Explanatory Psychological Factors of Inconsistently Condom Use among Spanish University Students: Gender Differences

Abstract
More than 50% of Spanish youth does not use of condoms correctly and consistently. University students are a particular population at high risk of the HIV infection, other STIs and unwanted pregnancies. The influence of psychological variables in using of condom is analyzed by gender and type of sexual relationship. A total of 256 females and 168 males were assessed (\(M_{age}=20.62; SD = 2.16\)). A regression logistic analysis showed that sexual sensation seeking appears as an explanatory variable of inconsistently condom use in both females and males in vaginal intercourse, steady relationship intercourse and sex under the alcohol and other drugs effects (adjusted odds ratio between 1.095 and 1.124). Moreover, self-esteem appears as a risk factor and extraversion as a protective factor of use of condom in females. On the other hand, neuroticism reveals itself as a protective factor and fear of negative evaluation as a risk factor of use of condom in males. It is necessary to know the psychological mechanisms that underlie sexual risk behaviors for adapting interventions to individual and contextual characteristics.

Keywords: condom use; gender differences; sexual health promotion; type of relationships; youth

Data from the latest epidemiological surveillance reports show that Spanish youth are a priority group for the design and implementation of sexual health promotion strategies. In 2017, 3,381 new HIV diagnoses were notified, which represents an approximate rate of 7.26 per 100,000 population. The new HIV infections were mainly by sexual transmission (82.5%), in men (63.9%) and in people under 35 years old (47.3%). Among women, heterosexual transmission constitutes the majority of new diagnoses (85.0%) (Área de Vigilancia de VIH y Comportamientos de Riesgo, 2018). In the same year, a rate of 18.74 cases per 100,000 population of gonococcal infection, of 10.61 cases per 100,000 population of syphilis and of 7.6 cases per 100,000 population of Chlamydia trachomatis were reported. This sexually transmitted infections (STIs) were observed predominantly in men, except the Chlamydia trachomatis, and in people between 25 and 34 years old (Unidad de Vigilancia del VIH y Conductas de Riesgo, 2019). Finally, a total of 94,123 women made voluntary interruptions of pregnancy (VIP) during the same time period, mainly in people between 25 and 29 years.
old (Ministerio de Sanidad, Consumo y Bienestar Social, 2017). Spain appears in the highest positions in number of abortions (World Health Organization, 2019) and in syphilis cases (European Centre for Disease Prevention and Control, 2019c) reported in the EU/EEA countries. Moreover, it rank the ninth in gonorrhea cases (European Centre for Disease Prevention and Control, 2019b), the eleventh in Chlamydia infection cases (European Centre for Disease Prevention and Control, 2019a) and twelfth in new HIV diagnosis (European Centre for Disease Prevention and Control, 2018).

Although young university students have relatively good information related to sexual health, this population continue to be exposed to the risks involved in unsafe sexual behaviors (Bellis et al., 2008; Sánchez-Ojeda & De Luna-Bertos, 2015; Ssewanyana et al., 2015). For example, Luengo-Arjona et al. (2007) found that only 3 out of 10 Spanish university students reported to use the condom in all their sexual intercourses. Moreover, more than 50% of young people of the different autonomous communities of Spain do not use the condom consistently in their sexual intercourses and less frequently with romantic relationships or under the influence of alcohol and other drugs (Ballester et al., 2009; Lameiras Fernández et al., 2008; Muñoz-Silva et al., 2009; Rojas-Murcia et al., 2015; Velo-Higuera et al., 2019). Due to the condom is the only preventive measure that, correctly and consistently used, prevents HIV infection, other STIs and unwanted pregnancies, it could be said that Spanish university students are a particular population at high risk.

Previous studies among Spanish university students have showed the influence of gender (Castro, 2016) and of other specific cognitive-social factors of the behavioral change theories as determinants of condom use in heterosexual relationships such as the HIV self-efficacy (Ballester-Arnal et al., 2013), attitudes towards condoms (Prat et al., 2016) or beliefs related vulnerability to AIDS (Rojas-Murcia et al., 2015). On the other hand, the association between condom use and different psychological factors in other countries have been well-documented in the scientific literature (Davis et al., 2014; MacDonald et al., 2016; Rodrigues et al., 2019).

But the influence of predisposing factors as explanatory variables of condom use have been poor studied in Spain (Ballester-Arnal et al., 2017). Thus, the aim of the current study expands the previous understanding of condom use by examining the psychological factors influence by type of sexual practice and gender among sexual active university students.

Method

Participants

A total of 467 Spanish young people were assessed, a 91.2% of them self-identified as heterosexuals and 8.8% as lesbian, gay or bisexual. The exclusion criteria was self-identification as a non-heterosexual because the LGTB group was not sufficiently represented to performed differential analysis. The sample of the study was composed by 256 females and 168 males heterosexual Spanish young people were assessed (M = 20.62; SD = 2.16). All of them were studying at the university in different fields of study (Health Sciences: 20%; Humanities and Social Sciences: 35.8%; Legal and Economics Sciences: 25%; and Technology and Experimental Sciences: 19.2%) and lived in urban areas. Most of them self-identified as atheist or agnostic (47.8%) and practicing Catholic (43.7%).

Instruments

The following instruments were administered to all participants:

AIDS Prevention Questionnaire (Cuestionario de Prevención del Sida or CPS) (Gil-Llario et al., 2019). A 44-item questionnaire that assesses HIV/AIDS prevention as a multidimensional perspective. Some items
of the Safe Sexual Behavior (SAS-B) factor were selected for the aim of this study. This factor is composed to a series of self-reported statements about frequency of condom use in different sexual practices (vaginal intercourse), types of partner (steady and occasional intercourse) and risk scenarios (sex under the alcohol and other drugs effects). The factor used has an internal consistency of .67.

_Neo Personality Inventory Revised (NEO-PI-R)_ (Spanish adaptation by Cordero et al., 2008). A 240-item questionnaire that assesses the Big Five personality traits: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A) and Conscientiousness (C). The domains of the version used has an internal consistency ranged from .83 to .92.

_Rosenberg Self-Esteem Scale (RSE)_ (Spanish adaptation by Martín-Albo et al., 2007). A 10-item self-report that evaluates the individual self-esteem. The items can be answered on a scale from _strongly agree_ to _strongly disagree_. The total score ranging from 0 to 30 points. The version used has an internal consistency of .88.

_Beck Depression Inventory II (BDI–II)_ (Spanish adaptation by Sanz et al., 2003). A 21-item that assesses clinical symptoms of the depression. Most of items can be answered on a four-point scale and the item 16 y 18 on a seven-point scale. The total score ranging from 0 to 63 points and 14 points meaning mild depression. The version used has an internal consistency of .89.

_Penn State Worry Questionnaire (PSWQ)_ (Experimental version by Castañeiras Gebrikian, 2001). A 16-item scale of trait anxiety adapted to assesses the general tendency to experience worry about health. The items can be answered on a scale from "not at all typical of me" to "very typical of me". The total score ranging from 16 to 80 points. The version used has an internal consistency of .90.

_Brief Fear of Negative Evaluation Scale (BFNE)_ (Spanish adaptation by Gallego et al., 2010). A 12-item that measure the degree to which a person fears being negatively evaluated by others. The items can be answered on a scale from _not at all characteristic of me_ to _extremely characteristic of me_. The total score ranging from 12 to 60 points. The version used has an internal consistency of .90.

_Sexual Sensation Seeking Scale (SSSS)_ (Spanish adaptation by Ballester-Arnal et al., 2018). An 11-item that assesses the personality disposition to seek novel sensation on sexual context. The answers range from 1 _not at all like me_ to 4 _very much like me_. The total score ranging from 11 to 44 points. The version used has an internal consistency of .82.

_Sexual Compulsivity Scale (SCS)_ (Spanish adaptation by Ballester-Arnal et al., 2013). A 10-item that assesses the personality disposition to sexual disinhibition and impulses. The answers range from _not at all like me_ to _very much like me_. The total score ranging from 10 to 40 points. The version used has an internal consistency of .83.

_Health Locus of Control Scale (HLC)_ (Wallston et al., 1976). An 11-item that measures individual's beliefs about perceived control about health. The answers range from _strongly disagree_ to _strongly agree_. The total score ranging from 0 to 55 points, higher scores are indicative of a tendency of internal health locus of control. The version used has an internal consistency ranged from .67 to .76.

**Procedure**

It is an explanatory transversal design in which how predisposing traits influence on condom use was analyzed. Participants were recruited in university campuses of Valencian region in the awareness-raising activities in AIDS Day. Youth interested in participating in the study were provided more information via e-mail or phone. Participants filled the questionnaires in pencil-and-paper, individually, in the university labs and supervised by the group members. The written consent of all participants was obtained. The procedure followed the ethical principles of APA and Helsinki Declaration and was approved by the Institutional Ethics
Committee of the Universitat Jaume I.

Analysis of Data

Frequency analysis were performed to examine the prevalence of use of condom. Moreover, chi-squared test was used to evaluate whether there was a significant difference between frequencies of use of condom according to gender. Then, logistic regression was carried out to explain the relationship between a nominal dependent variable (use or non-use of condom) and the independent variables (predisposing factors) separately in females and males.

Results

Description of Condom Use Frequencies and Analysis of Gender Differences

A higher percentage of males than females do not use the condom consistently in all sexual situations evaluated. The percentage of non-use of condoms is higher when it is a steady relationship intercourse and lower when it is an occasional relationship intercourse, both in males and females. None of these differences according to gender was statistically significant (see Table 1).

|                             | % Males | % Females | df | $\chi^2$ | p    |
|-----------------------------|---------|-----------|----|----------|------|
| Vaginal sex                 |         |           | 1  | 0.083    | .832 |
| Non-use consistently        | 61.5%   | 60.1%     |    |          |      |
| Use consistently            | 38.5%   | 39.9%     |    |          |      |
| Steady relationship intercourse |       |           | 1  | 1.212    | .310 |
| Non-use consistently        | 71.3%   | 65.9%     |    |          |      |
| Use consistently            | 28.7%   | 34.1%     |    |          |      |
| Occasional relationship intercourse |       |           | 1  | 1.065    | .338 |
| Non-use consistently        | 40.3%   | 34.5%     |    |          |      |
| Use consistently            | 59.7%   | 65.5%     |    |          |      |
| Sex under the alcohol and other drugs effects |       |           | 1  | 2.231    | .146 |
| Non-use consistently        | 59.6%   | 51.3%     |    |          |      |
| Use consistently            | 40.4%   | 48.7%     |    |          |      |

Explanatory Factors of Condom Use by Gender

A regression logistic analysis for each sexual situation was performed in females (see Table 2) and males (see
Table 2. Multiple Regression Logistic Analysis of the Condom Use in Females

|                                      | β   | SE  | Wald | df | p    | OR   | 95% CI          | adj.R² |
|--------------------------------------|-----|-----|------|----|------|------|-----------------|--------|
| Condom use in vaginal sex            |     |     |      |    |      |      |                 | .077   |
| Sexual sensation seeking             | .094| .027| 11.967| 1  | .001 | 1.098| [1.041, 1.158]  |        |
|                                      |     |     |      |    |      |      |                 |        |
| Condom use in steady relationship intercourse |    |     |      |    |      |      |                 | .131   |
| Sexual sensation seeking             | .114| .030| 14.499| 1  | ≤ .001| 1.121| [1.057, 1.189]  |        |
| Self-esteem                          | .073| .037| 3.851| 1  | .050 | 1.076| [1.000, 1.157]  |        |
|                                      |     |     |      |    |      |      |                 |        |
| Condom use in sex under the alcohol and other drugs effects |    |     |      |    |      |      |                 | .081   |
| Sexual sensation seeking             | .091| .031| 8.823| 1  | .003 | 1.095| [1.031, 1.163]  |        |
| Extraversion                         | −   | .016| 3.885| 1  | .049 | .970 | [.940, 1.000]   |        |

Table 3. Multiple Regression Logistic Analysis of the Condom Use in Males

|                                      | β   | SE  | Wald | df | p    | OR   | 95% CI        | adj.R² |
|--------------------------------------|-----|-----|------|----|------|------|--------------|--------|
| Condom use in vaginal sex            |     |     |      |    |      |      |              | .082   |
|                          | β   | SE  | Wald | df  | p    | OR   | 95% CI          | adj.R² |
|--------------------------|-----|-----|------|-----|------|------|-----------------|-------|
| Sexual sensation seeking | .102| .035| 8.571| 1   | .003 | 1.108| [1.034, 1.186] |       |
| Condom use in steady relationship intercourse |  | | | | | | | .120 |
| Sexual sensation seeking | .117| .040| 8.408| 1   | .004 | 1.124| [1.039, 1.217] |       |
| Neuroticism              | – .046| .019| 5.599| 1   | .018 | .955 | [.920, .992]   |       |
| Condom use in occasional relationship intercourse |  | | | | | | | .087 |
| Fear of negative evaluation | .058| .024| 6.049| 1   | .014 | 1.060| [1.012, 1.110] |       |
| Condom use in sex under the alcohol and other drugs effects |  | | | | | | | .081 |
| Sexual sensation seeking | .098| .036| 7.406| 1   | .006 | 1.103| [1.028, 1.184] |       |

**Discussion**

Already in the Spanish Survey of Health and Sexual Habits of the year 2003, about 40% of Spanish young people between 18 and 29 years old did not always use condoms in their sexual relations during the last year (Instituto Nacional de Estadística, 2003). More than 15 years later, between 40% and 70% of university students evaluated in this study are at risk of unwanted pregnancies, HIV infection or other STIs. These data are confirmed in the bibliographic review carried out by Sánchez-Ojeda and Luna-Bertos in 2015 with a Spanish university population. These percentages are similar to those found in previous studies carried out with Spanish university students of the Valencian Community (Ballester et al., 2009), Catalonia (Prat et al., 2016), Madrid (Rojas-Murcia et al., 2015), Andalusia and Galicia (Lameiras Fernández et al., 2008).

The inconsistent use of condoms is greater in steady relationships, as is showed by Rojas-Murcia et al. (2015) in Spain or Ssewanyana et al. (2015) in other European countries. Generally, steady relationships have implicit a series of characteristics (affective commitment, security, trust, intimacy, etc.) that negatively influence the use of condoms, despite the fact that in many cases young people do not know the health status of their sexual partner, a phenomenon called by some authors as non-protective monogamy. On the other hand, young university students use lesser the condom under the effects of substances, as observed by Ballester et al. (2009) or Castro (2016) in Spain and Bellis et al. (2008) in rest of Europe. More than half of unsafe sexual practices happen under the influence of alcohol. These substances increase sexual relations because of their effect on disinhibition, and affect the use of condoms because of their effect on cognitive functions such as decision making, judgment and reasoning.

Information and formation about risk prevention is not enough to engage in safe behaviors. Some authors such as Ballester-Arnal et al. (2017), Castro (2016), Davis et al. (2014), MacDonald et al. (2016) and Rodrigues et al. (2019) suggest that individual or contextual differences may be considered factors to improve the effectiveness of preventive strategies. In our study, sexual sensation seeking has been the main
explanatory factor of the inconsistent use of condoms in different sexual contexts. However, it entails a low increase likelihood of engaging in risky sexual behaviors. Perhaps the age of the participants has influenced the results obtained because, as Romer and Hennessy (2007) described, this trait nears a lifetime peak during late adolescence and early adulthood. The association between this trait and risky sexual behaviors has been demonstrated in university students by Gullette and Lyons (2005) or more recently by Gil-Llario et al. (2016). Young university students are driven by sexual stimulation and experience, prioritize the sensual and physical aspects of the sexual encounter, over the cognitive aspects necessary to make a decision to use the condom. Although biological studies have related this trait as characteristic associated to male sex, in our study appears that it plays a fundamental role in explaining sexual behavioral also in females. These results could suggest the importance of socialization in the development of seeking sexual sensations, as Davis et al. (2014) argued.

On the other hand, influence of differential psychological traits have been found according to gender and the sexual situation evaluated, according to studies by Muñoz-Silva et al. (2009) or Vianello et al. (2013).

In young women, self-esteem has appeared as a risk factor in sexual intercourses with a steady partner. This result confirms the "dark side" that Brendgen et al. (2004) observed to self-esteem as a risk mediator of externalizing problems. It is possible that feelings positive emotions towards oneself influences the overestimation of one's social competence to assess risks. In addition, extraversion has appeared as a protective factor in sexual intercourses under the substance use, perhaps because the predisposition to interpersonal and socialization skills could influence the greater sexual assertiveness, for example competence to discuss or negotiate the use of condoms.

In young men, neuroticism has appeared as a protective factor in sexual intercourses with a steady partner. The tendency to experience negative emotions can increase the sensation of vulnerability and, therefore, it is possible that they engage in safe behaviors for preventing negative emotions as Sarno et al. (2017) suggested. However, fear of negative evaluation has appeared as a risk factor in sexual intercourse under substance use. In this sense, substances may be used as a mechanism of emotional self-regulation, the effects of which interfere with condom use skills as it appeared in the study by Hart and Heimberg (2005).

This study has some limitations such as sample size, which could be enlarged, o the inclusion of young people with sexual orientations non-heterosexual. On the other hand, the use of a self-report with response alternatives as a method of collecting the information of the criterion variable, does not allow to examine in depth the complexity of the condom use behavior, use qualitative tools such as interviews or focus group would be complementary. Finally, the methodological decision to dichotomize the groups has been able to influence the results. In this study, a strict criterion of risk of infection has been taken. Therefore, only the consistent use of condoms ensures HIV prevention. However, it would be interesting to analyze what psychological factors would appear involved in the different frequencies of condom use and if there are contextual factors associated.

The results show that having higher education or belonging to an educational segment of population with great opportunities to acquire knowledge does not protect against risky sexual behaviors. University students are a majority group between young people in Spain and nowadays they are still a group at risk. The university, therefore, can be an optimal environment to provide education for sexual health from a transversal focus. However, it is necessary to know the psychological mechanisms that underlie sexual risk behaviors for adapting interventions to individual and contextual characteristics. For this reason, preventive measures have to incorporate the gender perspective and the diversity of types of sexual relationships that young people maintain.
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