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Psychosocial Correlates of Condom Use and their Relationship with Worry about STI and HIV in Native and Immigrant Adolescents in Spain

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The goal of this study was to analyze how worry about sexually-transmitted infections (STI) and HIV influences attitudes and self-efficacy towards condom use, HIV-related knowledge, HIV-perceived susceptibility and HIV-misconceptions in a multicultural sample in Spain. The sample was composed of 3,051 adolescents aged between 14 and 19 years old who lived in Spain. Of these, 67.7% were native Spaniards and the remaining 32.3% were Latin American immigrants. Results showed that worry about STI and HIV has a direct influence on condom use self-efficacy and HIV-knowledge and HIV-perceived susceptibility. Native Spanish adolescents showed higher positive attitudes towards condom use, greater HIV-knowledge and HIV-perceived susceptibility, and lower negative attitudes towards condoms use and HIV-misconceptions than Latin American adolescents. In the discussion, the importance of worry about STI and HIV is highlighted as a mediator variable that can predict risky sexual behavior and is related to cultural origin.
Keywords: STI/HIV, condoms, adolescents, inmigrants, Spain.

El objetivo principal de este estudio fue analizar cómo la preocupación hacia las infecciones de transmisión sexual (ITS) y hacia el VIH influyen en las actitudes y en la autoeficacia hacia el uso del preservativo y en el conocimiento y la susceptibilidad ante el VIH en una muestra multicultural en España. En la investigación participaron 3051 adolescentes de entre 14 y 19 años residentes en España, de los que el 67,7% fueron autóctonos españoles y el 32,3% restante fueron inmigrantes de origen latinoamericano. Los resultados obtenidos muestran que la preocupación hacia las ITS y hacia el VIH ejercen una influencia directa sobre la autoeficacia en el uso del preservativo y sobre el conocimiento y la susceptibilidad ante el VIH. Los adolescentes autóctonos mostraron más actitudes positivas hacia el uso del preservativo, más conocimiento y susceptibilidad ante el VIH y menos actitudes negativas hacia el preservativo e ideas erróneas sobre el VIH que los adolescentes latinoamericanos. En la discusión se resalta la importancia de la preocupación hacia las ITS y hacia el VIH como variable mediadora para la predicción de las conductas sexuales de riesgo y su relación con el origen cultural.
Palabras clave: ETS/VIH, preservativos, adolescentes, inmigrantes, España.

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Spain is one of the European countries most affected by the HIV/AIDS epidemic; in fact, Bermúdez and Teva-Álvarez (2003) concluded that Spain had the highest prevalence rates of HIV/AIDS in Western Europe. In combating the high prevalence rate, the Spanish health authorities recently started to focus on adolescents and immigrants, two of the most vulnerable groups to HIV (Bermúdez, Castro, & Buela-Casal, 2009). The Spanish Centro Nacional de Epidemiología [Spanish National Epidemiology Center] and the Spanish Ministerio de Sanidad y Política Social [Ministry of Health and Social Policy] (2009) have reported that almost one third of new HIV infections affect young people under the age of 24. These institutions have also warned that about one third of HIV infections and 20% of cases of AIDS diagnosed in Spain in 2008 affected immigrants (Centro Nacional de Epidemiología & Ministerio de Sanidad y Política Social, 2009). Immigrants represent 12% of the total population of Spain with the largest group originating from Latin-America (Instituto Nacional de Estadística [INE], 2009).

About 14.8% of newly infected people with HIV/AIDS in Spain are Latin American (Centro Nacional de Epidemiología & Ministerio de Sanidad y Política Social, 2009). Latin American immigrants represent 3.8% of the total population of Spain (INE, 2009), which shows that this group is disproportionately affected by HIV, mainly due to unprotected sexual relations (Bermúdez, Castro, Madrid, & Buela-Casal, 2010; Prado et al., 2006). One of the main characteristics of the Latin American immigrant population is that it is very young; it is estimated that 40% of this population is under the age of 20 (Pantin, Prado, Schwartz, & Sullivan, 2005). Therefore, people in this group are doubly vulnerable, since they are adolescents and also immigrants (Castro, Bermúdez, & Buela-Casal, 2009; Guilamo-Ramos, Bouris, Jaccard, Lesesne, & Ballan, 2009).

Among the psychosocial variables related to STI/HIV infection in adolescents, worry about possible infection has received growing attention in recent years. Worry about STI/HIV is defined as a component of the construct "perceived threat" and refers to the vulnerability that may be felt to STI/HIV infection (Crosby et al., 2001). The analysis of worry is considered important in understanding the sexual behavior of adolescents, since worry is directly related to protective behaviors (Crosby et al., 2001; Sales et al., 2009). The studies consulted highlight that it is good to have moderate worry, given that excessive worry may lead to lower knowledge and anxiety, which makes it difficult to engage in safe sexual practices (Crosby et al., 2001; Ellen, Boyer, Tschann, & Shafer, 1996; Sales et al., 2009). Low worry is characterized by an underestimation of the risk and importance of STI, which leads to less protective behaviors (St. Lawrence, Crosby, Belcher, Yazdani, & Brasfield, 1999).

Many variables have been directly related to worry about STI and HIV and understood as mediators between such worry and the adoption of risky sexual practices (DiClemente et al., 2004). The most outstanding of these mediating variables are attitudes towards condom use (Harvey & Henderson, 2006; Sales et al., 2009), condom use self-efficacy (Berkley & Burns, 2000; Crosby et al., 2001), HIV-knowledge and misconceptions (Crosby et al., 2001), and HIV-perceived susceptibility (Crosby et al., 2001; Sales et al., 2009). Other variables studied are communication about sex, condom use negotiation, depression, social support (Crosby et al., 2001; Sales et al., 2009), sexual sensation seeking (Gutiérrez-Martínez, Bermúdez, Teva, & Buela-Casal, 2007), and some aspects of sexual behavior. Authors point out that people who have recently contracted an STI are more worried about infection and feel more vulnerable to infection (Crosby et al., 2001; Sales et al., 2009). Furthermore worry tends to be greater in people who have sexual relations with multiple partners and in people who have occasional partners (Ellen et al., 1996; Gutiérrez-Martínez et al., 2007; Lameiras, Rodríguez, & Dafonte, 2002). Also gender, age, and race/ethnicity play a role in both adolescents' worry about STI/HIV and their risky behaviors (Crosby et al., 2001). According to Gómez and Marín (1996), all aspects related to HIV infection in adolescents are characterized by strong cultural implications, which mainly affect African Americans and Latinos, the two most vulnerable groups. Both groups have a greater risk of HIV infection due to personal, interpersonal, social, and community factors (Sales et al., 2009).

Gutiérrez-Martínez et al. (2007) pointed out that studies analyzing the relationship between worry about STI/HIV and risky behaviors were mainly conducted in the United States with a strong focus on African American women, and that there are no similar studies in Spain. In recent years, the immigrant population in Spain has significantly grown and has increasingly been affected by cases of HIV infection (Centro Nacional de Epidemiología & Ministerio de Sanidad y Política Social, 2009). This context shows a need for a study such as the present one. The main objective of this cross-sectional at a single time point study was to analyze how worry about STI and HIV are associated to attitudes and self-efficacy towards condom use, HIV-related knowledge, HIV-perceived susceptibility and HIV-misconceptions in a multicultural sample in Spain. This aim is included in a more general one that has been followed in the present and in other similar researches (Bermúdez et al., 2009; Bermúdez, Castro, Madrid et al., 2010; Castro et al., 2009). That mentioned general aim is to analyze the differences in sexual behaviour and a set of psychosocial variables related to STI/HIV risk behaviors among native Spanish adolescents and Latin American immigrant adolescents who live in Spain. The analysis of cultural differences is relevant to implement future preventive interventions.

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Method

Participants

The sample was composed of 3,051 adolescents living in Spain; a total of 2,067 (67.7%) of them were native Spaniards, whereas 984 (32.2%) were Latin American immigrants. Among the native Spaniards, 48.7% were male and 51.3% were female. The mean age of this group was 15.78 years (*SD* = 1.45). Among the Latin American group, 47.7% were male and 52.3% were female. The mean age of this group was 16.61 years (*SD* = 1.49). The main sociodemographic characteristics of the sample are shown in Table 1. Inclusion criteria for the selection of the sample were the following: (a) being aged between 14 and 19 years old; (b) being a native Spaniard or coming from a Latin American country; (c) living in Spain, and (d) participating voluntarily once the objectives of the research had been explained.

Apparatus

Sociodemographic questionnaire (Teva, Bermúdez, & Buela-Casal, 2009), which provided information about gender, age, and origin of adolescents surveyed, as well as their education, job status, sexual orientation, whether they had an intimate partner or not, and if so, the mean age of their partner.

Attitudes Towards Condom Use Scale (DiClemente et al., 2004). The Spanish adaptation of this scale was developed according to the guidelines of the International Test Commission (Muñiz & Hamblenton, 1996; Hamblenton, 2001) and the proposals of the Standard for Educational Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). It includes eight items, three of which assess negative attitudes towards condom use, while the other five assess positive attitudes towards a partner's suggestion of using a condom. Each item has five response options ranging from *Totally disagree* to *Completely agree*. DiClemente et al. (2004) reported a global internal consistency of .68. In the present study, Cronbach alpha values obtained were .84 in positive attitudes and .77 in negative attitudes for native Spaniards and .77 and .78 respectively for Latin American adolescents.

Spanish adaptation of the *Condom-use Self-efficacy Scale* (DiClemente et al., 2004). The Spanish adaptation was developed following the guidelines of the International Test Commission (Muñiz & Hamblenton, 1996; Hamblenton, 2001) and the proposals of the Standard for Educational Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). It includes nine items that assess condom use self-efficacy with a 4-point Likert response format ranging from *Not difficult at all* to *Very difficult*. The authors reported a reliability of .88. In the present study, a Cronbach alpha value of .90 was obtained both for native Spaniards and Latin Americans.

Spanish adaptation of the *Adolescents´ Worry about STI and HIV Infection Scale* (Crosby et al., 2001; Gutiérrez-Martínez et al., 2007). This scale includes eight items, four of which assess worry about STI, whereas the other four

Table 1
Distribution of the sample of native Spanish and Latin American adolescents according to sociodemographic variables

Variables	Native Spaniards *n* = 2,067	Latin Americans *n* = 984
Males	1,006	469
Females	1,061	515
Mean age (*SD*)	15.78 (1.45)	16.61 (1.49)
Currently attending school		
Yes (%)	98.6	87.0
No (%)	1.4	13.0
Currently working		
Yes (%)	4.8	16.3
No (%)	95.2	83.7
Sexual orientation		
Heterosexual (%)	97.0	96.5
Homosexual (%)	1.5	2.1
Bisexual (%)	1.5	1.4
Intimate partner		
Yes (%)	44.7	56.2
No (%)	55.3	43.8
Age of partner (*M*)	17.14	18.01

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assess worry about HIV. Each item has five response options, ranging from *Never* to *Always*. The authors reported an internal consistency of .75 in the Worry about STI Subscale and .85 in the Worry about HIV Subscale. In the present study, Cronbach alpha values obtained were .84 in Worry about STI and .87 in Worry about HIV for native Spaniards and .88 and .87 respectively for Latin American participants.

Brief version of the *HIV/AIDS-164 Questionnaire* (Bermúdez, Sánchez, & Buela-Casal, 2003). It contains five subscales, three of which were used: knowledge of HIV transmission and prevention, misconceptions about HIV transmission and prevention, and perceived susceptibility to HIV infection. The first two subscales include twenty questions each, with three response options (*True*, *False*, and *Don't know*), and the third one includes five questions with three response options (*Agree*, *Disagree*, and *Don't know*). The authors reported an internal consistency of .73 in the knowledge subscale, .83 in the misconceptions subscale, and .53 in the susceptibility subscale. In the present study, reliability was .71 in the knowledge subscale, .68 in the misconceptions subscale, and .53 in the susceptibility subscale for native Spaniards, and .79, .74 and .54 respectively for Latin American participants.

Procedure

Data were collected from schools, immigrant associations, and health centers specialized in adolescent sexual issues in several Spanish provinces. Schools were contacted through the offices of the Department of Education in various provinces, which were requested to provide a list of schools with the highest number of Latin American students. After obtaining this information, such schools were contacted and asked to participate, starting with those with the most Latin American students. Schools that accepted to participate in the study were visited by several trained researchers, who collected data from adolescents that fulfilled the inclusion criteria in groups and under the same conditions. Students were informed about the objectives of the study and told that participation was voluntary, and prior informed consent was obtained. Ethics Committee of the Universidad de Granada (Spain) approved the study. The same procedure was used in the health centers for adolescents and in the immigrant associations. Data were collected from participants by the same researcher in small groups and under the same conditions.

Data analysis

First, associations among sociodemographic variables (origin, age and gender) and variables identified with risk of HIV infection (i.e., negative attitudes towards condom use, positive attitudes towards condom use, condom use self-efficacy, HIV-knowledge, HIV-misconceptions, and HIV-perceived susceptibility) were analyzed. Regarding age, a Pearson product-moment correlation was calculated. An univariate variance analysis (*ANOVA*) was performed to analyze associations between origin and gender. Furthermore, interaction effects were also analyzed.

To analyze the associations among worry about STI and HIV infections and risk variables, worry about STI and HIV infections variables were dichotomized using median as a cutoff. It was decided to use the median as a cutoff because the use of mean ± one standard deviation (*SD*) provided a lower cutoff that was outside of range of sample´s scores and it did not allow to make a group of low worry about STI and HIV infections. These two variables (worry about STI and worry about HIV) and their associations with risk behaviors were analyzed jointly in a multivariate variance analysis (*MANOVA*).

Results

Analysis of the effect of sociodemographic variables

First of all, an analysis was performed to check whether there was any relation between origin, gender, and age, and variables identified with risk of HIV infection (i.e., negative attitudes towards condom use, positive attitudes towards condom use, condom use self-efficacy, HIV-knowledge, HIV-misconceptions, and HIV-perceived susceptibility). Regarding age, a statistically significant negative correlation was found with negative attitudes ($r = -.05$; $p = .01$), self-efficacy ($r = -.27$; $p < .001$), and misconceptions ($r = -.04$; $p = .02$); a statistically significant positive correlation was found with HIV-knowledge ($r = .20$; $p < .001$) and HIV-perceived susceptibility ($r = .12$; $p < .001$). The effects of gender and origin were analyzed jointly, calculating the possible interactions between both factors. In the case of negative attitudes towards condom use, the analysis showed an association with origin ($F(1, 3051) = 147.79$; $p < .001$), gender ($F(1, 3051) = 91.22$; $p < .001$), and the interaction between both ($F(1, 3051) = 8.87$; $p = .003$). Concerning origin, Latin American adolescents and males showed higher negative attitudes, and differences between genders were more marked in Latin American participants (see Figure 1). Regarding positive attitudes towards condom use, the analysis only showed an association with origin ($F(1, 3051) = 120.82$; $p < .001$) and gender ($F(1, 3051) = 13.01$; $p < .001$); native Spaniards and females showed higher positive attitudes. Concerning condom use self-efficacy, the analysis showed an association with gender ($F(1, 3051) = 136.51$; $p < .001$) and of the interaction between gender and origin ($F(1, 3051) = 3.89$; $p = .04$). However, the effect size of this interaction was almost zero ($\eta^2 = .001$). Again, females showed greater self-efficacy than males, although the differences between both were less marked in Latin American adolescents (see Figure 2).

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Regarding HIV-knowledge, the analysis showed an association with origin ($F(1, 3051) = 51.40$; $p < .001$) and gender ($F(1, 3051) = 9.79$; $p = .002$); native Spaniards and males showed greater HIV-knowledge. As for HIV-misconceptions, an association with origin ($F(1, 3051) = 64.25$; $p < .001$) and gender ($F(1, 3051) = 14.72$; $p < .001$) was found; Latin Americans and males showed the majority of HIV-misconceptions. Finally, females ($F(1, 3051) = 7.83$; $p = .005$) and native Spaniards ($F(1, 3051) = 5.89$; $p = .01$) scored higher on HIV-perceived susceptibility.

Analysis of the effect of worry about STI and HIV

The aim was to jointly analyze the six variables that the dependent variable – HIV risk – was composed of. A multivariate analysis of variance (MANOVA) was performed to estimate the association between worry about STI and about HIV. With this aim, both variables were divided into two groups – high and low worry – using the median as a cut point. Finally, given that origin had a relevant effect, it was decided to include this variable in the analysis and verify its interaction with worry about STI and about HIV.

Regarding worry about STI, the analysis showed an association with worry ($\lambda = .975$; $F_{6,3042} = 12.87$; $p < .001$), origin ($\lambda = .925$; $F_{6,3042} = 41.28$; $p < .001$), and the interaction between both ($\lambda = .995$; $F_{6,3042} = 2.52$; $p = .02$). Concerning worry about HIV was found an association with worry ($\lambda = .985$; $F_{6,3042} = 7.75$; $p < .001$) and origin ($\lambda = .927$; $F_{6,3042} = 39.68$; $p < .001$).

After the multivariate analysis of the effects, a univariate factorial ANOVA analysis (worry STI x origin; worry HIV x origin) was performed to explore the effects on the various dependent variables. Worry about STI was found to have an association with condom use self-efficacy, HIV-knowledge, HIV-misconceptions, and HIV-perceived susceptibility. Participants with higher scores in worry about STI showed higher self-efficacy, knowledge and susceptibility, and lower scores in HIV-misconceptions. Worry about HIV was found to exert an association with positive attitudes towards condom use, condom use self-efficacy, and HIV-perceived susceptibility; adolescents that showed higher worry about HIV reported more positive attitudes and greater self-efficacy and perceived susceptibility. Regarding origin, native Spaniards showed more positive attitudes towards condom use, greater HIV-knowledge and HIV-perceived susceptibility, fewer negative attitudes towards condom use, and fewer HIV-misconceptions than Latin American participants (see Table 2). Finally, the interaction between worry about STI and origin only showed an association with self-efficacy; however, the effect size was almost zero ($\eta^2 = .002$).

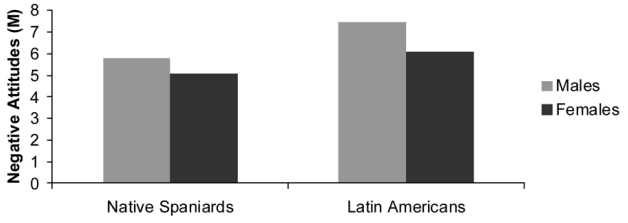

Figure 1. Interaction between origin and gender in negative attitudes towards condom use.

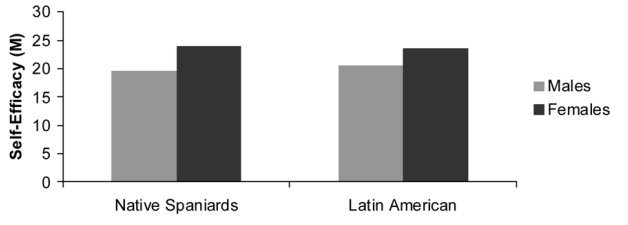

Figure 2. Interaction between origin and gender in condom use self-efficacy.

Discussion

From the results obtained, it is possible to conclude that worry about STI, worry about HIV, age, gender, and origin are variables that can predict those variables that are related to sexual risk behaviors involvement, such as attitudes towards condom use, condom use self-efficacy, HIV-knowledge, and HIV-perceived susceptibility. Moreover, there are important differences in the assessed variables between native Spanish adolescents and Latin American adolescents who live in Spain. Therefore, such differences can be related to a higher vulnerability to STI/HIV infections.

Worry about STI is directly related to condom use self-efficacy, HIV-knowledge and HIV-susceptibility. These results are similar to those of other studies carried out in other geographical contexts (Berkley & Burns, 2000; DiClemente et al., 2004; Ellen et al., 2002; Faryna & Morales, 2000; Mahoney, 1995); they imply that adolescents that show greater worry about STI are those that make a better use of condoms, have a higher HIV-knowledge, and are more aware of the risks of a possible infection, so they adopt protective behaviors against it. Worry about HIV also correlated positively with positive attitudes towards condom use, self-efficacy, and HIV-perceived susceptibility. This agrees with similar studies that have found that adolescents with greater worry about HIV show more positive attitudes towards condom use (Harvey & Henderson, 2006; Sales et al., 2009), higher condom use self-efficacy (Berkley & Burns, 2000; Faryna & Morales, 2000; Mahoney, 1995), and higher HIV-perceived susceptibility (Ellen et al., 2002).

These results lead to several discussion issues. The first one is related to the construct "worry about STI/HIV." There is controversy among authors as to whether the term "worry"

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Table 2
Results of the effect of worry about STI, worry about HIV and origin on negative and positive attitudes towards condom use, condom use self-efficacy, HIV-knowledge, HIV-misconceptions, and HIV-susceptibility

Factors	Variables	Group	*n*	*M*	*SD*	*F*	*p*
Worry about STI							
	Negative Att.	High worry	1,367	5.77	2.89	2.55	.11
		Low worry	1,684	5.94	2.87		
	Positive Att.	High worry	1,367	21.76	3.67	9.12	.003
		Low worry	1,684	21.35	3.79		
	Self-efficacy	High worry	1,367	22.28	8.29	3.99	.04
		Low worry	1,684	21.66	8.83		
	Knowledge	High worry	1,367	15.24	3.37	12.82	.001
		Low worry	1,684	14.79	3.53		
	Misconceptions	High worry	1,367	2.09	2.29	10.38	.001
		Low worry	1,684	2.37	2.55		
	Susceptibility	High worry	1,367	4.07	1.05	69.13	.001
		Low worry	1,684	3.74	1.13		
Worry about HIV							
	Negative Att.	High worry	1,284	5.84	2.92	0.14	.70
		Low worry	1,767	5.88	2.86		
	Positive Att.	High worry	1,284	21.74	3.62	6.91	.009
		Low worry	1,767	21.38	3.82		
	Self-efficacy	High worry	1,284	22.52	8.42	10.08	.002
		Low worry	1,767	21.52	8.70		
	Knowledge	High worry	1,284	15.12	3.40	3.06	.08
		Low worry	1,767	14.89	3.51		
	Misconceptions	High worry	1,284	2.13	2.32	4.40	.03
		Low worry	1,767	2.32	2.53		
	Susceptibility	High worry	1,284	4.02	1.07	31.46	.001
		Low worry	1,767	3.79	1.13		
Origin							
	Negative Att.	Native Spaniards	2,067	5.44	2.76	139.01	.001
		Latin Americans	984	6.73	2.93		
	Positive Att.	Native Spaniards	2,067	22.03	3.68	120.60	.001
		Latin Americans	984	20.47	3.65		
	Self-efficacy	Native Spaniards	2,067	21.83	8.37	0.95	.32
		Latin Americans	984	22.16	9.06		
	Knowledge	Native Spaniards	2,067	15.30	3.20	51.41	.001
		Latin Americans	984	14.34	3.88		
	Misconceptions	Native Spaniards	2,067	2.00	2.21	64.12	.001
		Latin Americans	984	2.75	2.81		
	Susceptibility	Native Spaniards	2,067	3.92	1.06	5.47	.01
		Latin Americans	984	3.82	1.20		

should be understood as a single concept within the category of "perceived threat" (Crosby et al., 2001) or there should be specific concepts referring separately to worry about STI and worry about HIV, both within the broader construct of "perception of risk" (Ellen et al., 2002, Poppen & Reisen, 1997; Reisen & Poppen, 1999). In the present study, the variables that correlated with both constructs were similar; the only exceptions were HIV knowledge, which was related to worry about STI, and positive attitudes towards condom use, which was related to worry about HIV, showing that there was not much difference between them.

Another subject for discussion in this field of study is related to the predictive capacity of worry and perceived risk. Many authors argue that worry and motivation of adolescents regarding STI/HIV are basic for the adoption of protective behaviors (Crosby et al., 2001; Crosby et al., 2008). Yet, others claim that the results of studies on the subject are not very conclusive (Poppen & Reisen, 1997)

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and that, although adolescents are better informed than ever before, they still adopt risky sexual behaviors (Sales et al., 2009; Vizeu Camargo & Bousfield, 2009). Gutiérrez-Martínez et al. (2007) manifest that adolescence is a difficult period of life characterized by a tendency to experience new and diverse situations, which may increase the risk. Therefore, it must be taken into account that ideas and behaviors of adolescents are highly variable.

To conclude, worry should be the dealt with in future studies considering other variables, particularly those related to sexual behavior. Indeed, it has been proven that having contracted a sexual transmitted infection (Crosby et al., 2001; DiClemente et al., 2004; Sales et al., 2009) and especially certain types of partner in the last sexual contacts (Lameiras et al., 2002; Reisen & Poppen, 1999) increase worry about STI/HIV.

The sociodemographic variables analyzed in this study provide valuable information to understand risky sexual behaviors of adolescents. Results concerning gender agree with those of previous studies, which reported greater HIV-perceived vulnerability among heterosexual females (Crosby et al., 2000; DiClemente et al., 2004; Muñoz-Silva, Sánchez-García, Martins, & Nunes, 2009). Although females adopt more protective sexual behaviors than males, such as more favorable attitudes towards condom use (Maxwell, Bastani, & Warda, 2002; Vanoss Marín, 2003), higher condom use self-efficacy (Villarruel, Jemmott, Jemmott, & Ronis, 2007), and a greater HIV-perceived susceptibility (Gómez & Marín, 1996), they have less knowledge about the infection and its transmission routes than males, particularly in the case of African American (Crosby et al., 2000; DiClemente et al., 2004; Sales et al., 2009) and Latin American females (Gómez & Marín, 1996). Moreover, since males are more prone to adopting risky sexual behaviors, heterosexual females are more vulnerable (Crosby et al., 2001; DiClemente et al., 2004; Gómez & Marín, 1996). Age also plays an important role in the adoption of risky sexual behaviors. Results of the present study show that older adolescents have higher HIV-knowledge and HIV-perceived susceptibility, as reported by other similar studies (Bachanas et al., 2002), although they present lower condom use self-efficacy than younger ones. This opens a new field of research, given that no other studies have found similar results, and reveals the need to take into account age differences between adolescents when assessing their sexual behavior.

The most important sociodemographic variable in this study was origin, due to the high rates of HIV infection of immigrant populations in more developed countries (Centro Nacional de Epidemiología & Ministerio de Sanidad y Política Social, 2009; Centers for Disease Control and Prevention [CDC], 2002). Moreover, many authors consider that it is necessary to study sexual behavior with multicultural samples to explore race/ethnicity-based differences (Bermúdez, Castro, Gude, & Buela-Casal, 2010; Carrera-Fernández, Lameiras-Fernández, Foltz, Núñez-Mangana, & Rodríguez-Castro, 2007; Crosby et al., 2001; DiClemente et al., 2004; Pantin et al., 2005; Prado et al., 2006; Sales et al., 2009). Results obtained in this study depending on the origin of participants agree with those of similar studies, which showed that Latin American immigrants are at greater risk of HIV infection than native citizens because, among other reasons, they have a lower HIV-knowledge (Guilamo-Ramos et al., 2009; Lesser, Koniak-Griffin, Huang, Takayanagi, & Cumberland, 2009; Peragallo, DeForge, Khoury, Rivero, & Talashek, 2002; Prado et al., 2006), more negative attitudes towards condom use and a lower condom use self-efficacy (CDC, 2002; Conde, 2007; Pantin et al., 2005; Prado et al., 2006) and HIV susceptibility (Pantin, Schwartz, Sullivan, Prado, & Szapocznik, 2004; Prado et al., 2006). In any case, as stated by Castro et al. (2009), several sociodemographic, psychosocial, community, and cultural variables imply greater HIV-perceived vulnerability among Latin American adolescents; such variables should be understood and included in future intervention programs that respond to the cultural and gender differences that exist in society.

Several limitations of the present study must be considered. First, the procedure to select participants is based on an incidental sampling and it makes difficult to generalize findings. For this reason, there is a need of developing similar studies with representative and random samples. Second, this is a cross-sectional study and causal inferences can not be made. Thus, longitudinal studies are necessary to assess the development of perceptions and beliefs of adolescents. Moreover, all participants in the present study were attending at school settings and it would be important to assess in future studies those adolescents who do not attend at schools. Other relevant aspect to consider in future researchers is to take into account cultural differences of adolescents who come to live to Spain and are from other countries and regions of the world, such as Latin America.

In spite of these limitations, the present study is of a great importance since it is providing information about differences in native Spanish adolescents and Latin American adolescents. Such differences can be the result of cultural and social differences between Spanish and Latin American adolescents. Frequently, Latin American adolescents live in a poorer life conditions and lower educational status than their native Spanish counterparts (specifically, 13% of Latin American participants in this study did not attend at schools compared to 1.4% of the native Spanish participants) and they have a higher social discrimination. All of them are factors that are related to a high risk of STI/HIV infections and, therefore, they are important aspects to be considered in the implementation of new prevention programs. Although immigrant adolescent population has a higher vulnerability to STI/HIV infections, the findings of the present study as well as others that have been reported by health organizations show that native Spanish adolescents also engage in high risk behaviors. Thus, it is important no to forget this group and not to stigmatize immigrant adolescents since all adolescents are at risk population.

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