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ORIGINAL PAPER

Sexual Sensation Seeking: A Validated Scale for Spanish Gay, Lesbian and Bisexual People

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Abstract
Sexual Sensation Seeking has been identified as a main predictor of unsafe sex that particularly affects LGB people. This study adapts and validates the Sexual Sensation Seeking Scale to Spanish LGB people. For this purpose, we tested the factor structure in 1237 people, ranged from 17 to 60 years old, 880 self-defined as homosexuals and 357 as bisexuals. The results support the appropriateness of this scale for Spanish LGB people and determine two factors, explaining the 49.91% of variance: "physical sensations attraction" and "sexual experiences". Our findings reveal optimal levels of internal consistency in the total scale ($\alpha = 0.81$) and each factor ($\alpha = 0.84$ and $\alpha = 0.71$). Additional analyses have demonstrated convergent validity for this scale. Important implications of the validated Sexual Sensation Seeking Scale in Spanish LGB people are discussed, in order to early detection and preventive interventions for HIV and other sexual health problems.

Keywords Sexual Sensation Seeking · Validation · Psychometric properties · LGB · Gender

Resumen
La Búsqueda de Sensaciones Sexuales ha sido identificada como un predictor principal del sexo seguro que, particularmente, afecta a la población LGB. Este estudio adapta y valida la Escala de Búsqueda de Sensaciones Sexuales en población LGB española. Para este propósito, se probó la estructura factorial en 1.237 personas, entre 17 y 60 años, 880 se auto-definían como homosexuales y 357 como bisexuales. Los resultados apoyan la validez de esta escala para población española LGB y determina dos factores que explican el 49.91% de la varianza: "atracción por las sensaciones físicas" y"experiencias sexuales". Nuestros hallazgos revelan niveles óptimos de consistencia interna en la escala total ($\alpha = 0.81$) y cada factor ($\alpha = 0.84$ y $\alpha = 0.71$). Análisis adicionales han mostrado validez convergente para esta escala. Se presentan importantes implicaciones de la Escala validada de Búsqueda de Sensaciones Sexuales en población española LGB, con el objetivo de favorecer las intervenciones de detección precoz y prevención del VIH y otros problemas de salud sexual.

Palabras Clave Búsqueda de sensaciones sexuales · validación · propiedades psicométricas · LGB · género

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Introduction

Sexual sensation seeking (SSS) has been strongly associated with more probability of engaging risky sexual behaviors [1]. That is, the propensity to attain optimal levels of sexual excitement and to engage in novel sexual experiences [2] would increase the possibility of reporting a greater number of sexual partners, more distress to negotiate condom [3], as well as more probability of underestimating risks in sexual interactions [4]. Moreover, sexual sensation seeking has been related to a compulsive use of new technologies for sexual purposes [5] that facilitates riskier sexual behaviors [6].

In particular, variables such as gender and sexual orientation reveal differences in SSS. Concerning gender, men usually exceed the SSS scores of women, regardless of their origin and their culture [7, 8], as well as their sexual orientation. In general, hetero and homosexual men are more sexual sensation seekers than hetero and homosexual women [9]. Regarding sexual orientation, heterosexual men and women reported higher scores of SSS than homosexual men and women, contrarily past studies that revealed more SSS among gays and lesbians than among heterosexual people [10, 11]. In any case, SSS would be a predictor for sexual risk behavior for both of them [12] although some specific population such as LGB Hispanic people would reveal higher risk for HIV infection [13, 14]. In order to prevent this situation and detect riskier profiles, evaluating SSS based on gender, sexual orientation and culture would be needed [15].

The first scale to evaluate SSS [16] considered its role in HIV infection and sexual risk behaviors. This scale with 10 items on 4-point scales, demonstrated construct validity and internal consistency in men who had sex with men, as well as for low income men and women from inner-city areas. Unfortunately, the Sexual Sensation Seeking Scale did not focus on other populations who are exposed to HIV risk such as Hispanic gays, lesbians and bisexuals [13]. Afterwards, some researchers have examined the psychometric characteristics of the Sexual Sensation Seeking Scale for other populations. For example, SSSS was validated for heterosexual people considering gender analyses [17].

Regarding Spanish-speaking contexts, the SSSS has been adapted for adolescents [18, 19] and university students [20]. Other pilot study adapted the SSSS within young people, but authors did not consider the interaction between gender and sexual orientation [21]. However, this scale has not been validated in LGB Hispanic people.

Therefore, even though LGB Hispanic people have shown an HIV risk increase [13] and there is evidence about the influence of SSS on sexual risk behavior [9], the Sexual Sensation Seeking Scale has not been still validated, considering sexual expressions of Spanish gays, lesbians and bisexuals. In order to solve this gap, the main purpose of this study is to examine psychometric characteristics of the Sexual Sensation Seeking Scale in gay, lesbian and bisexual people.

Method

Participants

One thousand, two hundred and thirty-seven people (52.6% men and 47.4% women) participated from different regions of Spain in this cross-sectional study. Their age ranged between 17 and 60 years (M = 27.87; SD = 8.59). Concerning sexual orientation, 880 self-defined as homosexuals (36.8% women and 63.2% men) and 357 as bisexuals (73.4% women and 26.8% men). Regarding education, 591 of them had secondary education and 627 of them had a degree, only 19 of them had elementary school. Table 1 shows participants' characteristics. Participants were recruited by accidental sampling, and the inclusion criteria were: being native Spanish speaker and self-defined as homosexual or bisexual.

Measures

The Sexual Sensation Seeking Scale [16]

This scale contains 11 statements to evaluate sexual sensation seeking behaviors and attitudes using a Likert-type scale ranging from one (not all characteristic of me) to 4 (entirely characteristic of me). The total score is calculated adding the score of each item. A higher score reveals more sexual sensation seeking. Internal consistency of the original scale is 0.79 for homosexual men.

The Sexual Compulsivity Scale [16, 22]

This instrument contains 10 statements on a Likert-type scale ranging from 1 (not all characteristic of me) to 4 (entirely characteristic of me) to evaluate compulsive sexual behavior, sexual aware and intrusive sexual thoughts. The total score is obtained by adding the score of each item. A higher score indicates greater sexual compulsivity. The Spanish adaptation shows rigorous internal consistency for the global scale ($\alpha = 0.84$), as well as the both subscales, lack of control ($\alpha = 0.79$) and interference ($\alpha = 0.72$). Cronbach's alpha for this study is 0.82.

The Internet Sex Screening Test [23, 24]

This questionnaire contains 25 statements true/false to evaluate five dimensions of online sexual behavior: sexual compulsivity, sexual behavior-isolation non compulsive, sexual behavior-social, sexual spending and seriousness perceived of sexual behavior. The total score is obtained adding one point for each true response. A higher score means more seriousness of cybersex addiction. The internal consistency of the Spanish validation is 0.88. The Cronbach's alpha for this study is 0.84.

La Encuesta sobre SIDA/The Questionnaire of AIDS [25]

This questionnaire contains 25 items to evaluate important variables for HIV prevention. The psychometric properties demonstrate acceptable validity, including a Cronbach's alpha of 0.62 and a test–retest correlation of 0.84. In this study, the Cronbach's alpha is 0.72. In particular, for this study, we have used five items related to safe behaviors, having sex after alcohol and drugs use and perception of HIV-AIDS severity.

Demographics

Participants responded to items obtaining information such as gender, age, sexual orientation, educational level and sexual behavior.

Procedure

This study was developed in cooperation with The National Federation of Lesbians, Gays, Bisexuals and Transsexuals (FELGTB) and several associations that belong to this federation. They published on their social networks and websites the information about the study and the related link. In this link, participants were informed about the confidentiality and anonymity of their participation. Once they provided us their informed consent, they filled the online questionnaires. Participation was voluntary and there was not remuneration. This study was in accordance with the ethical standards of the institutional research committee and the Declaration of Helsinki.

To adapt the Sexual Sensation Seeking Scale to Spanish context we developed the following stages. Firstly, a bilingual speaker psychologist translated the eleven statements from English to Spanish. Gender language aspects were especially considered in order to get an inclusive translation. Moreover, two professional translators reviewed this Spanish version to provide feedback. Secondly, according to the inter-rater agreement, the suggestions were made in those items where consensus was lower than 85%. Afterwards, this preliminary version was sent to two experts on Health Psychology in order to judge items' comprehension. Those expressions valued as inadequate were changed by a more suitable alternative expression. Finally, a group of 10 men and 10 women self-identified as gays, lesbians and bisexuals, completed this version to assess the comprehension of the items. Annex I shows the last version.

Table 1 Participants' characteristics for each group

	% or *M* (*SD*)
Demographics	
Sex (men)	52.60%
Sex (women)	47.70%
Sexual orientation (homosexual)	71.10%
Sexual orientation (bisexual)	28.90%
Age	27.87 (8.59)
Educational level (elementary school)	1.50%
Educational level (secondary education)	47.90%
Educational level (university studies)	50.70%
Sexual behavior	
Masturbation	99.30%
Mutual masturbation	97%
Oral sex	97.20%
Vaginal intercourse[a]	79.5%
Anal intercourse[b]	80.9%

[a]Only bisexual men and women; [b]only homosexual men and bisexual men and women

Data Analyses

In order to do exploratory and confirmatory analyses, these participants were randomly distributed into two groups, G_1 and G_2. Firstly, we did an Exploratory Factor Analysis (EFA) based on G_1 to identify the factorial structure of the SSSS. The Kaiser–Meyer–Olkin Test and Bartlett's test of sphericity were used as a preliminary step to determine the properties of the inter-items correlation matrix. A factor extraction was based on weighted least squares and Oblimin rotation. Secondly, we did a Confirmatory Factor Analysis (CFA) for G_2 to confirm the obtained structure, as well as the metrical and structural invariance based on gender and sexual orientation (multigroup CFA). Goodness of fit for the different factorial models was analyzed with the following indexes: Satorra–Bentler Chi square (χ^2), Relative Chi square (χ^2/df), non-normed fit index (NNFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). An appropriate fit was considered when χ^2/df was ≤ 3, the NNFI and the CFI were ≥ 0.95, and the RMSEA ≤ 0.06 [26]. However, less stringent criteria of a good fit (NNFI and CFI ≥ 0.90, and RMSEA ≤ 0.08) were also considered [27]. Then, we calculated different reliability indexes: Cronbach's α, item–scale correlation, and item–test correlation. Finally, we explored the convergent validity by Pearson correlation between the SSSS total score and their

subscales and other measures that are connected theoretically. The statistical programs used were IBM SPSS Statistics 24.0, Eqs. 6.1, and Factor 9.30.1.

Results

Preliminary Analysis

In order to do exploratory and confirmatory analyses, these participants were randomly distributed into two groups. The first group (G_1) included 619 people (52.80% men and 47.20% women; 70.80% homosexuals and 29.80% bisexuals) ranging between 17 and 60 years (M = 27.92; SD = 8.68). The second group (G_2) included 618 people (52.40% men and 47.60% women; 71.50% homosexuals and 28.50% bisexuals) ranging between 17 and 58 years (M = 27.82; SD = 8.51). For both groups there were not statistically significant differences based on gender ($\chi^2_1 = 0.020$; $p > 0.05$), sexual orientation ($\chi^2_1 = 0.087$; $p > 0.05$), age ($t_{1235} = 0.206$; $p > 0.05$) and educational level ($\chi^2_1 = 0.679$; $p > 0.05$).

Exploratory Factor Analysis

Kaiser–Meyer–Olkin (KMO = 0.851) and Bartlett's test of sphericity ($\chi^2_{55} = 4372.293$, $p < 0.001$) revealed satisfactory results, supporting the suitability of a factorial analysis. Consequently, we developed a EFA by a weighted least squares no ponderate due to the asymmetric index and kurtosis suggested non-normality in distribution and Oblimin rotation. The parallel results showed a two-factor structure (see Fig. 1) explaining 50.23% of total variance (see Table 2). The first factor, named "New Experiences Seeking" (NES), means the 36.59% of variance and includes five statements (1, 6, 9, 10 y 11) to evaluate the interest for new sexual experiences. The factorial weights in this factor range between 0.492 (item 1) and 0.882 (item 11). The second factor, named "Physical Sensations Attraction" (PSA), means the 13.64% of variance and includes six statements (2, 3, 4, 5, 7 y 8) to evaluate the physical dimension of sexual encounters, that is, sexual attractiveness. The factorial weights in this factor range between 0.449 (item 7) and 0.722 (item 5).

Confirmatory Factor Analysis (CFA)

In order to confirm the factor structure, a confirmatory factor analysis was performed for G_2 by the structural equations program EQS version 6.2 [28]. We carried the robust maximum likelihood method (a method to obtain statistics that correct a possible effect of violation of the normality assumption) that is suggested when categorical variables are analyzed [29]. Due to our results by EFA, two models were contrasted: the first one (M_1) replies the same factorial

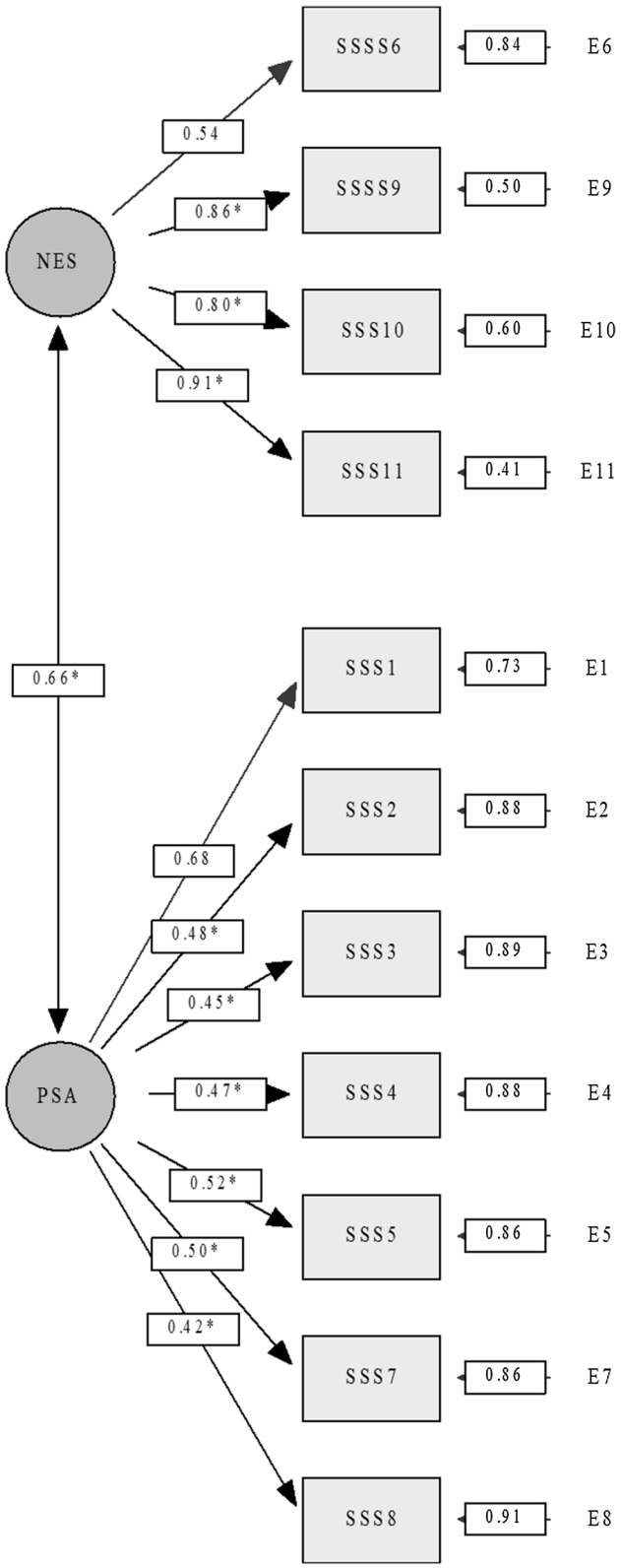

Fig. 1 Path diagram of bifactorial model

Table 2 Rotated components matrix, communalities (h^2), eigenvalue, and variance explained

Subscales and items	NES	PSA	h^2
1. I like wild "uninhibited" sexual encounters	0.492	0.471	0.464
2. The physical sensations are the most important things about having sex		0.558	0.345
3. I enjoy the sensation of intercourse without a condom		0.480	0.265
4. My sexual partners probably think I am a "risk taker"		0.691	0.481
5. When it comes to sex, physical attraction is more important to me than how well I know the person		0.722	0.526
6. I enjoy the company of "sensual" people	0.552		0.398
7. I enjoy watching "X rated" videos	0.363	0.449	0.334
8. I have said things that were not exactly true to get a person to have sex with me		0.572	0.341
9. I am interested in trying out new sexual experiences	0.886		0.775
10. I feel like exploring my sexuality	0.879		0.775
11. I like to have new and exciting sexual experiences and sensations	0.892		0.822
Eigenvalue	4.03	1.50	
% explained variance	36.59	13.64	

NES New Experiences Seeking, *PSA* Physical Sensations Attraction, *SSSS* Sexual Sensation Seeking Scale

structure by EFA (two correlated first-order factors) while the second one (M_2) eliminates items 1 and 7 that reveal factorial weights higher than 0.35 for both factors.

As Table 3 shows, the model that obtains the best goodness of fit index was the second one (M_2). In this model, the value of χ^2 (χ^2/df) was 2.51, which is an adequate value. In addition, the RMSE revealed a lower value than the more strict criteria establish. Finally, the NNFI and CFI obtained values of 0.963 and 0.961 respectively that exceed the cut-point for considering goodness of fit index.

To verify if the factorial structure of M_2 model is applicable for men and women, as well for homosexual and bisexual people, we did two multigroup CFA. For the first one, we tested the hypothesis of the invariance of factor structure (structure invariance), while for the second one we analyzed weight and load factor (metric invariance). Differences in CFI and RMSEA did not exceed 0.01 and 0.015, respectively. This allows to consider no-differences for these groups when limitations were added [30, 31]. Multigroup CFA results revealed goodness of fit index (see Table 3). When we added restrictions between factorial loads and error variable, we obtained values for RMSEA and CFI lower than 0.015 and 0.01 respectively. Therefore, items' distribution of the SSSS between the two factors and the power of relation between the items and the factors (as well as the correlation between factors 1 and 2) seem to be equal for men and women, homosexual and bisexual people.

Descriptive Statistics and Reliability

Concerning internal consistency (see Table 4), the Cronbach's Alpha of total score and factors exceed 0.70 criteria to consider a scale as reliable [32]. Specifically, this obtained 0.78 for the global scale, 0.84 for the NES factor and 0.71 for the PSA factor. The corrected item–total correlation exceeded the minimum value of 0.30 [33], varying from 0.46 to 0.80 in the NES Factor, and from 0.31 to 0.45 in the PSA Factor.

Table 3 Goodness of fit indices for the CFA and the multi-group CFA

	S.B. χ^2	*df*	χ^2/df	NNFI	CFI	RMSEA (90%)
CFA						
Model 1	217.32	43	5.05	0.882	0.908	0.081 (0.070–0.092)
Model 2	62.73	25	2.51	0.963	0.961	0.050 (0.034–0.065)
Multi-group CFA for gender						
Configurational invariance	186.09	52	3.57	0.945	0.960	0.065 (0.055–0.075)
Metric invariance	212.57	60	3.54	0.946	0.0955	0.064 (0.055–0.073)
Multi-group CFA for sexual orientation						
Configurational invariance	196.04	52	3.77	0.943	0.953	0.064 (0.056–0.074)
Metric invariance	230.94	60	3.83	0.941	0.952	0.066 (0.0.057–0.075)

S.B. χ^2 Satorra–Bentler Chi square, *df* degrees of freedom, χ^2/df normed Chi square, *NFI* normed fit index, *NNFI* non-normed fit index, *CFI* comparative fit index, *RMSEA* root mean square error of approximation

Table 4 Descriptives and reliability coefficients

	Range	*M* (*SD*)	Skewness	Kurtosis	Reliability coefficients		
					α	I–F *r*	I–T *r*
Global score (SSSS)	9–36	19.82 (4.95)	0.26	−0.14	0.78	NA	NA
Factor 1: NES	4–16	8.49 (2.74)	1.02	1.12	0.84	NA	NA
Item 6	1–4	2.70 (0.96)	−0.12	−0.99	NA	0.46	0.48
Item 9	1–4	2.71 (1.01)	−0.15	−1.10	NA	0.75	0.64
Item 10	1–4	2.97 (0.96)	−0.47	−0.88	NA	0.74	0.57
Item 11	1–4	2.94 (0.95)	−0.42	−0.88	NA	0.80	0.68
Factor 2: PSA	5–20	11.33 (3.20)	−0.24	−0.88	0.71	NA	NA
Item 2	1–4	2.04 (93)	0.53	−0.61	NA	0.39	0.38
Item 3	1–4	2.01 (1.12)	0.64	−1.06	NA	0.31	0.34
Item 4	1–4	1.30 (64)	2.22	4.53	NA	0.45	0.38
Item 5	1–4	1.71 (0.89)	1.09	0.27	NA	0.42	0.37
Item 8	1–4	1.42 (77)	1.74	2.47	NA	0.32	0.34

NA not applicable, *I–F r* corrected item–factor correlation, *I–T r* corrected item–test correlation, *NES* New Experiences Seeking, *PSA* Physical Sensations Attraction, *SSSS* Sexual Sensation Seeking Scale

Table 5 Differential analyses by gender and sexual orientation

Items	Men (n = 651) M (SD)	Women (n = 586) M (SD)	$F_{(1,1235)}$	d	Bisexual (n = 357) M (SD)	Homosexual (n = 880) M (SD)	$F_{(1,1235)}$	d
2	2.13 (0.91)	1.94 (0.93)	13.45***	0.21	1.99 (0.94)	2.06 (0.92)	1.12	0.08
3	2.08 (1.11)	1.95 (1.14)	4.02*	0.12	2.11 (1.14)	1.97 (1.12)	4.01*	0.12
4	1.37 (0.70)	1.23 (0.56)	14.41***	0.22	1.36 (0.69)	1.28 (0.62)	4.30*	0.12
5	1.98 (0.95)	1.41 (0.71)	141.10***	0.68	1.58 (0.85)	1.76 (0.90)	10.67***	0.21
6	2.78 (0.94)	2.62 (0.97)	8.61**	0.17	2.74 (0.97)	2.69 (0.95)	0.767	0.05
8	1.59 (0.82)	1.24 (0.55)	80.14***	0.50	1.39 (0.73)	1.44 (0.73)	1.17	0.07
9	2.73 (0.99)	2.69 (1.02)	0.59	0.04	2.93 (0.98)	2.62 (1.01)	24.20***	0.31
10	2.94 (0.95)	3.01 (0.97)	1.34	0.07	3.21 (0.86)	2.87 (0.98)	31.25***	0.37
11	2.95 (0.93)	2.93 (0.96)	0.12	0.02	3.09 (0.92)	2.88 (0.95)	12.05***	0.22
NES	11.40 (3.13)	11.24 (3.27)	0.757	0.05	11.97 (3.15)	11.07 (3.18)	20.37***	0.28
PSA	9.15 (2.89)	7.76 (2.37)	84.32***	0.53	8.45 (2.71)	8.51 (2.76)	0.157	0.02
SSS	20.55 (5.04)	19.01 (4.74)	30.82***	0.31	20.41 (4.96)	19.58 (4.94)	7.16**	0.17

NES New Experiences Seeking, *PSA* Physical Sensations Attraction, *SSSS* Sexual Sensation Seeking Scale

***p < 0.001; **p < 0.01; *p < 0.05

Statistical analyses as a function of gender (see Table 5), revealed statistically significant differences on item 2 "The physical sensations are the most important things about having sex" (p = 0.001), item 3 "I enjoy the sensation of intercourse without a condom" (p = 0.045), item 4 "My sexual partners probably think I am a risk taker" (p = 0.001), item 5 "When it comes to sex physical attraction is more important to me than how well I know the person" (p = 0.001), item 6 "I enjoy the company of 'sensual' people" (p = 0.003) and item 8 "I enjoy watching 'X rated' videos" (p = 0.001), and physical sensations attraction (p = 0.001), in which men consistently score higher than women do.

Statistical analyses as a function of sexual orientation (see Table 5), revealed statistically significant differences on item 3 "I enjoy the sensation of intercourse without a condom" (p = 0.046), item 4 "My sexual partners probably think I am a risk taker" (p = 0.038), item 5 "When it comes to sex physical attraction is more important to me than how well I know the person" (p = 0.001), item 9 "I am interested in trying out new sexual experiences" (p = 0.001), item 10 "I feel like exploring my sexuality" (p = 0.001), and item 11 "I like to have new and exciting sexual experiences and sensations" (p = 0.001), and new experiences seeking (p = 0.001), in which bisexual people consistently score higher than homosexual people do, except for item 5.

In terms of total sexual sensation seeking, we found that men reported higher SSS than women (20.55 vs. 19.01), and bisexual people reported higher SSS than homosexual people (20.41 vs. 19.58).

Convergent Validity

We went on to calculate convergent validity between the SSSS, and sexual compulsivity, cybersex, alcohol and other drugs consumption, condom use (only for men), and severity perceived of HIV-AIDS. Correlations were calculated separately for men and women, and homosexual and bisexual people in light of research findings about a strong influence of gender and sexual orientation [9].

For the total sample, all the correlations computed with sexual compulsivity ($p=0.001$), cybersex ($p=0.001$), condom use ($p=0.001$), alcohol and other drugs consumption ($p=0.001$), and severity perceived of HIV-AIDS ($p=0.009$), were significant (see Table 6). Concerning severity perceived of HIV-AIDS, there were statistically significant negative correlations only for men ($r=-0.109$, $p=0.029$) and homosexual people ($r=-0.149$, $p=0.001$). For bisexual people, no statistically significant correlation was observed between SSS and alcohol ($p=0.146$) and other drugs consumption ($p=0.099$).

Discussion

In general, our findings support the appropriateness of the Sexual Sensation Seeking Scale [16] for LGB Spanish people. Therefore, this study provides an adaptation and validation of a rigorous scale that facilitates evaluating riskier profiles for sexual health among one of the most affected populations, LGB Spanish people [13].

In particular, this study has specified two main dimensions of the SSSS for these LGB Spanish that may facilitate its use for clinical and preventive approaches, in line with past findings that reveal similar dimensions in the Sexual Sensation Seeking Scale for heterosexual, homosexual and bisexual Spanish adolescents [18] or Spanish young people [20]. The first dimension "physical sensations attraction" refers to the person's desirability to another person or sexual practice, giving emphasis to physical reactions about sexual excitement and desire. In particular, this dimension involves aspects such as the importance of physical attraction when initiating a sexual relationship or enjoying unprotected sex. The second dimension named "new experiences seeking" refers to openness to sexual experience and emphasizes pleasure and excitement when having innovative and new sexual experiences. As past studies supported [34–36], both aspects would be directly related to HIV risk behavior.

Moreover, our results indicate that both dimensions, as well as the global Sexual Sensation Seeking Scale, are consistent for LGB Spanish people regardless of their gender and their sexual orientation. If we consider the relevant differences within LGB community [37], this is an essential aspect for the appropriateness of any measure aimed at this community. Otherwise, programs and policies may not distinguish particular needs for developing proposals, decreasing their effectiveness. In any case, it should be considered the modification related to those items that have been excluded due to the adjustments of the two models tested. Probably, following these results, the meaning and significance of both items about new experience seeking may be included in those items that contain this version of the Sexual Sensation Seeking Scale by Kalichman and Rompa [16]. In fact, the last ones seem to be more global and, consequently, may represent its implications.

In order to explore gender influence, according to previous research [9], convergent validity was calculated separately for men and women. For both men and women, scores were strongly correlated to measures of other sexuality-related dispositions including: sexual compulsivity, use of cybersex, condom use and drug consumption. However, perception of HIV-AIDS severity presents significant correlation only for men. According to this, previous research has found positive correlations between SSS and sexual

Table 6 Correlation indexes between total SSSS with other variables

	Sexual Sensation Seeking Scale				
	Men	Women	Bisexual	Homosexual	Total sample
Sexual compulsivity	0.506***	0.489***	0.582***	0.481***	0.513***
Cybersex	0.437***	0.293***	0.429***	0.423***	0.413***
Condom use (only in men)	−0.311***	NA	−0.568***	−0.263***	−0.311***
Alcohol consumption	0.215***	0.208***	0.103	0.219***	0.189***
Cannabis consumption	0.141**	0.183***	0.210**	0.106*	0.146***
Other drugs consumption	0.175***	0.110*	0.099	0.183***	0.159***
HIV-AIDS severity	−0.109*	−0.083	0.034	−0.149***	−0.096**

NA not applicable

***$p<0.001$; **$p<0.01$; *$p<0.05$

compulsivity [16, 17]. In addition, our results about SSS and the Internet use are in line with other recent publications [6, 25]. People who present higher level of SSS are more likely to engage in online sexual experiences. In particular, people who express higher intention to go on online seeking sex are more likely to engage in unprotected anal sex [38]. Certainly, in order to comprehend this phenomenon other characteristics that may modulate fear perception should be consider, such as sociocultural level [39].

The present study has observed a strong correlation between drug consumption and SSS. In line with previous research that has concluded how SSS moderates alcohol consumption prior to sexual intercourse [1, 40]. In this sense, one of the most risky practices for HIV infection is private "sex parties". That is, weekly group sex events, developed in private houses, where drug consumption is common [41]. Participation in these group sexual encounters has been associated with higher scores in SSS, more substance use, higher number of anal intercourse, less predisposition to condom use during these encounters and more frequency of other sexual practices such as fisting or sexual toys use [42].

Additionally, other studies emphasize the role of gender when describe the relation among substance use, SSS and unprotected sex. Coexistence of sex and alcohol seems to be stronger among adolescent boys [43].

Moreover, according to our results, positive correlation between unprotected anal sex and high levels of sexual sensation seeking has been shown in previous research. These results indicate that SSSS scores increase the likehood of engaging in anal sex without a condom [44]. These findings have been observed among gay men in primary relationship. Those people who were more sexual sensation seekers were less likely to use condom in their initial intercourse [45]. Regarding gender, men exceed women for both the SSSS total score and the two dimensions. These results support higher SSS in men regardless of their sexual orientation described by past studies [7, 9]. Therefore, gender might have an essential role in SSS and its influence on sexual behavior.

The limitations of our study must be considered when interpreting the results. In order to improve them, future studies have to explore the items content of the scale considering local community norms given the diversity of speaking-Spanish LGB population. Another limitation is self-reported measures of unprotected sex or drug consumption that cannot be verified. In addition, including a higher diversity of socio-demographic profiles may extend these findings. Other issue would be related to missing participants who did not provide basic socio-demographic characteristics that facilitate improving our knowledge. Moreover, it should be pointed another weakness related to the temporal stability that is not evaluated in the present study and should be consider in future validations.

In spite of these weaknesses, this study provides the adaptation and validation of the Spanish Sexual Sensation Seeking Scale for LGB population who reveal the most important prevalence of HIV and STI in many countries. In this sense, this scale would provide comparable and real data about this specific population. In particular, this adapted version would be useful for assessing riskier profiles for HIV infection or other health problems such as sexual addiction. In addition, the delimited subscales may facilitate the identification of two main factors related to sexual risk and, consequently, may provide specific information to adjust clinical and preventive interventions.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix: A Validated Sexual Sensation Seeking Scale for Spanish Gay, Lesbian and Bisexual People (SSSS)

1	2	3	4
Nada característico de mí	Algo característico de mí	Bastante característico de mí	Muy característico de mí

1. Las sensaciones físicas son lo más importante del sexo
2. Disfruto de las sensaciones que producen las relaciones sexuales sin condón
3. Seguramente, mis parejas sexuales piensan que soy una persona que corre riesgos
4. En las relaciones sexuales para mi es más importante la atracción física que el grado de conocimiento que tengo de la persona
5. Disfruto de la compañía de personas sensuales
6. He dicho cosas que no eran exactamente ciertas para conseguir que una persona tuviera sexo conmigo
7. Estoy interesado en probar nuevas experiencias sexuales
8. Me apetece explorar mi sexualidad
9. Me gusta tener nuevas y excitantes experiencias y sensaciones sexuales

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