Adolescents Engaging in Risky Sexual Behavior: Sexual Activity and Associated Behavioral Risk Factors in Bolivian Adolescents

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Abstract

This study describes the prevalence of risky sexual activities among Bolivian adolescents within the context of other behavioral factors that contribute to compromised health outcomes, unintended pregnancies, and sexually transmitted infections including HIV/AIDS. Data was collected from 576 adolescents, 13-18 years of age, from six schools in La Paz, Bolivia, using the Youth Risk Behavior Surveillance Survey. Findings indicate that males were more likely than females to report having ever engaged in sex, initiated sexual activity at age 14 or younger, and had two or more sexual partners within the three months prior to the survey. For both sexes, those who initiated sexual activity at an early age were more likely to engage in a variety of risk behaviors, with alcohol as the most significant risk factor. The likelihood of engaging in sexual activity is associated with age, low academic performance, substance abuse, violence, depression, and suicidal tendencies. The more frequent the occurrence of these risk factors, the higher the chances of engaging in sexual activity. Future research should examine efforts to simultaneously reduce multiple risk factors and to determine how adolescents' views on reproductive issues influence sexual initiation and patterns of sexual behavior over time.

Key Words: *Bolivia, Adolescents, Sexual Activity, Alcohol Use, Substance Abuse*

Introduction

Worldwide, sexual activity among young unmarried people is on the rise.[1] Individuals 10-24 years of age make up more than a quarter of the world's population and 86% of whom reside in developing countries.[2] Involvement in risky behaviors, including the early transition to sexual activity and unprotected sex, makes this age group particularly vulnerable to sexually transmitted infections including HIV/AIDS, as well as unplanned and unwanted pregnancies, abortions, and the complications of early childbearing.[1, 2] The onset of sexual activity varies by world region.[3] It occurs earliest in Latin America where 44% to 66% of men and 12% to 44% of women have had sex by age 16.[3]

Adolescent Sexuality

Sexual development is a normal part of adolescence. It involves not only the physical changes characteristic of this period, but also the formation of one's individuality, perspectives, attitudes, expressions of intimacy, and the defining of experiences within a sexual and romantic framework.[4] The actual sexual experience is comprised of a range of sexual expressions with varying degrees of closeness ranging from non-coital activities such as kissing and oral sex to the "first intercourse". Although adolescents may be involved in diverse sexual activities, the first coital experience is regarded as a major feature in the shift to adulthood.[4]

The early initiation of sexual activity may expose adolescents to considerable social consequences and risks that can compromise individual health, as well as the health of their partners and the larger population of adolescents. For instance, a younger age at first intercourse (usually 16 or younger), is associated with increases in pregnancy, abortions, complications of early childbirth, unprotected sex, having multiple sexual partners, and the use of alcohol and drugs prior to sexual activity.[1, 5-7] In the United States, female adolescents start sex at an average age of 17.4 years old and 16.9 for males. In addition, 8% of the nation's male adolescents and 6% of its female adolescents reported having had sex before age 14.[8] Halpern-Felsher and colleagues also noted that adolescents commonly engage in oral sex.[9] They indicated that between 14% and 50% of adolescents reported having had oral sex prior to their first coital experience, often unaware that sexually transmitted infections can also be transmitted through this route.

The Early Transition to Sexual Activity and Pregnancy in Bolivia

Adolescents make up more than half of the Bolivian population.[10] However, by age 19, 27% of female adolescents are already mothers.[11] Bolivia has a birth rate of 81 live births per 1000 15-19-year-old women with an infant mortality rate of 97 per 1000 live births among women younger than 20. The fact that 69% of the country's total abortions were from 14-15-year-old mothers further attests to the seriousness of this problem with adolescent pregnancy.[11] Teen pregnancies and the early transition to motherhood bring health risks for both mother and child and discourage young mothers from completing their education and obtaining gainful employment.[11-13] Such reproductive profile ranks Bolivia among the 50 countries with the highest risk of childbirth and its concomitant complications.[14] In addition, while many adolescents are aware of HIV/AIDS, most adolescents are not aware of other sexually transmitted infections.[12] Lack of reproductive health programs and services, inadequate training of health center staff, and communication of inaccurate health information continue to compound existing reproductive health problems.[15-16]

Although the reproductive status and sexual activity of Bolivian adolescents have been described elsewhere, few studies have examined multiple risk behaviors-including the use of alcohol, exposure to violence, poor academic performance, and depression-that could accompany the early transition to sexual activity. This study describes the prevalence of risky sexual activities among Bolivian adolescents within the context of other risk behaviors that are known to contribute in later life to serious health and social problems including unintended pregnancies and sexually transmitted infections.

Methods

This study is part of a larger research project on adolescent health risk behaviors in Bolivia, the Philippines, and Ukraine .[17]

Instrument

Since 1991, the Youth Risk Behavior Surveillance Survey (YRBSS) has been administered every other year to representative samples of 9th to12th grade students between the ages of 13 and 18 in the United States.[18-19] The survey consists of multiple choice questions examining six key behaviors: (1) tobacco use, (2) unhealthy dietary behaviors, (3) low levels of physical activity, (4) use of alcohol and other drugs,

(5) sexual behaviors that result in unintended pregnancies and sexually transmitted infections including HIV/AIDS, and (6) behaviors that lead to unintentional injuries and violence.[18] Modified versions of the YRBSS have also been used outside the United States to monitor risk behaviors among young people. [20-24]

In this study, the YRBSS was administered to 13-18-year-old students in District II of La Paz, Bolivia.[17] The survey was translated into Spanish by the second author of the study, who is fluent in Spanish. The Spanish version of the questionnaire was verified by a professional translator and was later back translated in English to ensure the accuracy of the instrument. Some of the survey questions were modified to reflect the local language, culture, and practices such as those regarding region of residence, ethnicity, grade in school, and academic performance.

A variety of terms are used to describe adolescents such as "young people," "teenagers," and "youth." However, organizations and programs use these terms differently as to age stratification. In this paper, the term "adolescents" refer to study participants from 13 to 18 years of age. This age range falls within the age classification for adolescents as defined by the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), and the Maternal and Child Health Bureau. [25]

Sample Selection and Data Collection

The study was limited to schools in District II based on the permission given by the Director of the *Servicio Departamental de Educación* (SEDUCA). Participating schools were randomly selected from a complete list of 287 schools in the district. All nursery schools and primary schools were eliminated, as were schools that were no longer operating, could not be located, or where permission was denied to administer the survey. Due to a strike among public school teachers, all but one school were private schools. Of the private schools included in the study, only one was affiliated with a religious institution.

Each school was visited to secure permission for administering the survey. While the schools were randomly selected for the study, the participating students from these schools were chosen at the discretion of their headmasters. As such, the random selection of schools was continued until at least 500 students completed the questionnaire. This resulted in a total sample 576 students, 13-18 years of age, from six schools.

Before completing the survey, each participant signed an informed consent that specified voluntary and anonymous participation in the study and the confidential nature of responses, with the stipulation that the students' grades would not be affected by participating in the research. Two Spanish-speaking undergraduate students from Brigham Young University (BYU) administered the paper and pencil survey during classroom hours. Student respondents were given as much time as needed to complete the survey. A review of the responses indicated that there were no questions that consistently caused difficulties for participants.[17] Approval for this study was granted by the Institutional Review Board at Brigham Young University in Provo, Utah, USA.

Data Analysis

All data were entered into the computer using EpiInfo (version 6.0, Centers for Disease Control and Prevention, Atlanta, Georgia, USA) and analyzed using SAS statistical software (version 9.1, Cary, North Carolina, USA).[17] Percentages, Pearson chi-square tests, and Fisher's Exact Test were used to compare males and females separately for a variety of risk factors. Logistic regression models were also used to identify factors associated with early initiation of sexual activity, adjusting for sociodemographic correlates. Variables were retained or dropped from regression models based on *p* values (<.1), the Wald statistic, estimated coefficients, and changes in the likelihood ratio test. Interaction terms were included, and all models were checked for overfitting. Odds ratios and 95% confidence intervals were calculated for retained variables.

Results

The sample was comprised largely of male students (68.4%) who were either *mestizo* (combined white and Amerindian ancestry), indigenous (36.6%) or of dark complexion/mulatto/Afro Bolivian (42.3%). Forty-one percent of the participants reported average (41-50) academic performance while 39.3% reported high (51-70) academic performance. The classification of academic performance was based on the distribution of self-reported grades from the standard scale used in Bolivia, with 0 as the lowest and 70 as the highest. Respondents' additional background characteristics are provided in Table 1.

Sexual activity for males and females differed considerably (see Figure 1). Males were significantly more likely than females to report having had sex at some point. Among those reporting sexual activity, males were significantly more likely than females to have had two or more partners within the three

months prior to the survey. Further, of the males who reported ever having had sex, more than half indicated that they were 14 years old or younger at the time of first intercourse. As a result of the pronounced differences between males and females, all subsequent analyses were stratified by sex.

Factors associated with the early initiation of sexual activity among females included age, carrying a weapon (including carrying a weapon to school); missing school because they felt unsafe; being threatened or injured with a weapon on school property; sadness or feeling depressed for two or more weeks in the past year; having seriously considered, made plans to or attempted suicide; and use of cigarettes, alcohol, or marijuana (see Table 2). In most cases, the more frequent the exposure to a given risk factor, the greater the likelihood that females had engaged in sex. For example, 56% of females who had consumed alcoholic drinks three or more days within the 30 days prior to the survey had ever had sex, compared to 25.8% of females who had alcoholic drinks on one or two days, and 8.8% of females who reported having no alcoholic drinks in the same time period. Further, 63.6% of females who carried a weapon at least two times in the previous 30 days, reported having had sex, compared to 22.2% of females who carried a weapon once and 14.9% of females who had never carried a weapon during that same time period.

Among males, risk factors for sexual activity included: age; low academic performance; carrying a weapon; being threatened or injured with a weapon on school property; feeling depressed; having suicidal thoughts; smoking; and the use of alcohol or marijuana (Table 2). As indicated in Table 2, males' risk of engaging in sexual activity was greater than that of females for all background characteristics as well as for academic performance, suicidal tendencies, and body image. The risk was also greater for nearly all measures of violence and substance abuse. In many cases, the differences were substantial. For example, 74.5% of males who had ever used marijuana reported having had sex one or more times, while only 46.7% of females who had ever used marijuana reported having had sex.

Further analyses were conducted on other risky behaviors such as sexual initiation at 14 years of age or younger (n=126), having sex with multiple partners (n=124), and failure to use a condom at last sexual intercourse (n=125). Findings indicated that none of the risk factors in Table 2 were significant for these three behaviors.

Results from logistic regression analyses indicate that substance use, particularly the consumption of alcohol, was the single greatest risk factor for ever having had sex, though 95% confidence intervals were at times wide due to the small sample size (Table 3). Boys who had had 1-2 drinks within the 30 days prior to the survey were 5.7 times more likely (95% CI: 2.3, 14.1) to have engaged in sex than boys who had not had a drink in the previous 30 days. Additional risk factors for sexual activity included low academic performance, the number of times threatened or injured with a weapon on school property, smoking, and marijuana use. For example, after adjusting for other variables, respondents who reported moderate academic performance were twice as likely (95% CI: 1.1, 3.9) to have ever had sex than those with high academic performance. On the other hand, those who reported having been threatened or injured with a weapon on school property at least twice prior to the survey were 3.7 times more likely (95% CI: 1.5, 9.1) to have had sex than respondents who had never been threatened or injured with a weapon. Additionally, respondents who had ever smoked were 2.9 times more likely (95% CI: 1.3, 6.7) to have ever had sex than those who had never smoked. Respondents who had ever used marijuana were 3.2 times more likely (95% CI: 1.4, 7.6) to have ever had sex than those who had never used marijuana.

Discussion

The findings indicate that Bolivian adolescents who have had sex were also more likely to have engaged in other risky behaviors. Furthermore, adolescents who regularly used alcohol, cigarettes and/or marijuana were more likely to engage in sex than those who reported limited substance use. Other risk factors such as violence, low academic performance, depression and suicidal tendencies also exhibited a dose-response relationship, that is, the more persistent the occurrence of these risks, the higher the likelihood for sexual involvement. Among both males and females, alcohol use was noted to be the strongest risk factor for engaging in sexual activity.

Bolivian males were more likely than females to engage in a variety of risky behaviors. For instance, males were more likely to report having ever engaged in sex, having started sexual activity at age 14 or younger, and having had two or more sexual partners within the three months prior to the survey. These findings affirm a strong gender pattern in sexual risk-taking activity as described in other studies.[15]

Likewise, the results are consistent with research on youth risk behaviors conducted in other populations, including the United States. This suggests that patterns of adolescent sexual behavior and risk factors are similar across national boundaries.

Limitations of this study include the non-random selection of individual study participants, the cross-sectional nature of the survey, and a bias toward male adolescents attending school. In this study, the schools were randomly selected. However, the selection of student participants was based mainly on the discretion of their respective school administrators who were more likely to have male students completed the survey, possibly due to cultural norms or expectations regarding gender participation. In addition, the results represent data gathered at a single point in time and which pertain only to adolescents attending school. A longitudinal study would have allowed an analysis of trends in sexual activity as well as associated risk factors over time. Given the sensitive nature of the subject matter, some individuals may not have responded truthfully about past or current sexual experiences. However, the reliability and validity of the YRBSS as an instrument of self-reported behaviors have been repeatedly evaluated and demonstrated.[19, 26-28]

The findings of this study are consistent with other researches among adolescents outside of Bolivia. Just as this YRBS study had documented among Bolivian youth, alcohol is consistently reported to be among the substances used by adolescents that is associated with increased sexual risk-taking.[29-30] Researchers surmise that this heightened sexual risk-taking associated with alcohol and other substances could be from an attempt to imitate peers and be accepted as part of the group, or it may result from an individual predisposition to take risks in general, and/or a consequence of the "disinhibiting effects" of substances, particularly alcohol.[30] For these reasons, sexual risk-taking is observed to co-occur with the use of alcohol and other substances with both behaviors encouraged by similar social situations.[30] In addition, Guo and colleagues[29] concluded that the more varied the substances that adolescents experiment with or use, the higher the chances that they will engage in their very first sexual activity.[29] That is, adolescents without previous sexual experience who used three or more substances (any combination of alcohol, tobacco, marijuana, other illegal drugs, and/or inhalants) were three times more likely to engage in their first sexual encounter within nine months after the survey compared to peers who did not use these substances at all.[29]

Other risk factors for engaging in sexual activity noted in this study included age, low academic performance, violence, and depression and suicidal tendencies. The prevalence of sexual activity among study respondents increased with age. This may be attributed partly to pressure from peers and/or sexual partners[16] and possibly to the heightened sense of sexual perception and independence that accompanies increasing age and physical maturation, and may encourage more intimate sexual behavior.[4]

Several studies substantiated the co-occurrence of low school performance and sexual activity as noted among study participants. Gigante and colleagues[31] observed that the risk for pregnancy doubles among Brazilian adolescents who had failed in school. This association between poor school performance and early pregnancy was likewise noted among young people in Latin America.[13] In the United States, several authors have observed a clustering of risk factors among adolescents at risk. Sexual activity and the use of alcohol and drugs were shown to be related to non-attendance in schools, lower academic performance, as well as dropping out of school.[19, 32] Raine and colleagues[33] cited high academic achievement and the resolve to maintain virginity as protective against an early initiation of sexual activity. Similarly, Halpern and colleagues[34] concluded that among 7th to 12th grade students, low intelligence was a risk factor to engaging in both coital and noncoital sexual activity.

Violence, such as violence during dating, physical fighting, and carrying a weapon, has also been associated with sexual activity among young people. Together with the simultaneous use of alcohol, tobacco, or marijuana, violence was noted to increase the likelihood of having more sexual partners.[35] Unlike findings from previous research, our results suggest that absenteeism among females—due in part to feeling unsafe at school—is associated with higher rates of sexual activity.

Adolescents who engage in sex, drinking, smoking, and drugs are more likely to be depressed and suicidal.[36] Research on Bolivian adolescents reached a similar finding in which sex, drinking, violence, and low academic performance were identified as risk factors for attempting suicide.[17] A study examining the sequential ordering of risk factors using data from the National Longitudinal Study of Adolescent Health concluded that involvement in sex and drugs occurs before depression, especially among females.[37] However, the same study indicated that depression does not predict experimentation with high-risk behaviors.

Conclusion

The results of this YRBSS study on young Bolivians suggest that early sexual activity among adolescents is a composite of several risk behaviors. This co-existence of sexual activity with substance use, low academic performance, violence, depression, and suicidal tendencies among Bolivian adolescents is consistent with the findings on adolescent risk reduction research in the United States—that is, such coalescence of inter-related risk behaviors may be typical rather than the exception in adolescent health issues.[38] Such findings support the need for reviewing adolescent health programs and priorities in Bolivia in terms of considering the cost-effectiveness of multiple-risk interventions that simultaneously target several risks and reinforce protective factors.

Additional research specific to Bolivia is needed to better understand the clustering of risk factors within the context of the local culture, formation of sexual attitudes, and peer and partner influence on health and reproductive issues. In particular, program planners and policy makers need detailed information regarding factors that predispose to an early sexual debut and how best to involve adolescents—especially males—in efforts aimed at reducing the early initiation of sexual activity.[5, 13] Bolivian adolescents at risk for early sexual activity need to be identified and involved in risk reduction programs before risk behaviors are firmly rooted.[11, 16, 29] In light of the findings on sexual activity and absenteeism among Bolivian female adolescents, school health programs need to address school-related violence and the perception of being unsafe in schools.

Long-term educational strategies that can help strengthen Bolivian adolescents' decision-making ability to abstain from sex and to lead healthy lifestyles are likewise important. Interventions that restore and reinforce adolescents' connectedness to support systems such as the family, school, and community may have a higher likelihood of success.[16, 39] Considering Bolivia's predominantly young population, recognizing and moderating risky sexual and health behaviors through various reproductive health programs and continuing research can have profound effects on their health as adults and that of future generations.

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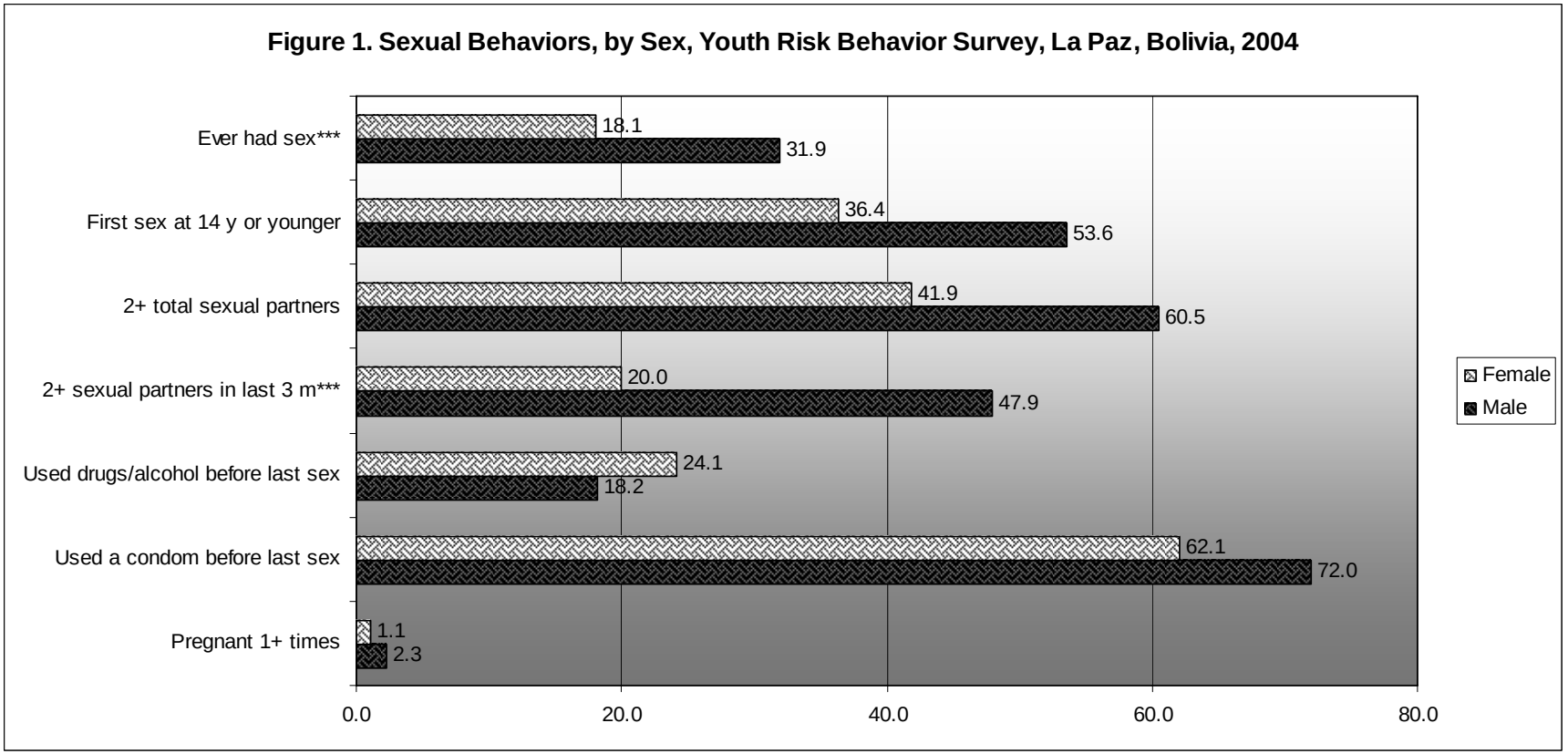
Table 1. Characteristics of survey participants, Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	n	%
Age (years)	574	
13-14		26.0
15		20.0
16		27.4
17-18		26.7
Sex	576	
Female		31.6
Male		68.4
Ethnicity	541	
Mestizo/Indigenous		36.6
Dark complexion/Mulatto/Afro-Bolivian		42.3
White		21.1
Academic Performance	563	
0-40 (low)		20.3
41-50		40.5
51-70 (high)		39.3



Note: All variables were self-reported. For comparisons between sexes, *p<.05, **p<.01, ***p<.001, by χ^2

Table 2. Risk Factors for Initiation of Sexual Activity, by Sex, Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	Female		Male	
	Ever Had Sex (n=33) %	*p* value	Ever Had Sex (n=126) %	*p* value
Sociodemographic Characteristics				
Age (years)		.0039		<.0001
13-14	9.5		14.8	
15	13.8		15.1	
16	11.7		41.2	
17-18	34.7		54.8	
Ethnicity		.5098		.5390
Mestizo/Indigenous	15.6		33.1	
Dark complexion/Mulatto/AfroBolivian	20.6		30.1	
White	25.0		37.2	
Academic Performance		.2202		.0004
0-40 (low)	29.0		41.7	
41-50	18.0		39.3	
51-70 (high)	14.5		21.1	
Violence				
Days carried a weapon in the previous 30 days		.0003[a]		.0019
0	14.9		27.4	
1	22.2		39.6	
2	63.6		18.7	
Days carried a weapon to school in the previous 30 days		.0029		<.0001
0	15.7		28.2	
1 or more	46.7		59.1	
Days did not go to school in the previous 30 because he/she felt unsafe		.0053		.3798
0	12.9		31.2	
1	30.3		24.0	
2 or more	40.0		39.5	
Times threatened or injured with a weapon on school property		.0230[a]		<.0001
0	15.9		26.7	
1	46.2		40.9	
2 or more	25.0		62.2	
Times in the past year, saw adults in family hurt others at home		.3220		.1210
0	16.3		31.5	
1	13.2		25.0	
2 or more	25.0		42.9	
Times in past year, saw adults hurt other adults in home		.9649		.5185
0	17.7		31.6	
1	18.2		31.1	
2 or more	20.0		44.4	

Table 2. Risk Factors for Initiation of Sexual Activity, by Sex, Youth Risk Behavior Survey, La Paz, Bolivia, 2004 (cont.)

Characteristic	Female		Male	
	Ever Had Sex (n=33) %	*p* value	Ever Had Sex (n=126) %	*p* value
Suicidal Tendencies				
In past year, sad/depressed 2+ weeks		.0007[b]		.0450
Yes	25.0		37.4	
No	6.1		27.9	
In past year, seriously considered suicide		.0014		.0018
Yes	30.3		46.8	
No	11.3		28.3	
In past year, made plans for committing suicide		.0003		.0003
Yes	32.8		51.6	
No	10.8		28.3	
In past year, attempted suicide 1 or more times		.0020		.0009
Yes	32.7		57.1	
No	12.8		29.6	
Substance Abuse				
Ever tried smoking		<.0001		<.0001
Yes	33.3		44.9	
No	5.1		8.7	
Days had at least one alcoholic drink		<.0001[a]		<.0001
0 days	7.8		5.8	
1-2 days	11.8		37.8	
3-19 days	25.9		54.1	
20 or more days	41.9		69.6	
In the past 30 days, number of days had at least one alcoholic drink		<.0001		<.0001
0 days	8.8		17.1	
1-2 days	25.8		52.7	
3 or more days	56.0		71.7	
Ever used marijuana		.0065[b]		<.0001
Yes	46.7		74.5	
No	15.1		26.2	
Body Image				
Feels he/she weighs less/more than normal		.2140[a]		.4676
Much less than normal	18.8		20.0	
Less than normal	16.7		35.6	
Normal	14.3		32.1	
More or much more than normal	30.3		31.3	

[a] Fisher's Exact Test not available.
[b] Cell value warning, used Fisher's Exact Test.
Note: p values compare categories of respondents of the same sex

Table 2a. Variables significantly associated with the initiation of sexual activity

Girls:

- Age
- Carrying a weapon in the previous 30 days
- Carrying a weapon to school
- Being threatened or injured with a weapon at school
- Sad or depressed 2+ weeks in the past year
- Seriously considered suicide
- Made plans for suicide
- Attempted suicide
- Ever tried smoking
- Frequency of drinking (ever and in past 30 days)

Boys:

- Age
- Academic performance
- Carrying a weapon in the previous 30 days
- Carrying a weapon to school
- Being threatened or injured with a weapon at school
- Sad or depressed 2+ weeks in the past year
- Seriously considered suicide
- Made plans for suicide
- Attempted suicide
- Ever tried smoking
- Frequency of drinking (ever and in past 30 days)
- Ever used marijuana

Table 3. Results of Logistic Regression, Factors Significantly Associated with Initiation of Sexual Activity Youth Risk Behavior Survey, La Paz, Bolivia, 2004

Characteristic	Odds Ratio	95% CI
Sociodemographic Characteristics		
Academic Performance		
0-40 (low)	1.1	0.5, 2.2
41-50	2.0	1.1, 3.9
51-70 (high)	--	
Violence		
Times threatened or injured with a weapon on school property		
2 or more	3.7	1.5, 9.1
1	1.6	0.7, 3.6
0	--	
Substance Abuse		
Ever tried smoking (Yes)	2.9	1.3, 6.7
Days had at least one alcoholic drink		
20 or more days	4.1	1.1, 15.3
3-19 days	4.7	1.7, 13.0
1-2 days	5.7	2.3, 14.1
0 days	--	
In the past 30 days, days had at least one alcoholic drink		
3 or more days	3.3	1.2, 9.0
1-2 days	1.9	0.9, 3.9
0 days	--	
Ever used marijuana (Yes)	3.2	1.4, 7.6