activity in a week				
<3 days	0.52 (0.28–.94)[c]	0.60 (0.30–1.22)	0.59 (0.39–0.91)[c]	0.77 (0.46–1.27)
≥3 days	1	1	1	1
p value[*]		0.166		0.920

Note. OR = odds ratio; CI = confidence interval.
[a]$p < 0.001$. [b]$p < 0.01$. [c]$p < 0.05$. [*]Hosmer and Lemeshow test.

no association with having ever had sexual intercourse in adolescents of 12–14 years. A large number of studies have suggested that males were more likely to report having had sexual intercourse compared to females (Awotidebe, Phillips, & Lens, 2014; Oliveira-Campos et al., 2013; Oljira et al., 2012). Similarly, late adolescents were more likely to report having had sexual intercourse. In the study, one in four adolescents of 15 to 18 years had already had sexual intercourse as compared to one in eight of 12–14 years which may indicate gradual sexual developments of adolescents. The exposure to sexual intercourse increases with age (Siziya, Muula, Kazembe, & Rudatsikira, 2008) and being sexually experienced among late adolescents seems as normal sexual development (Fortenberry, 2013; Kar, Choudhury, & Singh, 2015). However, studies show that the earlier an adolescent participates in sexual relationships, the greater is the risk of STIs and unintended pregnancy (Kaestle, Halpern, Miller, & Ford, 2005; Ma et al., 2009). This association may be due to nonuse of condoms and contraceptives, as many studies indicate that proper and consistent use of condoms among adolescents is not satisfactory (Awotidebe et al., 2014; Moura et al., 2013; Sanchez et al., 2013).

A cohort study among Peruvian adolescents found that adolescents who were bullied during childhood or adolescence were more likely to have had sexual intercourse (Crookston et al., 2014). Though the current study cannot establish such association, we also found that early adolescents who had ever had sexual intercourse were more likely to report being insulted. A study states that childhood physical and emotional abuse have been linked with adolescent risky

behaviors including early sexual initiation, having multiple sexual partners, and unprotected sex (Richter et al., 2014). Therefore, there might be some relationship between sexual behavior and being abused. Similarly, the current study shows that adolescents of 15–18 years who ever had sexual intercourse were less likely to report parental understanding. Other evidences also show that adolescents who were not supervised or were less supervised by parents were more likely to have had sexual intercourse compared to those with more attentive parents (Dessie et al., 2014; Siziya et al., 2008). This finding suggests a statistical relationship between parents' roles and adolescent sexual behavior.

In the present study, adolescents of 15–18 years who ever had sexual intercourse were more likely to report being drunk during the past one year. Such association was not found for adolescents of 12–14 years. Likewise, studies report that alcohol consumption has been found to be a correlate of sexual initiation in a large number of studies in different settings (Goncalves et al., 2015; Lee, Chen, Lee, & Kaur, 2006; Stueve & O'Donnell, 2005). More importantly, as reported by a previous study, the probability of being involved in sexual intercourse, as well as engaging in unprotected sex and having multiple partners, increased with the frequency of alcohol use and drunkenness-related drinking (Lavikainen, Lintonen, & Kosunen, 2009). Similarly, adolescents having ever had sexual intercourse were more likely to report smoking in the last 12 months preceding the survey. An association was also noted between smoking and sexual intercourse in the study by Lee et al. (2006). Regarding violent behavior, early as well as late adolescents who ever had sexual intercourse were more likely to report being involved in a fight. The study by Shrier and Crosby (2003) reported that respondents who were involved in fights were more likely to experience sexual intercourse (Shrier & Crosby, 2003). In contrast, a study among Caribbean adolescents states that sexual initiation was a predictor of other risk behaviors (Ohene et al., 2005). This may show a bidirectional association between sexual intercourse and other risk behaviors. Though it is difficult to determine directionality of the causes from this study, it can be stated that a significant relationship exists between having ever had sexual intercourse and alcohol consumption, smoking and fighting. All these findings indicate that risky sexual behavior prevention intervention can be integrated with nonsexual risk behaviors including substance abuse and violent behavior. In the study, 29.4% of respondents had drunk alcohol and 14.4% had smoked tobacco during the year preceding the survey. This suggests the need for substance abuse education, as well as effective implementation of related laws in the study area.

Unsafe sexual behavior occurs either when people do not have enough information about disease transmission or they ignore the precautions for safe sexual behavior (Da Ros & da Silva Schmitt, 2008). The majority of the study participants (71.9%) reported they had been educated on the prevention of STIs during the year preceding the survey. Early adolescents who ever had sexual intercourse tend to report more exposure to STIs prevention education in the last 12 months preceding the survey and no association was observed among late adolescents. This does not mean that sex education has a negative influence on adolescent sexual behavior. There is evidence that sex and HIV education programs do not hasten or increase sexual behavior; instead some programs delay or decrease sexual behavior or increase use of condom and contraceptives (Kohler, Manhart, & Lafferty, 2008). Adolescents who receive comprehensive sex education have a lower risk of adolescent pregnancy than those who receive abstinence-only or no formal sex education (Kirby, Laris, & Rolleri, 2007). Formal sex education provided before sexual initiation can reduce sexual risk behaviors (Mueller, Gavin, & Kulkarni, 2008). However, sex education should be accurate and provide comprehensive information so that adolescents can develop negotiating skills for sexual behaviors (Bearinger et al., 2007; United Nations Educational Cultural Organization, 2014). Over 80% of Peruvian adolescents reported having ever heard of STIs and acknowledged teachers as their main sources of information; however 40% considered school-based sexual education insufficient (Garcia et al., 2009). Another study recommends that Peruvian national sex education has this potential, but it has failed to achieve its mission, indicating a need for modification (Kostrzewa, 2008). An integrated approach may be useful to address sexual and nonsexual risk behaviors in adolescents. Thus, Director of Department of Maternal, Newborn, Child and Adolescent Health, World Health Organization, mentioned that this is the right time to invest in adolescents (Costello, 2016).

Limitations

First, due to the cross-sectional nature of the study and the time frame difference in the measurement of variables, it is not possible to determine the temporal relationship between having ever had sexual intercourse and associated explanatory variables. Second, the study was based on self-reported information on sexual and other health risk behaviors and, as such information is difficult to verify, there is room for possible reporting bias. Third, the study might be subject to recall bias due to retrospective recall of behaviors.

Conclusion

One-fifth of the adolescents were found to have ever had sexual intercourse and of them, about half did not use a condom during their most recent sexual encounter and the same proportion had multiple sexual partners. Adolescents of 12–14 years who ever had sexual intercourse were more likely to report exposure to insult, smoking, and involvement in a fight whereas adolescents of 15–18 years who ever had sexual intercourse were more likely to report being male, smoking, alcohol consumption, and involvment in a fight in the past 12 months preceding the survey as compared to those who never had sexual intercourse. Also, adolescents of 15–18 years who ever had sexual intercourse tend to report no/low parental understanding of their problems. Although there is an issue of temporality to give the directionality of association, it can be stated that having ever had sexual intercourse is associated with other nonsexual risk behaviors among adolescents. Thus, an integrated approach may be useful to deal with sexual and nonsexual risk behaviors in adolescents including substance abuse and violence to improve the general and sexual health of adolescents.

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