International Journal
of Clinical and Health Psychology

www.elsevier.es/ijchp

# ORIGINAL ARTICLE

# Social support, self-esteem and depression: Relationship with risk for sexually transmitted infections/HIV transmission

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**Abstract**   Sexually transmitted infections (STIs) and HIV are important health problems that affect adolescents. The aim of the present study was to analyze the relationship between 1) depression, self-esteem and perceived social support and 2) sexual risk behaviors according to gender. The sample used in this ex post facto study was composed of 1,005 adolescents of both sexes aged between 14 and 18 years. Participants completed several questionnaires in the classrooms of their secondary education schools. The questionnaires assessed depression, self-esteem and perceived social support and recorded information on sexual behavior and socio-demographic issues. Results showed that, among males, self-esteem predicted higher vaginal risk, depression was related to higher vaginal, anal and oral sexual risk, and perceived support from the family predicted lower vaginal and anal sexual risk. Among females, self-esteem was found to be associated with lower anal sexual risk and perceived support from friends predicted lower anal and oral sexual risk. The study highlights the importance of considering family and friends as well as gender differences in the prevention of STIs/HIV.
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**Resumen**   Las infecciones de transmisión sexual (ITS) y el VIH son importantes problemas de salud que afectan a los adolescentes. El objetivo del presente estudio es analizar las relaciones entre depresión, autoestima, apoyo social percibido y el riesgo en las relaciones sexuales en función del sexo. En este estudio ex post facto participaron 1.005 adolescentes de ambos sexos, de edades comprendidas los 14 y 18 años. Los adolescentes cumplimentaron en las aulas de los centros de enseñanza secundaria un conjunto de cuestionarios que evaluaban depresión, au-toestima, apoyo social percibido, conducta sexual y aspectos sociodemográficos. Los resultados mostraron que en los varones, la autoestima predecía un mayor riesgo vaginal, la depresión se relacionaba con un mayor riesgo sexual vaginal, anal y oral y el apoyo percibido de la familia predecía un menor riesgo vaginal y anal. En mujeres, se halló que la autoestima se asociaba con un menor riesgo en el sexo anal y el apoyo percibido de los amigos predecía un menor riesgo

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sexual anal y oral. Se destaca la importancia de la familia y los amigos en la prevención de las ITS/VIH así como la consideración de las diferencias sexuales.

Sexually transmitted infections (STIs) are an important health problem worldwide, given that they lead to higher risk of HIV infection and transmission among individuals (Gao & Chen, 2011). It is concerning to note that the highest percentage of STI transmission affects people between 15 and 24 years of age (Dehne & Riedner, 2005). Considering the ratio between the number of individuals affected by STIs and the number of sexually active individuals, the age group ranging from 15 to 19 years is the most affected (Redondo Figuero, & Viadero Ubierna, 2008).

HIV infection often takes place during adolescence, the period with the highest frequency of sexual risk behaviors (Bartlett, Buck, & Shattell, 2008). Some sexual risk behaviors and risk factors for STIs, including HIV and unwanted pregnancies, are not using condoms, having multiple sexual partners and starting sexual relations at an early age (Beadnell et al., 2005; Pettifor, Van der Straten, Dunbar, Shiboski, & Padian, 2004). As regards gender differences, it has been observed that adolescent males are more likely to exhibit sexual risk behaviors that adolescent females (Paxton & Robinson, 2008). Given that adolescence is the ideal time to promote and consolidate behaviors for the prevention of health risks (McBride & Bell, 2011), it is highly relevant to analyze the variables that are related to safe behaviors and risk behaviors.

Among adolescents, a broad diversity of interrelated psychological factors influence sexual risk behaviors for STIs and HIV infection (see, for example, Bermúdez et al., 2012). The Socio-ecological Model of STD Risk and Protective Factors for Adolescents (DiClemente, Salazar, Crosby, & Rosenthal, 2005) is a comprehensive model. According to this model, certain emotional characteristics make some individuals more likely to exhibit sexual risk behaviors (DiClemente et al., 2008). Adolescence is also a moment of life when individuals are at a higher risk of developing emotional problems such as depression (Stevens, Brice, Ale, & Morris, 2011), which can affect individuals by influencing their health-related behaviors (Adam et al., 2011; Seth et al., 2011), including sexual risk behaviors (Lehrer, Shrier, Gortmaker, & Buka, 2006; Paxton & Robinson, 2008; Seth et al., 2011; Waller et al., 2006).

Other variables such as self-esteem and social support and their relationship with adolescents' sexual behavior have also been analyzed in individual and family contexts (Lakshmi, Gupta, & Kumar, 2007). Lakshmi et al. found that adolescent females with higher perceived social support from their peer group had higher chances of acquiring an STI (Salazar et al., 2007). Other authors claim that the social support of friends and parents interacts to predict a lower risk of sexual risk behavior among adolescents (see

Henrich, Brookmeyer, Shrier, & Shahar, 2006). In a recent study, Gao and Chen (2011) found that social support reduced the risk of STIs among females.

Self-esteem is a construct that refers to how individuals feel or value themselves and is related to health behaviors and emotional disorders such as depression (McBride & Bell, 2011). Low self-esteem has been associated with early sexual debut (Price & Hyde, 2009) and with a greater probability of exhibiting sexual risk behaviors (DiClemente et al., 2008). In another study, however, Wheeler (2010) concluded that higher self-esteem did not predict age of sexual debut. Likewise, Penfold, Van Teijlingen, and Tucker (2009) did not find any relationship between self-esteem and sexual risk behaviors (i.e., having had sexual relations at an early age). Therefore, results on this issue are contradictory.

The present study was based on the above-mentioned considerations. Its overall objective was to analyze the relationship between self-esteem, depression, perceived social support and sexual risk according to adolescents´sex. This analysis may be useful to design strategies and programs aimed at preventing STIs and HIV that are better adapted to the characteristics of adolescents. This article was written following the recommendations made by Hartley (2012).

## Method

### Participants

The sample was composed of 1,005 adolescents attending secondary education schools in Granada province, Spain. Participants' ages ranged between 14 and 18 years ($M$ = 15.75; $SD$ = 1.17). In the sample, 47.10% of participants were male ($M$ = 15.71; $SD$ = 1.19) and 52.90% were female ($M$ = 15.79; $SD$ = 1.15). According to participants' responses to the questionnaires, 95.4% were heterosexual, 1.40% were homosexual and 2.4% were bisexual, and 34.1% reported having a stable romantic relationship whereas 65.8% reported not having it. As regards sexual relations, 16.1% reported not having had any sexual contact, 49.5% reported having had non-coital sexual relations and 34.3% reported having had coital sexual relations.

### Instruments

- Questionnaire on socio-demographic data. This was an *ad-hoc* instrument developed to collect socio-demographic information (i.e., age, sex, romantic relationship and age of partner and sexual orientation).
- Questionnaire on sexual behavior (Teva, Bermúdez, & Buela-Casal, 2009). This instrument collects information

on participants' sexual experience and behavior: a) no sexual experience, b) non-coital sexual experience, and c) coital sexual experience. It also includes questions on participants' sexual relations in the past two months and the last coital sexual contact. Participants are asked about the frequency of vaginal, anal and oral sex, the number of sexual partners and the frequency of condom use.

- Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988). This instrument includes 12 items and 3 subscales. More specifically, 4 items assess family support (e.g., *my family really tries to help me*), 4 items assess friend support (e.g., *I can talk about my problems with my friends*) and 4 items assess support from a special person (e.g., *there is a special person with whom I can share my joys and sorrows*). The scale yields a total score that indicates perceived social support. It has a 5-point Likert response format ranging from "*Strongly disagree*" to "*Strongly agree*". In the present study, Cronbach's alpha values were .87 in the family support subscale, .87 in the friend support subscale and .73 in the significant other support subscale. The Cronbach's alpha of the total perceived social support score was .83. Higher scores indicate higher perceived social support. Scores range from 0 to 48.

- Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). This instrument is composed of 10 items (e.g., *Sometimes I think I am good for nothing*), with a 4-point Likert response format from "*Strongly disagree*" to "*Strongly agree*" (Cronbach's alpha was .7 in the present sample). Higher scores indicate higher self-esteem. Scores range between 0 and 30.

- Depression symptoms were assessed using the Center for Epidemiologic Studies–Depression Scale, CES-D (Santor & Coyne, 1997). It is an instrument composed of eight items (e.g., *During the past week I felt that I could not shake off the blues even with help from my family or friends*) that is aimed at detecting cases of depression. It has a 4-point Likert response format from "*Less than 1 day*" to "*5-7 days*" (Cronbach's alpha was .72 in the present sample). Higher scores indicate higher depression levels. Scores range from 0 to 24.

## Design and procedure

It was an *ex post facto* study conducted using cross-sectional surveys. We started by preparing the booklet of instruments that the adolescents would have to complete and training the two evaluators that would be in charge of applying them. Data collection took place in 12 public secondary schools of Granada province, in Spain. First, we obtained a list of the secondary education schools of Granada province provided by the Spanish Ministry of Education, Culture and Sports and randomly selected 10% of the schools (15 in total). Next, we contacted those schools by email to request their co-operation. Three schools declined to participate. After this, we telephoned the schools that showed interest in participating.

Once the assessment had been planned, the evaluators visited the schools and applied the questionnaires to groups of 20 to 25 students in classrooms under the same conditions, after confirming the anonymity of the data and obtaining participants' written informed consent.

## Results

First, we calculated the means of participants' scores in self-esteem, depression and the three factors of the scale of perceived social support. We also analyzed the possible existence of gender differences in such variables. Results showed significant differences between males and females in depression, perceived support from friends and perceived support from a special person (see Table 1).

Next, we performed a multiple analysis of covariance to explore the relationship between the dependent psychosocial variables and the independent variable 'type of sexual experience,' according to which participants were divided into three groups: a) no sexual experience, b) non-coital sexual experience, and c) coital sexual experience. The three groups differed statistically in mean age ($F_{(2, 996)}$ = 87.78; $p$ =.00), so the age variable was introduced as a covariate in the analysis. As we had previously observed differences in the dependent variables according to sex, the analyses were conducted separately for males and females.

**Table 1**  Means of the variables self-esteem, depression and the factors of perceived social support by sex, sex differences and total values

| | Males (n = 470) | | Females (n = 529) | | Comparison by sex | Total (N = 1,005) | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | t (d.f.) | Mean | SD |
| Self-esteem | 20.19 | 3.89 | 19.84 | 3.64 | 1.43 (999) | 20 | 3.75 |
| Depression | 3.53 | 4.52 | 6.55 | 6.07 | −8.80 (999)*** | 5.12 | 5.58 |
| Perceived support from family | 12.43 | 3.83 | 12.33 | 3.57 | 6.82 (999) | 12.18 | 3.87 |
| Perceived support from friends | 12.82 | 3.17 | 13.81 | 2.81 | −5.24 (999)*** | 13.34 | 3.02 |
| Perceived support from a special person | 12.43 | 3.26 | 13.98 | 2.89 | −7.91 (999)*** | 13.24 | 3.16 |

*SD* = standard deviation; *t* = value of the *t-student* statistic; *d.f.* = degrees of freedom.
** *$p$ < .001.

**Table 2** Means and difference of means of the variables self-esteem, depression and the factors of perceived social support as a function of type of sexual experience in males.

| | No sexual experience | | Non-coital sexual experience | | Coital sexual experience | | Comparison by sexual experience |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | $F$ (d.f.) |
| Self-esteem | 19.74 | 3.59 | 20.46 | 3.79 | 20.04 | 4.17 | $0.95_{(3, 463)}$ |
| Depression | 3.11 | 3.64 | 3.69 | 4.82 | 3.59 | 4.56 | $0.55_{(3, 463)}$ |
| Perceived support from family | 13.17 | 3.01 | 12.37 | 3.41 | 10.83 | 4.46 | $13_{(3, 463)}$*** |
| Perceived support from friends | 11.47 | 3.69 | 13.31 | 2.7 | 12.91 | 3,18 | $9.85_{(3, 463)}$*** |
| Perceived support from a special person | 10.97 | 3.71 | 12.7 | 2.91 | 12.86 | 3.24 | $8.33_{(3, 463)}$*** |

$SD$ = standard deviation; F= value of the F statistic of the MANCOVA; $d.f.$ = degrees of freedom.
*** $p < .001$.

**Table 3** Means and difference of means of the variables self-esteem, depression and the factors of perceived social support as a function of type of sexual experience in females.

| | No sexual experience | | Non-coital sexual experience | | Coital sexual experience | | Comparison by sexual experience |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | $F$ (d.f.) |
| Self-esteem | 19.43 | 2.93 | 19.54 | 3.46 | 20.45 | 4.08 | $4.26_{(3, 525)}$*** |
| Depression | 4.59 | 5.19 | 6.39 | 5.55 | 7.54 | 6.93 | $5.05_{(3, 525)}$*** |
| Perceived support from family | 13.61 | 3.011 | 12.3 | 3.43 | 11.88 | 3.87 | $7.22_{(3, 525)}$*** |
| Perceived support from friends | 13.16 | 3.4 | 14.19 | 2.43 | 13.48 | 3.02 | $5.19_{(3, 525)}$*** |
| Perceived support from a special person | 12.61 | 3.05 | 14.1 | 3.07 | 14.31 | 2.38 | $6.44_{(3, 525)}$*** |

$SD$ = standard deviation; F = value of the F statistic of the MANCOVA; $d.f.$ = degrees of freedom;
*** $p < .001$.

Results are presented on Tables 2 and 3, which show the existence of statistically significant differences in all the variables among females and in the three factors of the scale of perceived social support among males.

The Sidak multiple comparison procedure was used to determine which sexual experience groups differed from one another. Results showed that, among males, the group with coital sexual experience scored 2.34 points lower than the group with no sexual experience ($p = .00$) in perceived support from the family and 1.54 points lower than the group with non-coital sexual experience ($p = .00$) in this variable. As regards perceived support from a special person, the group with no sexual experience scored 1.73 points lower than the group with non-coital sexual experience ($p = .00$) and 1.89 points lower than the group with coital sexual experience ($p = .00$). Finally, the group with no sexual experience scored 1.84 points lower than the group with non-coital sexual experience ($p = .00$) and 1.44 points lower than the group with coital sexual experience ($p = .00$) in perceived social support from friends.

Among females, the group with no sexual experience scored 1.30 points higher than the group with non-coital sexual experience ($p = .00$) and 1.73 points higher than the

group with coital sexual experience ($p = .00$) in perceived support from the family. In perceived support from a special person, the scores of the group with no sexual experience were 1.48 points lower than those of the group with non-coital sexual experience ($p = .00$) and 1.69 points lower than those of the group with coital experience ($p = 0.00$). As regards perceived support from friends, results showed differences between the group with non-coital experience and the group with no sexual experience ($p = 0.00$), which scored 1.03 points higher, and between the group with coital sexual experience and the group with no sexual experience ($p = .00$), which scored 0.71 points higher. As regards depression, the group with coital sexual experience scored 2.94 points higher than the group with no sexual experience ($p = .00$); in self-esteem, the group with coital sexual experience scored 0.9 points higher than the group with non-coital sexual experience ($p = .00$).

Subsequently, we conducted the relevant analyses to determine the relationship between the variables assessed and sexual risk behavior. First, we calculated the risk index, following the indications of Bermúdez, Castro, Madrid, and Buela-Casal (2010). According to these authors, the index is calculated by dividing the number of sexual relations without a condom by the total number of sexual relations and

**Table 4**  Descriptive data regarding the vaginal, anal and oral risk indices in the past two months.

| | Vaginal risk index | | | | Anal risk index | | | | Oral risk index | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Max. score | Min. pscore | Mean | SD | Max. score | Min. score | Mean | SD | Max. score | Min. score |
| Females | 0.29 | 0.52 | 4 | 0 | 0.05 | 0.25 | 2 | 0 | 0.53 | 0.65 | 3 | 0 |
| Males | 0.33 | 1.27 | 12 | 0 | 0.23 | 1.37 | 12 | 0 | 0.69 | 1.55 | 12 | 0 |

*SD* = standard deviation; Max. score = maximum score; Min. score = minimum score.

**Table 5**  Standardized coefficients and *t* values for self-esteem, depression and the three factors of perceived social support in the linear regressions of the vaginal, anal and oral risk indices.

| | Vaginal risk index | | | | Anal risk index | | | | Oral risk index | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Males | | Females | | Males | | Females | | Males | | Females | |
| | Beta | t | Beta | t | Beta | t | Beta | t | Beta | t | Beta | t |
| Self-esteem | 0.2** | 2.62 | −0.46 | −0.53 | 0.10 | 1.26 | −0.25** | −3.12 | 0.12 | 1.51 | −0.03 | −0.4 |
| Depression | 0.38** | 4.92 | −0.03 | −0.38 | 0.37** | 4.61 | −.012 | −1.55 | 0.44** | 5.48 | −0.02 | −0.32 |
| Perceived support from family | −0.25** | −3.01 | −0.01 | −0.20 | −0.19** | −2.34 | 0.01 | 0.15 | −0.03 | −0.36 | 0.01 | 0.13 |
| Perceived support from friends | 0.10 | 1.09 | 0.02 | 0.24 | 0.06 | 0.61 | −0.16** | −2.15 | 0.09 | 0.93 | −0.14** | −1.86 |
| Perceived support from a special person | 0.06 | 0.64 | 0.09 | 1.13 | −0.01 | −0.17 | 0.08 | 1.04 | −0.13 | −1.35 | 0.05 | 0.70 |

*Note: t refers to the t-student value; **p < .01.*

multiplying the result by the number of sexual partners. This was done by using data provided by participants on their oral, anal and vaginal sexual behavior in the past two months. We obtained three risk indices (i.e., anal, oral and vaginal), whose descriptive results for males and females are shown on Table 4. It is important to note that risk indices may have values equal to or greater than zero, where zero indicates no risk in the past two months and scores greater than zero indicate risk in the past two months. More specifically, higher scores indicate higher risk.

Next, we tested the assumptions of multicollinearity, independence of errors, normality of errors and linearity. This was necessary to perform the corresponding linear regressions in order to determine the influence of the variables assessed on the risk indices for males and females. After verifying that these assumptions were met, we conducted the six linear regressions. The standardized coefficients and *t* values of variables included in the regressions are shown on Table 5.

As regards the vaginal risk index, the model was not significant for females. However, it was significant for males ($F_{(5,158)}$ = 8.96; $p$ = 0.00), for whom the model explained 23% of the variance. The significant variables in the regression were self-esteem and depression, which were positively correlated with the vaginal risk index, and perceived support from the family, which was negatively correlated with this index. The anal risk index was significant for both males ($F_{(5,158)}$ = 7.13; $p$ = .01; $R^2$ = .18) and females ($F_{(5,181)}$ = 3.28; $p$ = .01), although it explained a lower percentage of variance among females ($R^2$ = .08). The significant variables in the resulting model for males were depression and perceived support from the family, both in the same direction as in the previous model. By contrast, the significant variables in the influence on the anal risk index among females were self-esteem and perceived support from friends, which were negatively correlated with anal risk, indicating that higher self-esteem and a higher perception of support from friends led to lower anal risk.

Finally, the resulting models for the oral risk index were significant for both males ($F_{(5,150)}$ = 7.47; $p$ = .00; $R^2$ = .19) and females ($F_{(5,181)}$ = 3.17; $p$ = .01; $R^2$ = .02). Among males, the significant variable was depression, which was positively correlated with oral risk; among females, however, perceived support from friends was negatively correlated with oral risk.

## Discussion

The present study showed the existence of gender differences in depression, perceived social support and self-esteem. Compared to males, females scored higher in depression, perceived support from friends and perceived support from a special person.

As regards sexual experience (i.e., no sexual experience; non-coital sexual experience; and coital sexual experience), adolescent males with no sexual experience had the highest scores in perceived support from the family compared to the other two groups (i.e., males with non-coital sexual experience and males with coital experience). This finding is consistent with the conclusions of a recent study that showed that adolescents who had better relationships with their parents were less likely to become involved in sexual risk behaviors (Deptula, Henry, & Schoeny, 2010). In addition, males with non-coital sexual experience had the highest scores in perceived support from friends, whereas males with coital sexual experience had the highest scores in perceived support from a special person.

In the female group, as in the male group, participants with no sexual experience had the highest scores in perceived support from the family compared to the other two groups with sexual experience. The family is a highly relevant social context in the sexual education of adolescents. Along these lines, adolescents' communication with their parents about sex has been associated with later sexual debut (Perrino, González-Soldevilla, Pantin, & Szapocznik, 2000). Female adolescents with coital sexual experience had the highest scores in self-esteem, depression, perceived support from friends and perceived support from a special person compared to the other two groups (i.e., non-coital sexual experience and no sexual experience). Adolescents normally discuss their romantic and sexual relations with their peer group (Wisnieski, Sieving, & Garwick, 2013). Therefore, they are likely to behave in accordance with the sexual beliefs, attitudes and behavior of their peers (Henry, Deptula, & Schoeny, 2012; Miranda-Díaz & Corcoran, 2012). Indeed, female adolescents with coital sexual experience had higher scores in perceived social support from friends and perceived support from a special person, who is likely to be their intimate partner and reinforce the sexual activity. As regards depression, similarly to the findings of the present study, Ciairano, Bonino, Kliewer, Miceli, and Jackson (2006) concluded that sexually active adolescent females showed higher depression levels than those who were not sexually active. Moreover, Monahan and Lee (2008) argued that sexual activity was related to higher depression symptoms when comparing sexually active adolescents with those with no sexual experience.

If we consider adolescents with coital sexual experience, the present study showed that, among females, higher perceived support from friends predicted lower anal and oral sexual risks. Given that adolescents' perceptions of the sexual activities of their peers influence their own decisions on how to have sex (Miranda-Díaz & Corcoran, 2012), the peer group of these adolescent females is likely not to endorse oral or anal sex. As a result, these types of sexual relations are probably less frequent, which would explain the lower risk.

Among females with coital sexual experience, higher scores in self-esteem predicted lower anal risk due to a low frequency of such practice. The reason for this may be that, in these girls, a positive sexual self-image does not include performing anal sex. Thus, considering that self-esteem is likely to fluctuate during adolescence (Moksnes & Espnes, 2012), it is important for sexual education programs to promote self-esteem among girls (Ethier et al., 2006; Price & Hyde, 2009).

As regards males with coital sexual experience, depression scores were positively correlated with anal, vaginal and oral sexual risk. It should be noted that depression may affect individuals' decision-making process regarding sexual relations, making them more likely to exhibit sexual risk behaviors (Seth et al., 2011). Given the relationship between depression and sexual risk behavior among males, we consider that health professionals working with adolescent populations should assess sexual risk behaviors in individuals showing symptoms of depression (Langille, Asbridge, Kisely, & Wilson, 2011). Yet, in the present study we did not observe any relationship between scores in depression and vaginal, oral or anal sexual risks in females. As mentioned above, females scored higher in depression than males. Moreover, among females, those with coital sexual experience had the highest depression scores compared to the group without sexual experience and the group with non-coital sexual experience. This was not observed in the male group. Therefore, unlike males, who showed a relationship between depression and sexual risk behaviors, females may become more emotionally involved in their sexual relations (Monahan & Lee, 2008). When such relations fail to meet their expectations, they may become frustrated and therefore show higher levels of depression. Indeed, sexually active females showed higher levels of depression. This may imply that they are used to taking all kinds of decisions in that state and that their mood does not significantly affect their decisions.

Among males with coital sexual experience, we found an association between higher scores in perceived support from the family and lower vaginal and anal risks. These results are consistent with the conclusions of other studies (e.g., Adam et al., 2011; Gao & Chen, 2011; Henrich et al., 2006; Seth et al., 2011). For example, Meekers, Silva, and Klein (2006) found that adolescent males were more likely to have used condoms if they perceived high levels of social support from their parents and peer group. Regarding self-esteem, higher scores predicted higher vaginal risk among males. Self-esteem is based on other people's opinion of the individual (Moksnes & Espnes, 2012). Considering this, the social environment of these adolescent males may perceive their involvement in sexual risk behaviors (i.e., having sexual relations without condoms or several sexual partners) as being positive. This corresponds to traditional gender roles that determine which behaviors are appropriate for males and females and are also related to individuals' self-concept (Matud & Aguilera, 2009). Therefore, in order to behave according to their gender role and maintain their self-esteem, males are likely to exhibit greater sexual risk behaviors.

This study has some limitations. Since it is a cross-sectional study, it is not possible to make causal inferences and therefore future longitudinal research is needed to

clarify cause-effect relationships. Likewise, the sample is not representative of the adolescent population, which does not make it possible to generalize the results to this population. However, it should be noted that a large number of adolescents participated in the study. Although social desirability was not assessed, the conditions of questionnaire administration (i.e., anonymous and voluntary participation and confidentiality) did not induce adolescents to lie or give distorted answers.

Finally, the study emphasizes the importance of considering emotional factors in sexual education programs. For example, it would be useful to screen adolescents for depression, self-esteem and sexual risk behavior in order to adapt sexual education programs to their emotional characteristics. Given the importance of perceived social support from family and peers, perceptions of parents and peers concerning sexuality should be analyzed in sexual education programs. In general terms we can state that the variables self-esteem, depression and social support influence the sexual risk behavior of adolescents differently depending on their gender. Therefore, it is important to consider gender differences in the design of STI/HIV prevention programs (Castro & Bermúdez, 2011).

## Funding

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