

■ Personality profiles of sexual risk among Spanish adolescents

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Abstract

Associations between personality traits and sexual risk-taking behaviors have been widely studied in the general population and in university students; however, much less is known about this association in adolescents. A better understanding of the relationship between sexual risk and facets of personality during adolescence is needed to improve sexual education in this population. This study explores the relationship between facets of personality and sexual risk outcomes – knowledge, attitudes, intention, and condom use – in a sample of adolescents by gender. Students ($N = 1,458$) aged 14-16 years were recruited from five areas of Spain to participate in the study. Multiple linear regressions were computed using SPSS Statistics v22. Results highlighted the weak but significant link between sexual risk and personality facets. Adolescents with higher scores on extraversion, conscientiousness, and agreeableness, but lower scores on emotional stability were more likely to engage in sexual risk behaviors and, consequently, they were more likely to inherit STIs and unplanned pregnancies. In boys, higher sexual risk was associated with greater scores on gregariousness, sociability, warmth, openness, and perfectionism, but lower scores on the confidence characteristic. In girls, higher sexual risk was associated with greater scores on agreeableness and sensitivity, and lower scores on calmness. Personality profiles of sexual risk in adolescents differed by gender, which highlights the importance of gender when tailoring sexual health promotion interventions.

Keywords: personality, consistent condom use, sexual health, sexually transmitted infections, unplanned pregnancies, adolescents.

Resumen

Perfiles de personalidad asociados al riesgo sexual en adolescentes españoles. La relación entre los rasgos de personalidad y el riesgo sexual ha sido ampliamente estudiada en la población general y universitaria; sin embargo, se sabe mucho menos sobre esta relación en población adolescente. Es necesaria una mejor comprensión de la relación entre el riesgo sexual y la personalidad durante la adolescencia para mejorar la salud sexual en esta población. Este estudio explora la relación entre facetas de la personalidad y variables relacionadas con el riesgo sexual – como el conocimiento, las actitudes, la intención y el uso del condón – en una muestra de adolescentes, atendiendo a las diferencias de género. Estudiantes ($N = 1.458$) con edades de 14-16 años fueron reclutados de cinco zonas de España para participar en el estudio. Se calcularon regresiones lineales múltiples usando SPSS v22. Los resultados indicaron que existe una relación débil pero significativa entre variables relacionadas con el riesgo sexual y la personalidad. Los adolescentes con mayores puntuaciones en facetas de extraversión, escrupulosidad y amabilidad, pero con menores puntuaciones en estabilidad emocional eran más propensos a involucrarse en comportamientos sexuales de riesgo y, en consecuencia, eran más propensos a tener infecciones de transmisión sexual y embarazos no planificados. En los chicos, tener mayor riesgo sexual se asoció con mayores puntuaciones en gregarismo, sociabilidad, calidez, apertura y perfeccionismo, y menores puntuaciones en confianza. En las chicas, mayor riesgo sexual se asoció con mayores puntuaciones en amabilidad y sensibilidad, y menores puntuaciones en calma. Los perfiles de personalidad de riesgo sexual en los adolescentes difieren por género, lo que pone de relieve la importancia del género a la hora de adaptar las intervenciones de promoción de la salud sexual.

Palabras clave: personalidad, uso consistente del preservativo, salud sexual, infecciones sexuales, embarazos no planificados, adolescentes.

In Spain, the rate of new HIV cases is higher than the average for the European Union and countries of Western Europe (Area Surveillance and HIV Risk Behaviors, 2015). One of the groups affected most by the epidemic are individuals younger than 29, who, in 2014

accounted for 35% of the HIV incidence in Spain (Area Surveillance and HIV Risk Behaviors, 2014). It is estimated that many cases of HIV diagnoses in adulthood became infected during adolescence or young adulthood. Unprotected sex (sex without condom) is the main mode

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for sexually transmitted infections (STIs) and unwanted pregnancies in Spain. The rate of abortions per 1,000 adolescents under 19 years rose from 3.42 in 1991 to 12.23 in 2013 (Spanish Ministry of Health, Social Services and Equality, 2015). The vulnerability of adolescents to STIs and unplanned pregnancies has led to numerous efforts to identify variables involved in sexual risk behaviors in order to design preventive interventions more accurately.

Personality on sexual risk taking

Personality characteristics have received special attention due to their association with sexual risk behaviors, STIs, and unwanted pregnancies (Berg, Rotkirch, Väisänen, & Jokela, 2013), especially in the general population and university students. Personality traits, such as sexual sensation seeking and impulsivity, can affect decision-making and increase sexual risk-taking for HIV (Charnigo et al., 2013; Hoyle, Fejfar, & Miller, 2000; Pinkerton & Abramson, 1995). The Big Five Model (Costa & McCrae, 1992a) is the theoretical approach used most to explain sexual risk behaviors (Hoyle et al., 2000). This model comprises five first-order factors: extraversion (energetic vs. reserved), neuroticism (nervous vs. confident), agreeableness (friendly vs. hostile), responsibility (well organized vs. impulsive), and openness to experience (imaginative vs. concrete). These factors have been consistently found in different groups, languages, genders, and races (Eysenck, 1992). The Big Five model defends a two-level hierarchy approach, in which these five domains at the top subsume more specific second-level traits named “facets” (DeYoung, Quilty, & Peterson, 2007). Based on Costa and McCrae (1992a, b), extraversion includes facets related to qualities such as gregariousness, assertiveness, and excitement seeking. While high extraversion is often perceived as attention seeking and energy, low extraversion indicates a reflective and solitary personality. The agreeableness factor includes facets such as trust and compliance. High agreeableness is associated with submissive, cooperative, and tender-minded people, while low agreeableness is associated with competitive and untrustworthy people. Neuroticism comprises emotional stability, impulsiveness, and anxiety. High neuroticism is often associated with being insecure and unstable, and more likely to suffer anxiety regarding sexual contacts (Hoyle et al., 2000). Responsibility (conscientiousness) is associated to perfectionism and obedience (Pérez, Cupani, & Beltramino, 2004). High responsibility is often perceived as following norms and rules, and self-discipline, while low responsibility as flexible and spontaneous, but unreliable. Openness to experience – also named “Culture” by Pérez et al. (2004) and “Intellect” by Goldberg (1981) – includes complexity and imagination. High scores of openness to experience are often associated with being independently minded and imaginative, while low scores of openness to experience is perceived as closed-minded. More specific information on first- and second-order factors can be found in classical and baseline studies (Digman, 1990; Goldberg, 1999; Pérez et al., 2004).

Sexual risk has been associated with high levels of extraversion, low levels of agreeableness and low conscientiousness among college students (Ingledew & Ferguson, 2007; Kahn, Kaplowitz, Goodman, & Emans, 2002; Turchik, Garske, Probst, & Irvin, 2010; Zuckerman & Kuhlman, 2000) and adults (Schmitt, 2004). However, little research has been conducted on the relationship between personality and sexual risk in Spanish adolescents (Atkins, 2008), even though adolescence is the period in which young people have their first sexual experiences. In a longitudinal study examining personality and a variety of sexual behaviors in a community sample of middle schoolers followed from 6th grade, Miller and colleagues (2004) found a relationship between a low level of agreeableness, high extraversion, and an increased likelihood

of engaging in multiple risky sexual behaviors such as a high number of sexual partners, sex under the influence of drugs, unprotected sex, unwanted pregnancies, and early sexual debut. Recently, Ruiz, Ballster and Gil (2015) identified the personality variables that facilitate or hinder condom use in a sample of 408 young heterosexual people from Spain (*Mean age* = 20.71; *SD* = 2.16). The authors concluded that the tendency to behave in a cooperative, peace-making, and indulgent manner influences HIV prevention. It is worth noting that *compliance* (agreeableness) explained about 14% of the variance in condom use in Spanish people older than 18 years old.

Globally, there is some consensus on the influence of first-order factors in sexual behaviors; however, less attention has been paid to the relationship between facets or domains of first-order factors and sexual risk. A better understanding of second order facets might be an interesting and important approach in learning about personality and sexual risk (DeYoung et al., 2007). The influence of personality characteristics on condom use, number of sexual partners, and sexual promiscuity is extensively known (Berg et al., 2013; Hoyle et al., 2000; Trobst, Herbst, Masters, & Costa Jr, 2002; Turchik et al., 2010). However, there is little evidence about the predictive value of personality on consistent condom use and its theoretical precursors – knowledge about HIV and STIs, attitudes towards aspects related to HIV/AIDS, and condom use intention –, which are the outcomes commonly used to evaluate school-based sexual health promotion interventions. Although some studies explored gender differences in the relationship between first-order personality traits and sexual risk, there is not much consensus on this issue. For example, although Turchik and colleagues (2010) found that higher extraversion and lower agreeableness were related with sexual risk taking in men, this was not consistently found in previous studies (e.g., Hoyle et al., 2000; Miller et al., 2004). More recently, Berg et al. (2013) concluded that men with high extraversion and high emotional stability were more likely to have planned pregnancies (lesser sexual risk). The inconsistency in the results highlights the need to explore deeper how personality profiles of sexual risk propensity differ by gender. In Spain, the recent study conducted by Ruiz and colleagues (2015) filled a considerable part of the gap on the influence of personality traits on sexual risk in young people; however, more research needs to be done on specific facets of first-order factors of personality using larger samples and identifying whether gender is a relevant variable or not. As far as we know, there is no data in Spain on the link between specific facet scales of the major personality factors and sexual risk variables during adolescence (under 18 years old), regardless of sexual orientation.

The present study

This study explores the links between 10 facet scales of the major personality factors (extraversion, neuroticism, agreeableness, and responsibility) and precursors of condom use (knowledge about HIV/STIs, attitudes towards aspects related to HIV, intention to engage in safe sex), and consistent condom use in adolescents. Results are presented separately by sex, following previous studies (Berg et al., 2013; Turchik et al., 2010). Based on previous research, we hypothesize that knowledge about HIV and other STIs, the attitude towards aspects related to HIV/AIDS, the intention to engage in safe sex, and consistent condom use will be significantly related negatively to facets of scales of extraversion (regariousness, agreeableness, openness, and sociability) and neuroticism (emotional stability, confidence, and calm) while significantly related positively to facets of agreeableness (warmth and sensibility) and responsibility (perfectionism). A recent cohort study with more than 2,000 Spanish adolescents concluded that males tend to engage in more sexual risk behaviors and present less favorable atti-

tudes towards condom use than females (Espada, Escribano, Orgilés, Morales, & Guillén-Riquelme, 2015). Based on this result and the link between first-order factors and sexual risk (Berg et al., 2013; Turchik et al., 2010), we hypothesize that males – compared to females – will score higher on the facets of personality related to sexual risk and unprotected sex. This study will contribute to a better understanding of the role of personality on sexual risk among Spanish adolescents.

Method

Participants and Procedure

The procedures in this study were approved by the Research Ethics Committee at the Miguel Hernández University of Elche, Spain. Participants were 1,458 student adolescents from 18 urban area schools located in the north, south, east, and southeast of Spain. Comprising the sample were 738 males (50.6%) and 720 females (49.4%) whose average age was 14.91 ($SD = .80$; range: 14–16). This study is part of a more extended project, in which eighteen public participating schools were randomly selected and stratified by region (north, south, east, and southeast) in Spain. Permission was requested from the high school administrators and the participants' parents. Informed consent was obtained from all individual participants included in the study. Students from 9th and 10th grades, whose parents provided informed consent (97%), were evaluated in their classrooms in groups of 20 students between January and March 2012. Confidential self-report data was collected through the Google Forms online survey platform. The evaluation lasted 1 hour and teachers were not present in the classroom. The responses were anonymous to reduce social desirability.

Assessment Instruments

Socio-demographic variables

Information was collected about the participants' sex, age, school year, parents' marital status, and family socioeconomic level. The socioeconomic status of the participants was measured using the Scale of Family Wealth (Boyce, Torsheim, Currie, & Zambon, 2006).

Personality characteristics

The International Personality Item Pool (IPIP; Goldberg, 1999) was specifically designed to assess facets of the Big Five Model. The Spanish adaptation of the 16PF-IPIP Personality inventory by Goldberg (1999) was applied (Pérez et al., 2004) to assess the following personality facets: warmth, emotional stability, gregariousness, agreeableness, sensitivity, trust, openness, sociability, perfectionism, and calmness. These personality characteristics are facets of the following factors of the Big Five Theory: extraversion, agreeableness, responsibility/conscientiousness, and emotional stability. One hundred items were administered (10 for each scale) with a 5 point Likert-type scale, from 1 (*Strongly disagree*) to 5 (*Strongly agree*); higher scores on each trait indicate a higher level on the corresponding characteristic. What follows is an example item from each subscale: "I like to bring people together" (warmth); "I often have mood swings" (emotional stability); "I rarely tell jokes" (gregariousness); "I make friends easily" (agreeableness); "I cry watching movies" (sensitivity); "I trust what people say" (trust); "I hide my feelings" (openness); "I enjoy working in groups" (sociability); "I am very precise with my work" (perfectionism); and "I get angry easily" (calmness). Except for the warmth scale ($\alpha = .63$), the rest showed good reliability (between .72 and .85). Compared to other widely used instruments for assessing personality,

the IPIP is a free and open access instrument. This advantage has contributed to its translation into more than 25 languages, and numerous studies support its psychometric properties (Goldberg et al., 2006). The IPIP is composed of numerous constructs measured by one or more scales that allow researchers to select areas that are of interest to meet their objectives (Ashton, 2005; Johnson, 2005).

Knowledge about HIV and other STI

The Knowledge about HIV and other STIs Scale was used to assess knowledge about STIs (In Spanish: *Escala de conocimiento sobre el VIH y otras infecciones de transmisión sexual*; ECI; Espada, Guillén-Riquelme, Morales, Orgilés, & Sierra, 2014). It consists of 24 response items (*True, False, I do not know*) divided into five subscales: a) knowledge about HIV transmission; b) knowledge about other STIs (non-HIV); c) general knowledge about HIV; d) knowledge about condoms; and e) knowledge about HIV and other STI prevention. A sample item is: "The female condom is as effective as the male condom to prevent transmission of the HIV virus." Only correct answers were used to calculate the total score, which ranged from 0 to 24 points, with higher scores indicating greater knowledge on HIV and other STIs. Internal consistency was adequate ($\alpha = .88$).

Attitudes towards aspects related to HIV/AIDS

The Attitudes towards HIV/AIDS Scale was administered (HIV-AS; Espada et al., 2013). This consists of 12 items divided into four subscales: a) attitude towards condom use when there are obstacles; b) attitude towards the HIV test; c) attitude towards condom use; and d) attitude towards people living with HIV/AIDS. A sample item is: "If my partner would want to have sex without a condom, I would try to convince him/her to use one". Each item was rated on a 4-point scale, from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). Total scores range from 12 to 48, with higher scores indicating more favorable attitudes towards HIV-related aspects such as condom use. Reliability was acceptable ($\alpha = .79$).

Intention to engage in safe sex

Intention to engage in safer sex behaviors over the next 12 months was evaluated on a 5-point scale, from 1 (*Definitely not*) to 5 (*Definitely*). It was comprised of two subscales: (1) the intention to acquire, use, and negotiate condom use with a sexual partner ($\alpha = .80$), and (2) the intention to use condoms when under the influence of alcohol and other drugs ($\alpha = .75$). A sample item is: "I will use a condom during the upcoming 12 months if I have a sexual relationship". The total scores ranged between 5 and 25, with higher scores indicating greater intention to protect themselves from sexual risk behaviors.

Consistent condom use

Participants who reported having had vaginal, oral, or anal sex were asked how often they used condoms in sexual intercourse. The response scale ranged from 0 (*Never*) to 100 (*Always*). Those who answered 100% were codified as consistent condom use, and the rest as inconsistent condom use.

Statistical Analysis

Data was processed using SPSS (IBM SPSS Statistics 22). Following the descriptive analysis of the sample, chi-square and *t*-tests were performed to analyze differences by sex in quantitative and categorical variable, respectively. A total of 3-multiple lineal regressions were conducted to examine the independent association between person-

ality facets (independent variable), one for each variable dependent: HIV and STIs knowledge, HIV attitudes, and intention to engage in safe sex behaviors. Logistic regression was conducted to analyze the independent association between personality characteristics and consistent condom use (dichotomous variable; 1 = *Yes* and 0 = *No*), using the data reported by sexually active adolescents ($n = 508$). The analyses were stratified by sex differences. The effect size of the comparisons was calculated using Cohen's d index (1988) and the Odds Ratio (OR). Assumptions of linearity, independence assumption of the errors, and absence of multicollinearity were met in each of the independent variables included in this study.

Results

Participant's sexual characteristics

Sexual characteristics of the participants are detailed in Table 1.

Table 1. Sexual characteristics and self-reported sexual behaviors of participating students.

Characteristics	Total ($N = 1,458$)
No. (%) Petting (yes)	747 (52)
Average age (SD) for first petting	14.22 (1.46)
No. (%) Mutual masturbation (yes)	479 (33.2)
Average age (SD) for mutual masturbation	14.31 (1.26)
No. (%) Vaginal sex (yes)	
Average age (SD) for vaginal sex	14.57 (1.29)
No. (%) Anal sex (yes)	
Average age (SD) for anal sex	14.81 (1.57)
No. (%) Oral sex (yes)	
Average age (SD) for oral sex	14.81 (1.57)
No. (%) Sexual orientation	
Heterosexual	1370 (95.8)
Bisexual	33 (2.3)
Gay/homosexual	27 (1.9)
No. (%) Method of protection	
Condom	409 (87.8)
Pill	17(3.6)
Female condom	1 (0.2)
Other methods	10 (2.1)
None	29 (6.2)
No. (%) Condom use at the first sex intercourse	
I have not had intercourse	978 (67.1)
I don't remember it	34 (2.3)
I didn't used condom	80 (5.5)
I used condom	352 (24.1)
No. (%) of condom use (0-100)	85 (22)
No. (%) Consistent condom use ^a	89 (13)

SD = Standard Deviation; ^a Consistent condom use means using a condom 100% of the time during every sex act.

Sex differences in personality characteristics, sexual outcomes, and consistent condom use

Sex differences were found in all the personality characteristics, except for the openness, perfectionism, and calm factors (Table 2). Compared to females, males had higher scores on warmth, gregariousness, agreeableness, confidence, and sensitivity. Compared to males, females showed higher scores on emotional stability and sociability. Females showed higher levels of knowledge about HIV and other STIs, more favorable attitudes towards HIV/AIDS, and greater

intention to protect themselves from STIs and unwanted pregnancies compared to males.

Sexual outcomes and personality

Knowledge about HIV and other STIs

In the model for males, gregariousness and sociability – extraversion facets – were negatively associated to the level of knowledge about HIV and other STIs. The model for females indicated that agreeableness (extraversion) and sensitivity (agreeableness) were negatively associated with the level of knowledge about HIV and other STIs; however, calm (neuroticism) was positively related. Both models, for males and females alike, were statistically significant, although the percentage of variance explained was low ($< .10$) in both cases (Table 3).

Attitudes towards aspects related to HIV/AIDS

The model for males showed a significant coefficient for the warmth factor, indicating that males with lower scores in warmth (agreeableness) were more likely to report a more favorable attitude towards HIV/AIDS. However, the model for females indicated that those with lower scores in sensitivity (agreeableness) and/or higher scores in calm (neuroticism) were more likely to show a more favorable attitude towards HIV/AIDS. Models of attitudes towards HIV/AIDS were statistically significant in both sexes, despite the low percentage of variance explained ($< .05$) (Table 3).

Intention to engage in sexual risk behaviors

In the model for males, the regression coefficients indicated that males with lower scores for warmth (agreeableness), openness (extraversion), and perfectionism (responsibility), and higher scores for confidence (neuroticism), were more likely to report intention to protect themselves from risky sexual behaviors. The model for females indicated that a higher score for calm (neuroticism) is a protective factor of intention to engage in risky sexual behaviors. The percentage of variance explained by the model for males ($< .15$) was higher compared to the model for females ($< .10$), despite being reduced in both cases (Table 3).

Consistent condom use

The model calculated for males was the only one statistically significant, although the coefficient of determination was low (Table 4). Binary logistic regression analysis on consistent condom use revealed that males with lower scores for agreeableness (extraversion) and confidence (neuroticism) were more likely to report consistent condom use. The region or school variables were not influencing the results.

Discussion

The aim of this study was to explore the association between personality characteristics and psychosocial outcomes related to condom use – knowledge about HIV and other STIs, attitudes towards HIV/AIDS, intention to engage in safer sex behaviors – and consistent condom use among a sample of Spanish adolescent population. The results showed weak but statistically significant relationships between some personality facets and the precursors of condom use and consistent condom use, and these relationships vary by sex.

Table 2. Descriptive personality characteristics for the total sample and by sex (N = 1,458).

Facets	Total (N = 1458)		Females (n = 720)		Males (n = 738)		Differences by sex	
	M	SD	M	SD	M	SD	t (df)	d
Extraversion								
Gregariousness	23.59	5.69	23.04	5.84	24.14	5.48	3.71 (1456)***	.19
Agreeableness	24.75	5.61	24.20	5.95	25.29	5.19	3.73 (1456)***	.19
Openness	30.69	4.65	30.92	5.09	30.47	4.17	-1.83 (1456)	.09
Sociability	31.62	5.66	32	6.02	31.26	5.27	-2.48 (1456)*	.13
Neuroticism								
Emotional stability	25.94	5.78	26.61	6.14	25.28	5.33	-4.40 (1456)***	.23
Confidence	34.94	5.34	34.48	5.62	35.38	5.01	3.20 (1456)**	.16
Calm	33.69	6.06	34	6.34	33.39	5.77	-1.93 (1456)	.10
Agreeableness								
Sensitivity	28.07	6.01	25.76	5.62	30.31	5.50	15.60 (1456)***	.80
Warmth	23.40	5.42	21.58	5.14	25.18	5.09	13.40 (1456)***	.70
Responsibility								
Perfectionism	27.97	5.80	27.71	6.20	28.22	5.39	1.67 (1456)	.08

The score ranges from 5 (lowest) to 50 (highest), except for Sensitivity (from 5 to 45) and Confidence (from 5 to 55); n = subsample size; M = Mean score; SD = Standard Deviation; t = t-student score; df = Degrees of Freedom; d = Cohen's index; ***p < .001; **p < .01; *p < .05.

Table 3. Multiple regression analysis on knowledge about HIV/AIDS and other STIs, attitudes towards HIV/AIDS, and intention to engage in safe sex behaviors.

	Knowledge HIV/AIDS and other STIs				Attitude towards aspects related to HIV/AIDS				Intention to engage in safe sex behaviors			
	Males		Females		Males		Females		Males		Females	
	β (SE)	t	β (SE)	t	β (SE)	t	β (SE)	t	β (SE)	t	β (SE)	t
Intercept	31.63 (3.61)	8.76***	32.41 (3.17)	10.21***	43.06 (4.43)	9.69***	34 (3.88)	8.75***	22.81 (1.91)	11.91***	23.64 (1.69)	13.93***
Extraversion												
Gregariousness	-.14 (.06)	-2.63**	-.03 (.05)	-.54	.01 (.07)	.11	-.01 (.06)	-.30	.07 (.03)	1.49	.01 (.02)	-.27
Agreeableness	-.07 (.06)	-1.44	-.16 (.05)	-2.71**	.05 (.08)	.97	-.47 (.06)	-.82	.01 (.03)	.37	-.04 (.03)	-.76
Openness	-.01 (.06)	-.25	-.04 (.05)	-.88	-.01 (.07)	-.25	.02 (.06)	.62	-.07 (.03)	-1.98*	.02 (.02)	.55
Sociability	-.09 (.05)	-2.30*	-.07 (.04)	-1.52	.01 (.06)	.06	.06 (.05)	1.41	-.02 (.02)	-.55	-.03 (.02)	-.80
Neuroticism												
Emotional stability	.05 (.05)	1.16	.01 (.04)	.21	-.04 (.06)	-.97	.01 (.05)	.30	-.36 (.02)	-.82	-.07 (.02)	-1.63
Confidence	.06 (.05)	1.30	-.03 (.05)	-.75	.03 (.07)	.71	-.02 (.05)	-4.27	.16 (.03)	3.55***	.01 (.02)	.21
Calm	.03 (.05)	.83	.10 (.04)	2.22*	.01 (.06)	.32	.17 (.05)	3.85***	.06 (.02)	1.55	.13 (.02)	2.84**
Agreeableness												
Sensitivity	-.01 (.04)	-.35	-.09 (.04)	-2.24*	-.03 (.05)	-.87	-.08 (.05)	-2.16*	.03 (.02)	.81	-.04 (.02)	-1.02
Warmth	-.06 (.06)	-1.30	-.02 (.05)	-.43	-.20 (.07)	-4.12***	-.01 (.06)	-.18	-.29 (.03)	-6.37***	-.09 (.02)	-1.98
Responsibility												
Perfectionism	-.05 (.04)	-1.32	-.01 (.03)	-.34	.02 (.05)	.69	.05 (.04)	1.31	-.09 (.02)	-2.71**	-.05 (.01)	-1.40
R ² = .052		R ² = .042		R ² = .031		R ² = .041		R ² = .134		R ² = .056		
F _(10, 709) = 4.97**		F _(10, 691) = 4.06***		F _(10, 727) = 3.36***		F _(10, 709) = 4.11***		F _(10, 713) = 12.20***		F _(10, 699) = 5.21***		

B = Beta; SE = Standard Error; ***p < .001; **p < .01; *p < .05.

Table 4. Multiple regression analysis on consistent condom use.

	Consistent condom use									
	Males (n = 738)					Females (n = 720)				
	β (SE)	Wald	OR	CI		β (SE)	Wald	OR	CI	
				Lower	Upper				Lower	Upper
Intercept	3.56 (1.52)	5.47*	35.29			-1.75 (1.85)	.89	.17		
Extraversion										
Gregariousness	-.04 (.02)	2.32	.95	.90	1.06	-.004 (.03)	.01	.99	.93	1.06
Agreeableness	-.07 (.03)	6.43*	.92	.87	.98	.01 (.03)	.03	1	.94	1.07
Openness	.01 (.02)	.44	1.01	.96	1.07	-.02 (.03)	.61	.97	.92	1.03
Sociability	-.01 (.02)	.31	.98	.94	1.07	.03 (.02)	2.03	1.03	.98	1.09
Neuroticism										
Emotional stability	.01 (.02)	.60	1.01	.97	1.08	-.01 (.02)	.10	.99	.94	1.04
Confidence	-.05 (.02)	4.29*	.94	.89	.98	-.04 (.02)	2.34	.95	.90	1.01
Calm	-.02 (.02)	.97	.97	.93	1.04	.001 (.02)	.003	1	.95	1.05
Agreeableness										
Sensitivity	-.03 (.02)	3.45	.96	.92	1.02	.01 (.02)	.56	1.01	.97	1.06
Warmth	.03 (.02)	1.22	1.03	.97	1.08	-.04 (.03)	1.83	.95	.89	1.02
Responsibility										
Perfectionism	.004 (.01)	.04	1	.96	1.03	.04 (.02)	3.57	1.04	.99	1.08
$R^2_{\text{Nagelkerke}} = .070$					$R^2_{\text{Nagelkerke}} = .037$					

B = Beta; SE = Standard Error; OR = Odds Ratio; CI = Confidence Interval; * $p < .05$.

Adolescents who were bolder entrepreneurs, and oriented toward groups (high extraversion) possessed less correct knowledge about HIV and other STIs. In a study in which 20,619 young people participated, it was found that those who possessed lower levels of knowledge about HIV and other STIs were more likely to receive information related to sexuality from friends and family (Feldman et al., 2011). Transmitting information about STIs through informal resources may facilitate consolidation of myths and false beliefs, resulting in lower knowledge about STIs. Among females, those most sensitive and sentimental (high agreeableness) and those most tense and impatient (low emotional stability) possessed less knowledge about STIs. Our results differed from previous studies – such as Cai, Wang, Cheng, Hong and Shen (2006) – that reported a significant relationship between higher levels of knowledge and higher levels of extraversion and agreeableness.

The attitudes towards HIV/AIDS were related to agreeableness and emotional stability factors. Previous literature indicates a negative relationship between agreeableness and sexual risk in the general population and adolescents (Cooper, 2010; Miller et al., 2004; Raynor & Levine, 2009; Trobst et al., 2002). However, adolescents with higher scores on factors related to agreeableness reported less favorable attitudes towards HIV/AIDS. According to Hoyle et al. (2000), warmer and more sensitive individuals tend to seek partners with whom they have a strong emotional bond. Based on the principle of trust, they report less condom use in their sexual relationships. Therefore, it would be expected that the most agreeable people use condoms on fewer occasions, and show less favorable attitudes towards HIV/AIDS. Consistent with previous studies (Fernández & Castro, 2003; Johnson, 1997), we found a significant relationship between high neuroticism and less positive attitudes towards HIV/AIDS in females, which facilitate transmission of STIs and unwanted pregnancies.

The intention to engage in safe sex behaviors was lower in males who were more agreeable (high agreeableness), had less confidence (high neuroticism), were more open to others (high extraversion), and were greater perfectionists (high conscientiousness/responsibility). Unlike other studies with college students (Ingledew & Ferguson, 2007; Raynor & Levine, 2009; Turchik et al., 2010), perfectionism (high conscientiousness) was negatively related to the intention to engage in safe sex behaviors. One possible explanation is that perfectionism is related to personal beliefs and values about how people should behave in a certain context. Consistent with other studies with adult populations (Berg et al., 2013; Schmitt, 2004), female adolescents who were more emotionally unstable reported less intention to protect themselves from STIs and unwanted pregnancies.

In this study, consistent condom use was negatively associated with high levels of extraversion and low emotional stability (neuroticism), consistent with other research (Berg et al., 2013; Cooper, Agocha, & Sheldon, 2000; Raynor & Levine, 2009). Males who were more daring, confident and entrepreneurs reported less consistent condom use in their relationships. The risk associated with high levels of extraversion has been explained by a greater need for new activities and feelings (Martin et al., 2013), so it is not surprising that this individual profile exposed themselves to risky sexual situations and underestimated the negative consequences due to overconfidence. In addition, Cooper et al. (2000) hypothesized that individuals with low emotional stability (low neuroticism) expose themselves to more risky behaviors to lessen their negative emotions. However, other studies, such as Miller et al. (2004), found no significant relationship between emotional instability and sexual risk among adolescent students.

In summary, high scores on facets of extraversion were associated with significantly less knowledge about HIV and other STIs (in males and females), less intention to protect themselves from STIs, and less

consistent condom use (only in males). A high level of agreeableness was associated with less knowledge about HIV and other STIs (in females), less favorable attitudes toward HIV (in males and females), and less intention to protect themselves from STIs (in males). Condom use intention was lower in males with higher scores on perfectionism (responsibility). A lower level of emotional stability (high neuroticism) predicted significantly lower levels of knowledge about HIV and other STIs (in females), less favorable attitudes toward condom use (in females), less intention to protect themselves from STIs (males and females), and less consistent condom use (males).

Limitations, strengths, and future lines

The main limitation of this study is that due to its cross-sectional design, causal relationships between personality and sexual risk cannot be established. This study is part of a larger study involving a long evaluation, so it was not possible to assess all the personality facets. Consistent with other research within the general population and adolescents (Hoyle et al., 2000; Miller et al., 2004), the association between personality and sexual risk was low, suggesting that the personality facets are not so relevant in order to predict sex behavior. Indeed, personality facets only predicted consistent condom use in males in the present study. This result is consistent with the study conducted by Ruiz et al. (2015), which found a limited predictive function of global dimensions of personality in relation to specific behaviors, such as condom use. These results highlight the importance of studying the personality from a comprehensive perspective, in which personality characteristics interact with the environment and psychological processes, like recently concluded by Micó, Amigó and Caselles (2014), and Ballester, Ruiz and Gil (2015).

This is the first study to analyze the relationship between personality factors and precursors of sexual behavior in a large and geographically diverse sample of adolescents (under 18) in Spain. Differences between males and females were observed in the precursors of sexual risk, showing that sexual risk differs by sex, according to Espada and colleagues (2015). Also, sex differences in personality factors involved in sexual risk were found, coinciding with Turchik and colleagues (2010). In this study, sexual risk was associated with high scores on scales of extraversion, conscientiousness, and agreeableness, and lower scores in emotional stability. The relationship between factors related to extraversion and sexual risk observed is consistent with the longitudinal study conducted by Miller et al. (2004), but differs on the role of neuroticism and agreeableness in sexual risk during adolescence. Similar results were found with the general population and university students (Cooper et al., 2000; Ingledew & Ferguson, 2007; Schmitt, 2004), with the exception of the negative relationship between factors related to conscientiousness, agreeableness, and sexual risk.

Based on the premise that personality characteristics are difficult to modify, the results of this study may be useful for identifying sexual high-risk groups during adolescence. Although personality characteristics are related to the predictors of condom use, and to consistent condom use, it is noted that the correlation is low. This suggests that other variables are involved in the real mechanism driving the relationship with sexual risk behavior. Despite the limitations mentioned, this study opens the door to new lines of research to assess the effectiveness of preventive interventions for adolescents with personality characteristics that predispose them to greater sexual risk. Designing strategies focused on training specific deficiencies could reduce sexual risk among adolescents. For example, it would be interesting to examine whether negative emotional coping skills contribute to reducing sexual risk in adolescents with high neuroticism. Based on the find-

ings, interventions for males should be focused on increasing the risk perception associated to unprotected sex, basically using three strategies: (1) improve the level of proper knowledge on HIV and other STIs; (2) promote a critical attitude towards unprotected sex and information on STI status from the sexual partners; and (3) reduce the confidence in information on sexuality obtained from unreliable sources (such as certain websites, popular knowledge, false beliefs, etc.). Intervention for females should be especially focused on reducing emotional instability – which may be challenging during adolescence – since it may expose them to emotional and irrational choices involving sexual risk (e.g., vaginal sex without using a condom). A key component is self-control training and promoting more rational decision making regarding sex to avoid hasty decisions based on emotional and sentimental reasons. Additional longitudinal research with adolescents will be needed to explore the causality between personality characteristics and engaging in sexual risk behaviors.

The present study brings better understanding of the relationship between sexual risk and personality during adolescence. Its findings highlight the weak but significant link between sexual risk and personality facets. Adolescents with higher scores on extraversion, conscientiousness, and agreeableness, but lower scores on emotional stability are more likely to engage in sexual risk behaviors and, consequently, increase the probability of contracting STIs and unplanned pregnancies. Personality profiles of sexual risk in adolescents also differed by gender, which highlights the importance of gender when tailoring sexual health promotion interventions.

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Conflict of interests

The authors declare that they have no competing interests.

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