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Cross-Cultural Validation of the Sexual Desire Inventory (SDI-2) in 42 Countries and 26 Languages

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Cross-Cultural Validation of the Sexual Desire Inventory (SDI-2) in 42 Countries and 26 Languages

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ABSTRACT

Sexual desire is a complex construct with important implications for sexual functioning and well-being. In this research, we translated the Sexual Desire Inventory (SDI-2), a widely used scale for assessing sexual (desire), into 25 languages from English and used data from the International Sex Survey (ISS) to (a) investigate its psychometric properties (i.e. factorial structure, reliability, validity, and measurement invariance) and (b) explore the expression of sexual desire across different countries, genders, and sexual orientations. A total of 82,243 participants from 42 countries completed the SDI-2, along with other sexuality-related scales. Confirmatory factor analysis supported a three-factor solution for the SDI-2 (CFI = .980; RMSEA = .060), encompassing the domains of "Partner-related," "Attractive-person-related," and "Solitary" sexual desire. The reliability of the total score and subscales were excellent. Likewise, correlations with other sexuality-related variables were positive yet weak-to-moderate in effect size. Measurement invariance tests supported its use across countries, languages, genders, and sexual orientations. Analysis of SDI-2 scores according to these variables supported its ability to capture group-based differences in sexual desire. In sum, the SDI-2 constitutes a psychometrically robust measure for the assessment of sexual desire in non-clinical samples with utility in large-scale cross-cultural studies.

Introduction

Sexual desire (libido, sexual drive, sexual motivation, sexual interest, or sexual appetite [Spector et al., 1996]) is a complex construct (Moyano et al., 2017). Spector et al. (1996) defined sexual desire as an "*interest in sexual activity*" (p. 178). The authors argued that sexual desire is primarily a cognitive variable that accounts for the amount and strength of sexual thoughts and responsiveness to sexual stimuli, not for sexual frequency itself. Other authors have conceptualized sexual desire as "*the sum of the forces that lean us toward and away from sexual behavior*" (Levine, 2003, p. 279), as a stage of the sexual response (Kaplan, 1979), or as a domain of sexual functioning (Rosen et al., 2000), emphasizing its "*preparatory*" nature (i.e., sexual desire as an early necessary step for subsequent stages of sexual behavior).

Determinants of Sexual Desire and Challenges in Studying Sexual Desire

As proposed by Levine (2003), sexual desire involves interactions between biological (age, hormonal levels, or physical health), psychological (mood states, sexual cognitions), and relational components (feeling desired by a potential sexual partner, engaging in exciting sexual experiences, etc.). Similarly, certain sociocultural imperatives may also influence the manifestation of desire. In this regard, factors such as gender, sexual orientation, and cultural contexts, may impact sexual desire. Regarding gender, differences in sexual desire have been reported between men and women (Petersen & Hyde, 2010). Historically, men have displayed stronger sexual desires than women. A recent meta-analytic review found that men more often think and fantasize about sex and more often experience sexual desire than women (Frankenbach et al., 2022). However, most studies rely on self-reported measures of sexual desire, which can be influenced by stereotypes, desirability biases, and gendered cultural scripts (Rubin et al., 2019). Furthermore, most literature on gender differences in sexual desire is focused on cisgender populations, thus neglecting how sexual desire is expressed in transgender men and women (Nimbi et al., 2020).

Sexual orientation may also influence the expression of sexual desire (Chadwick et al., 2017). A recent study comparing sexual desire in sexually diverse individuals versus heterosexual cisgender ones (Makarenko et al., 2022) found that the former reported significantly higher solitary desire. These differences seem quantitative in nature, as the structure of sexual desire (i.e., the major subcomponents that arise when measuring this construct) also emerge in sexually diverse samples (Mark et al., 2017). This means that, at a measurement level, sexual orientation has no impact on the factorial structure of traditional measures of sexual desire. However, the limited number of empirical studies examining the association between sexual orientation and sexual desire (in particular, those extending beyond heterosexual, bisexual, and gay/lesbian) limits the drawing of definitive conclusions.

Cultural contexts may also impact sexual desire (Hatfield & Rapson, 2006). For example, Woo et al. (2011) reported higher sexual desire among White versus East Asian women. Rubin et al. (2019) recently examined the impact of gender scripts on sexual desire in heterosexual women from four countries: the United States, Canada, Germany, and Denmark. The results indicated that participants from Germany reported significantly lower levels of sexual desire, followed by participants from Denmark, Canada, and the United States. These studies suggest possible cultural biases in the expression of sexual desire, but the limited number of countries compared and the non-inclusion of male and gender-diverse samples limit the understanding of these jurisdictional differences.

The Assessment of Sexual Desire

Popular scales for assessing sexual desire include the: (a) Hurlbert Index of Sexual Desire (HISD, Apt & Hurlbert, 1992), (b) Sexual Desire Inventory-2 (SDI-2, Spector et al., 1996), (c) Sexual Interest and Desire Inventory – Female (SIDI-F, Clayton et al., 2006), (d) Sexual Arousal and Desire Inventory (SADI, Toledano & Pfaus, 2006), and (e) Female Sexual Desire Questionnaire (FSDQ, Goldhammer & McCabe, 2011). Given its robust psychometric properties for the assessment of both partnered and individual sexual desire and promising cross-cultural results to date, the SDI-2 may be the

most popular scale for assessing sexual desire (Cartagena-Ramos et al., 2018).

The SDI-2 is a self-report measure for assessing sexual desire in multiple contexts (Cartagena-Ramos et al., 2018). During the development of the SDI-2, Spector et al. (1996) conducted two studies, one focused on item development and refinement and the other aiming to assess the scale's psychometric properties. Data suggested two SDI-2 dimensions: dyadic sexual desire (i.e., sexual desire experienced toward a partner) and solitary sexual desire (i.e., the desire to engage in sexual activities with oneself, such as masturbatory behaviors). This distinction reflects the multifaceted nature of sexual desire. The SDI-2 shows strong psychometric properties as evidenced by the internal consistency of both the dyadic ($\alpha = .86$) and solitary ($\alpha = .96$) scales and a test–retest reliability of $r = .76$ over a one-month period (Spector et al., 1996). Regarding validity, higher scores on the SDI-2 are associated with sexual desire as measured by other well-established scales (e.g., the HISD), sexual satisfaction, positive intimate and exploratory sexual cognitions, sexual excitation, frequency of sexual intercourse, and various motives for using cybersex; in contrast, lower scores on the SDI-2 are related to increased sexual inhibition (Brahim et al., 2019; King & Allgeier, 2000; Mark et al., 2017; Moyano et al., 2017; Peixoto et al., 2020). Previous studies have demonstrated the SDI-2's robustness across diverse samples, including different languages. In particular, the SDI-2 has been translated and validated into Spanish (Ortega et al., 2006), Italian (Callea & Rossi, 2021), Portuguese (Peixoto et al., 2020), and German (Kuhn et al., 2014).

An important limitation of the SDI-2 is the lack of an unequivocal factorial solution. The original factorial solution suggests the existence of two correlated factors (i.e., dyadic and solitary sexual desire) (Spector et al., 1996). Other researchers have replicated the same two-factor solution, but including two items that were discarded from the original version (Brahim et al., 2019; Callea & Rossi, 2021; Conaglen & Evans, 2006; Heiman et al., 2011; King & Allgeier, 2000). Recently, some authors have proposed a three-factor solution for the SDI-2 in which the factor of dyadic sexual desire is divided into two subscales: one related to sexual desire toward a stable partner and the other focused on sexual desire toward an attractive person (Moyano et al., 2017). To date, studies with large and diverse samples have not evaluated the appropriateness of these potential factorial solutions. Undertaking such a study would provide valuable insights into the structure of sexual desire (identifying which components better capture the expression of sexual desire) and how it manifests across diverse populations (examining whether the expression of sexual desire differs according to key aspects, such as the cultural context, gender, or sexual orientation), ultimately resulting in a better assessment of this sexuality-related domain.

The Present Study

In this study, we translated the SDI-2 into 25 languages from English through a sound translation procedure and used data from the International Sex Survey (with ~82,000 participants from 42 countries [Bothe et al., 2021]) to investigate its psychometric properties (i.e., factorial structure, reliability, validity, and measurement invariance). Furthermore, we addressed a main gap in understanding by examining the SDI-2 in different countries, languages, genders, and sexual orientations.

Method

Participants and Procedure

Study participants were drawn from the International Sex Survey (ISS), a pre-registered investigation aiming to provide cross-jurisdictional data on different aspects of sexuality (https://osf.io/xcgzf?view_only=6e4f96b748be42d99363d58e32d511b8) (for a complete description of the study protocol, see Bothe et al., 2021). Regarding its methodology, the ISS is a cross-sectional, self-report study conducted online in 42 countries.[1] Each country administered the study survey in its own language. To manage this multilingual approach, the original English version of the survey was translated into the 25 additional languages involved in the ISS project following a pre-established, robust translation procedure for cross-cultural studies (Beaton et al., 2000). In brief, collaborators from each country managed the translation of the survey from English to their native language by, at least, two independent translators (one familiar with the research topic, the other naïve). These independent translations were joined together into a single translation, solving potential discrepancies by consensus. The resulting translation was then back-translated into English by two new native translators and compared with the original version (identifying gross inconsistencies or conceptual errors in the translation). An expert committee, comprised of the investigators from each country, the translators involved in the process, and other members (e.g., methodologists, mental health professionals, etc.), consolidated the assessment battery and achieved semantic, idiomatic, experiential, and conceptual equivalence between the source and the target version. Finally, the resulting version was administered to a reduced group of participants (approximately 3–4 per language), who provided feedback regarding the clarity, understandability, and face validity of the survey.

Data collection occurred between October 2021 and May 2022. The study was conducted through a secure online platform (i.e., Qualtrics). Each collaborating country advertised the study in their own context via different recruitment strategies (e.g., dissemination of the study on TV, radios and newspapers, e-mails through different institutions' list-servs, posting ads on different social media, or posting tear-off flyers in high-density spots, among others). Participants were eligible if they were aged 18 or older (or the legal age of a given country), were fluent in one of the multiple languages of the ISS project and gave their informed consent. The average time to complete the online survey ranged between 25 and 45

[1] Initially, Egypt, Iran, Pakistan, and Romania were included in the study protocol paper as collaborating countries (Bothe et al., 2021); however, in these countries it was not possible to get ethical approval for the study in a timely manner. Furthermore, Chile was not included in the study protocol paper as a collaborating country (Bothe et al., 2021) as it joined the study after publishing the study protocol. Therefore, instead of the planned 45 countries (Bothe et al., 2021), only 42 individual countries are considered in the present study.

minutes, and participants did not receive direct compensation for participation. However, those who completed the survey were offered the possibility to choose a nonprofit sexual health organization that would then receive 50 USD cents donated by the researchers (up to a total of 1,000 USD of donation), as described in the study protocol (Bothe et al., 2021).

After data cleaning (https://osf.io/qg8c4), data from 82,243 participants (M_{age} = 32.39; SD = 12.52) were analyzed. Table 1 shows participants' characteristics. For further information on the age distribution on the entire sample and by country, see Figure S1 and Table S1. Around 7% of participants (n = 5,640) belonged to an ethnic minority group in their country. Most participants (59.57%; n = 48,987) were female, and 40.43% (n = 33,245) were male (i.e., sex assigned at birth). Regarding gender, 57.02% of the sample (n = 46,874) identified as women, 39.59% (n = 32,549) as men, and 3.38% (n = 2,783) as gender-diverse. The most commonly reported sexual orientation was heterosexuality (68.52%; n = 56,125), followed by bisexuality (9.38%; n = 7,688), and gay or lesbian sexual orientation (5.62%; n = 4,607). Approximately one-third of the sample was either single (33.49%; n = 27,541), in a stable relationship (33.37%; n = 27,440) or married (29.60%; n = 24,338). Most participants did not have children (70.64%; n = 57,909). Most participants reported having completed tertiary education (74.06%; n = 60,896) and working full-time (52.27%; n = 42,981). Most participants lived in a city or metropolis (68.5%; n = 56.361) and reported having better life circumstances than average (61.11%; n = 50,260).

The study procedures were conducted in accordance with the Declaration of Helsinki. Each collaborating country obtained ethical approval from their Institutional Review Boards (https://osf.io/e93kf?view_only=838146f6027c4e6bb68371d9d14220b5).

Measures

Participants' Characteristics and Sexuality-Related Information

Participants reported basic sociodemographic information including (a) age, (b) country of residence, (c) language, (d) ethnic minority status ("*Do you belong to any ethnic minority groups in your country?*"), (e) sex assigned at birth (male or female), (f) gender (multiple response options summarized into three categories [men, women, or gender-diverse]), (g) sexual orientation (multiple response options summarized into eight categories [heterosexual, gay, or lesbian, bisexual, queer and pansexual, homo- and hetero-flexible, asexual, questioning sexual orientation, or other]), (h) educational level, (i) work status, (j) socioeconomic status, (k) relationship status, and (l) number of children.

Sexuality-related questions included (a) lifetime number of sexual partners (open numerical answer), (b) past-year number of casual sexual partners (open numerical answer), (c) past-year frequency of sexual activity with casual partners (from 0 ["*Never*"] to 10 ["*More than 7 times a week*"]), (d) past-year frequency of sexual activity (irrespective of the type of sexual partner; from 0 ["*Never*"] to 10 ["*More than 7 times a week*"]), (e) lifetime masturbation (yes/no), (f) past-year frequency of masturbation (from 0 ["*Never*"] to 10 ["*More than 7 times a week*"]), (g) lifetime pornography use (yes/no), and (h) past-year frequency of pornography use (from 0 ["*Never*"] to 10 ["*More than 7 times a week*"]) (Bothe et al., 2021).

Physical, Mental, and Sexual Health Conditions

Current physical, mental, and sexual health status was assessed using an *ad hoc* scale. For each aspect, participants answered the following questions: (a) presence of the condition ("*Are you suffering from* [*any mental illness or emotional problems (e.g., anxiety, depression, ADHD, etc.)?*"] and [*any physical illness (e.g., high blood pressure, diabetes, cancer, etc.)?*"] and [*any sexual problems?*"]); (b) medication ("*Do you take any medication for this illness/problem?*" [the same question for each domain]); and (c) sexuality-related side effects ("*Do you experience any side effects related to your sexuality?*" [the same question for physical and mental health status; however, side effects for sexual health were explored in general]) (Bothe et al., 2021).

Sexual Desire Inventory (SDI-2, Spector et al., 1996)

The SDI-2 is a 14-item self-administered questionnaire measuring sexual desire, defined by the authors as a multidimensional construct involving different domains that converge into "*the interest in behaving sexually*" (Spector et al., 1996, p. 176). To capture the multidimensional nature of sexual desire, the SDI-2 includes items exploring interest in dyadic sexual behavior (e.g., "*How strong is your desire to engage in sexual activity with a partner?*"), interest in individual sexual behavior (e.g., "*How strong is your desire to engage in sexual behavior by yourself?*"), sexual cognitions and fantasies (e.g., "*During the last month, how often have you had sexual thoughts involving a partner?*"), desire activated by external triggers (e.g., "*When you first see an attractive person, how strong is your sexual desire?*"), self-perceived sexual desire compared to others (e.g., "*Compared to other people of your age and sex, how would you rate your desire to behave sexually by yourself?*"), and distress experienced during abstinence from sexual experience (e.g., "*How long could you go comfortably without having sexual activity of some kind?*"). These items were drawn from well-established theoretical models of sexual desire, diagnostic criteria for the diagnosis of hypoactive sexual desire according to the DSM-III-R, and clinical experience from the original authors of the scale, and then validated by a panel of sexology researchers and clinicians. Before completing the SDI-2, respondents were presented with a definition of sexual desire[2] to promote a common understanding of its meaning. Most items were rated on a 9-point Likert scale ranging from 0 to 8, whereas the three items assessing frequency (i.e., items beginning by "*how often*") were rated on an 8-point Likert scale ranging from 0 to 7. Thus, the total score ranged between 0 and 101.[3] The response categories differed according to the type of question, including ratings of strength (from "*No desire*" to "*Strong desire*"), relevance (from "*Not at all important*" to "*Extremely important*"), and frequency (from "*Not at all*" to "*More than once a day*").

[2]Text presented to respondents before completing the SDI-2: "*This questionnaire asks about your level of sexual desire. By desire, we mean interest in or wish for sexual activity.*"

[3]Following the same approach as in most of the studies using the SDI-2 (Peixoto et al., 2020), Item 14 was excluded from the calculation of its total score and from the estimation of its factorial structure. The reason is that this item assesses self-perception of being comfortable without having sexual activity, rather than sexual desire itself. Item 14 was retained in the ISS survey to keep the integrity of the scale.

Table 1. Participants' sociodemographic characteristics (n = 82,243).

	M (SD) or % (n)
Age	32.39 (12.52)
Country of residence	
Algeria	0.03% (24)
Australia	0.78% (639)
Austria	0.91% (746)
Bangladesh	0.45% (373)
Belgium	0.78% (644)
Bolivia	0.47% (385)
Brazil	4.35% (3,579)
Canada	3.09% (2,541)
Chile	1.43% (1,173)
China	2.95% (2,428)
Colombia	2.33% (1,913)
Croatia	2.91% (2,390)
Czech Republic	1.99% (1,640)
Ecuador	0.34% (276)
France	2.07% (1,706)
Germany	3.98% (3,271)
Gibraltar	0.08% (64)
Hungary	13.62% (11,200)
India	0.24% (194)
Iraq	0.12% (99)
Ireland	2.07% (1,702)
Israel	1.62% (1,334)
Italy	2.92% (2,401)
Japan	0.68% (562)
Lithuania	2.45% (2,015)
Malaysia	1.42% (1,170)
Mexico	2.60% (2,137)
New Zealand	3.45% (2,834)
North Macedonia	1.52% (1,251)
Panama	0.40% (333)
Peru	3.25% (2,672)
Poland	12.03% (9,892)
Portugal	2.75% (2,262)
Slovakia	1.38% (1,134)
South Africa	2.25% (1,849)
South Korea	1.78% (1,464)
Spain	2.83% (2,327)
Switzerland	1.39% (1,144)
Taiwan	3.24% (2,668)
Turkey	1.00% (820)
United Kingdom	1.72% (1,412)
United States of America	2.92% (2,398)
Other	1.43% (1,177)
Language	
Arabic	0.17% (142)
Bangla	0.40% (332)
Croatian	3.07% (2,522)
Czech	1.92% (1,583)
Dutch	0.63% (518)
English	17.02% (13,994)
French	4.79% (3,941)
German	4.25% (3,494)
Hebrew	1.60% (1,315)
Hindi	0.02% (17)
Hungarian	13.30% (10,937)
Italian	2.96% (2,437)
Japanese	0.57% (466)
Korean	1.75% (1,437)
Lithuanian	2.55% (2,094)
Macedonian	1.58% (1,301)
Mandarin – simplified	3.01% (2,474)
Mandarin – traditional	3.26% (2,685)
Polish	12.58% (10,343)
Portuguese – Brazil	4.44% (3,650)
Portuguese – Portugal	2.77% (2,277)
Romanian	0.09% (75)
Slovak	2.58% (2,118)
Spanish – Latin America	10.85% (8,926)
Spanish – Spain	2.81% (2,312)
Turkish	1.04% (853)
Ethnic minority status	
Ethnic minority (yes)	6.9% (5,640)
Sex assigned at birth	
Male	40.43% (33,245)
Female	59.57% (48,987)
Gender (original answer options in the survey)	
Masculine/Man	39.59% (32,549)
Feminine/Woman	57.02% (46,874)
Indigenous or other cultural gender minority identity (e.g., two-spirit)	0.20% (166)
Non-binary, gender fluid, or something else (e.g., genderqueer)	2.81% (2,315)
Other	0.37% (302)
Gender (categories used in the analyses)	
Men	39.59% (32,549)
Women	57.02% (46,874)
Gender-diverse individuals	3.38% (2,783)
Trans status	
No, I am not a trans person	96.43% (79,280)
Yes, I am a trans man	0.43% (357)
Yes, I am a trans woman	0.36% (295)
Yes, I am a non-binary trans person	1.07% (881)
I am questioning my gender identity	1.38% (1,137)
I don't know what it means	0.33% (269)
Sexual orientation (original answer options in the survey)	
Heterosexual/Straight	68.24% (56,125)
Gay or lesbian or homosexual	5.60% (4,607)
Hetero-flexible	7.54% (6,200)
Homo-flexible	0.65% (534)
Bisexual	9.35% (7,688)
Queer	1.16% (957)
Pansexual	2.39% (1,969)
Asexual	1.29% (1,064)
I do not know yet or I am currently questioning my sexual orientation	2.37% (1,951)
None of the above	0.98% (807)
I don't want to answer	0.37% (308)
Sexual orientation (categories used in the analyses)	
Heterosexual/straight	68.52% (56,125)
Gay or lesbian	5.62% (4,607)
Bisexual	9.38% (7,688)
Queer and pansexual	3.57% (2,926)
Homo- and hetero-flexible identities	8.22% (6,734)
Asexual	1.29% (1,064)
Questioning	2.38% (1,951)
Other	0.98% (807)
Highest level of education	
Primary (e.g., elementary school)	1.22% (1,002)
Secondary (e.g., high school)	24.71% (20,325)
Tertiary (e.g., college or university)	74.06% (60,896)
Currently being in education	
Not being in education	60.58% (49,802)
Being in primary education (e.g., elementary school)	0.08% (64)
Being in secondary education (e.g., high school)	1.91% (1,571)
Being in tertiary education (e.g., college or university)	37.42% (30,762)
Work status	
Not working	25.36% (20,853)
Working full time	52.27% (42,981)
Working part-time	13.81% (11,356)
Doing odd jobs	8.55% (7,029)
Socioeconomic status	
My life circumstances are among the worst	0.28% (227)
My life circumstances are much worse than average	0.94% (773)
My life circumstances are worse than average	5.15% (4,232)
My life circumstances are average	32.52% (26,742)
My life circumstances are better than average	38.38% (31,567)
My life circumstances are much better than average	17.92% (14,736)
My life circumstances are among the best	4.81% (3,957)
Residence	
Metropolis (population is over 1 million people)	32.15% (26,441)
City (population is between 100,000-999,999 people)	36.38% (29,920)
Town (population is between 1,000 99,999 people)	25.66% (21,103)
Village (population is below 1,000 people)	5.79% (4,764)
Relationship status	
Single	33.49% (27,541)
In a relationship	33.37% (27,440)

(*Continued*)

Table 1. (Continued).

	M (*SD*) or % (*n*)
Married or common-law partners	29.60% (24,338)
Widow or widower	0.52% (428)
Divorced	3.01% (2,472)
Number of children	
None	70.64% (57,909)
1	10.26% (8,417)
2	12.62% (10,353)
3	4.68% (3,843)
4	1.23% (1,014)
5	0.35% (290)
6-9	0.15% (125)
10 or more	0.03% (24)

Percentages might not add up to 100% due to missing data. *M* = mean, SD = standard deviation.

Data Analysis

All analyses were pre-registered (https://osf.io/qg8c4) and followed a five-step analytical plan. This plan included the following: (1) descriptive statistics; (2) dimensionality tests (in particular, confirmatory factor analysis [CFA]); (3) reliability tests (i.e., Cronbach's alpha [α] and McDonald's omega [ω]); (4) measurement invariance (in particular, multi-group CFAs according to four variables of interest [country, language, gender, and sexual orientation]); and (5) validity tests. Analytic software included SPSS statistical package (version 28) and R (version 4.1.3). Missing values on the SDI-2 ranged between 0.1% and 0.4% (i.e., almost negligible) and were not missing completely at random according to Little's Missing Completely at Random Test (MCAR) ($\chi 2 = 3207.22$, $df = 2085$, $p < .001$) (Little, 1988). Although the preregistered analytic approach planned the use of the Full Information Maximum Likelihood (FIML) method to handle missing values, this was not available in Lavaan's CFA function. Instead, as the rate of missing data was almost negligible, we used Lavaan's default listwise deletion method.

Descriptive Statistics

In a first step, descriptive statistics of the SDI-2 items and total score (i.e., range, mean, and standard deviation) were computed. Skewness and kurtosis were inspected to assess the normality/non-normality of distribution. Average SDI-2 total scores according to the country, language, gender, and sexual orientation were reported. To investigate whether scores on sexual desire differed according to these variables, we conducted one-way analyses of variance (ANOVAs). Effect sizes were assessed by partial eta squared (η2), and then transformed to Cohen's *f* using G*Power (Lakens, 2013). For Cohen's *f*, effect sizes of about 0.10 were considered small, close to 0.25 moderate, and greater than 0.40 large (Cohen, 1988).

Dimensionality Tests

CFAs were conducted on the total sample to check the goodness of fit of three competing factorial solutions for the SDI-2. These three competing models are the most common factorial solutions for the SDI-2 in the literature. The first model, proposed by the original authors of the scale (Spector et al., 1996), argues for a two-factor solution comprising a subscale of dyadic sexual desire (Items 1–8) and another of solitary sexual desire (Items 10–12). In this model, Items 9 and 13 are excluded as they measure self-perceived sexual desire in comparison to others (in the authors' opinion, a slightly different construct). Despite the original factorial solution dismissing these two items, subsequent studies retained them in the calculus of the two subscales (Item 9 in the dyadic sexual desire factor and Item 13 in the solitary sexual desire factor) (Peixoto et al., 2020). This factorial solution was also tested through CFA (model 2). Recently, other authors have found empirical evidence supporting a three-factor solution (Moyano et al., 2017). This model retains the classical solitary sexual desire factor (Items 10–13) but divides the dyadic sexual desire factor into two subscales (i.e., "attractive person-related sexual desire" [Items 4–5] and "partner-related sexual desire" [Items 1, 2, 3, 6, 7, 8, and 9]). This was the third factorial solution tested in this study (model 3).

The lavaan package in R was used to conduct CFAs (Rosseel, 2012). Given its superiority to other estimation methods for ordered-categorical items such as in the case of the SDI-2 (Finney & DiStefano, 2013), the estimation method used to conduct these CFAs was the Weighted Least Squares Mean and Variance Adjusted (WLSMV). Goodness of fit for the CFAs was assessed through the following indices: the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). WLSMV-based Chi-Square ($\chi 2$) and the general model significance (p) were also reported. Given that these statistics are highly conditioned by sample size (Markland, 2007), we did not use them to assess models fit. Following the pre-registration guidelines, excellent model fit was considered when the CFI and TLI were ≥ .95 and RMSEA ≤ .05 (Bagozzi & Yi, 2011; Schermelleh-Engel & Müller, 2003). Using less restrictive criteria, values ≥ .90 for the CFI and TLI and ≤ .08 for the RMSEA were considered acceptable (Hooper et al., 2008).

Reliability Tests

Internal consistency was assessed through the Ordinal Cronbach's alpha (α) and the McDonald's Omega (ω). These indices were calculated using the R package Psych (Revelle, 2023). According to the criterion proposed by Hunsley and Mash (2008), an internal consistency between .70 and .79 was considered appropriate, between .80 and .89 good, and ≥ .90 excellent.

Measurement Invariance

To assess whether the factor structure of the SDI-2 was valid for use across different languages, countries, genders, and sexual orientations, we conducted multi-group CFAs. Specifically, we tested six levels of invariance: (1) configural invariance (test whether items loaded on the same factor across groups), (2) metric invariance (test whether item factorial loadings were equal across groups), (3) scalar invariance (test whether item intercepts were equal across groups), (4) residual invariance (test whether items' measurement error were equal across groups); (5) latent variance-covariance invariance (test whether factors' latent variance and covariance were equal

across groups), and (6) latent mean invariance (test whether factors' latent mean was equal across groups). The first four levels examined the presence of potential measurement biases (namely, measurement invariance), while the last two levels examined the presence of group-based differences on the level of variance, covariance, and means (namely, structural invariance) (Milfont & Fischer, 2010; Vandenberg & Lance, 2000).

To determine the minimum number of participants required to include a particular subgroup in these analyses, we conducted a Monte Carlo simulation before starting data analysis (https://osf.io/qg8c4). Given the metric characteristics of the SDI-2 and the type of factorial structure to be tested, the Monte Carlo simulation concluded that 385 was the minimum number of participants per subgroup to be included in the invariance tests. After applying this threshold, a total of 22 languages (out of 26), 35 countries (out of 42), 3 genders (out of 3), and 8 sexual orientation subgroups (out of 8) were included in the invariance tests. The extremely large number of subgroups in the analyses according to country precluded conducting invariance tests integrating all countries within the same dataset (to avoid convergence problems). To manage this issue, following the preregistered analytic plan, countries were divided into two independent datasets based on their alphabetical order (18 countries in dataset 1 [countries from "a" to "j"] and 17 in dataset 2 [countries from "l" to "u"]) and invariance tests according to the country were conducted for each dataset separately.

The adequacy of the increasingly constrained nested models was assessed through the difference between pairs of nested models (Δ) in the RMSEA and CFI. A change ≥ 0.010 in the CFI and ≥ 0.015 in the RMSEA indicated a significant decrease in the model fit when testing for measurement invariance (Chen, 2007; Cheung & Rensvold, 2002). For metric invariance, a less stringent criterion (i.e., ≥0.020 in the CFI and ≥ 0.030 in the RMSEA) was considered acceptable (Rutkowski & Svetina, 2014). Following the pre-registration plan, in the case that models were not fully invariant at the measurement level (i.e., configural, metric, scalar, and residual), we tested partial measurement invariance (i.e., models in which a subset of parameters was allowed to vary across groups) (Milfont & Fischer, 2010). The selection of the specific parameters to be freed in these analyses was based on a previous analysis of the modification indices and the resulting changes in X^2 (conducted using the *R* function *lavTestScore*).

Validity Tests

To test the convergent validity of the SDI-2, scores were correlated (Pearson's *r*) with theoretically relevant sexual variables (such as the number of sexual partners and frequency of sexual intercourse, masturbation, and pornography use). Values around |.10| were considered weak, |.30| moderate, and |.50| strong (Cohen, 1992).

Results

Descriptive Statistics

Descriptive statistics of the SDI-2 items and total score are presented in Table 2. All SDI-2 items were normally distributed, as illustrated by skewness and kurtosis scores ranging between −1.00 and 0.13 and − 1.06–0.35, respectively.

Factorial Structure and Reliability

To assess the factorial structure of the SDI-2, we compared the adequacy of three different solutions through CFA on the total sample. Goodness-of-fit indices from the tested models are presented in Table 3.

As Table 3 shows, the factorial solution with the most satisfactory fit indices was model 3 (i.e., the three-factor solution). This model showed an excellent fit to the data (CFI = .980; TLI = .975; RMSEA = .060 [90% CI = .059 to .060]). Standardized factor loadings ranged between .63 and .91 (i.e., above the threshold to consider them appropriate [Howard, 2016]). Regarding internal consistency, ordinal Cronbach's α and ω for all SDI-2 factors (between .88 and

Table 2. Descriptive statistics of the items and total score of the Sexual Desire Inventory (SDI-2) (total sample [*N* = 82,243]).

Items	Range	*M*	*SD*	Skew.	*SE*	Kurt.	*SE*
Item 1. During the last month, how often would you have liked to engage in sexual activity with a partner (for example, touching each other's genitals, giving or receiving oral stimulation, intercourse, etc.)?	0–7	3.74	2.09	−0.36	0.02	−0.82	0.02
Item 2. During the last month, how often have you had sexual thoughts involving a partner?	0–7	4.13	2.23	−0.51	0.02	−0.87	0.02
Item 3. When you have sexual thoughts, how strong is your desire to engage in sexual behavior with a partner?	0–8	5.48	2.12	−0.90	0.02	0.30	0.02
Item 4. When you first see an attractive person, how strong is your sexual desire?	0–8	3.44	2.29	0.14	0.02	−0.93	0.02
Item 5. When you spend time with an attractive person (for example, at work or school), how strong is your sexual desire?	0–8	3.42	2.33	0.13	0.02	−1.02	0.02
Item 6. When you are in romantic situations (such as a candle lit dinner, a walk on the beach, etc.), how strong is your sexual desire?	0–8	4.76	2.17	−0.48	0.02	−0.51	0.02
Item 7. How strong is your desire to engage in sexual activity with a partner?	0–8	5.70	2.16	−1.00	0.02	0.35	0.02
Item 8. How important is it for you to fulfill your sexual desire through activity with a partner?	0–8	5.53	2.26	−0.91	0.02	0.04	0.02
Item 9. Compared to other people of your age and sex, how would you rate your desire to behave sexually with a partner?	0–8	4.61	2.12	−0.44	0.02	−0.36	0.02
Item 10. During the last month, how often would you have liked to behave sexually by yourself (for example, masturbating, touching your genitals etc.)?	0–7	3.32	2.07	−0.06	0.02	−1.06	0.02
Item 11. How strong is your desire to engage in sexual behavior by yourself?	0–8	4.19	2.31	−0.24	0.02	−0.85	0.02
Item 12. How important is it for you to fulfill your desires to behave sexually by yourself?	0–8	4.12	2.50	−0.18	0.02	−1.06	0.02
Item 13. Compared to other people of your age and sex, how would you rate your desire to behave sexually by yourself?	0–8	4.00	2.26	−0.18	0.02	−0.74	0.02
Total score[a]	0–101	56.53	19.11	−0.57	0.16	0.23	0.19

M = mean, *SD* = standard deviation, Skew. = skewness, *SE* = standard error, Kurt. = kurtosis; [a]as aforementioned, Item 14 was not included in the calculation of the total score.

Table 3. Confirmatory factor analyses' fit indices, standardized factorial loadings, and reliability (total sample [$n = 82{,}243$]).

	λ (*SDI-2*)	α (*SDI-2*)	ω (*SDI-2*)	WLSMV χ^2	df	CFI	TLI	RMSEA	90% CI
Competing factorial solutions									
Model 1 (original two-factor model)				47927.469	43	0.922	0.900	0.117	0.116–0.118
Model 2 (two-factor model with 2 excluded items)				52809.015	64	0.943	0.930	0.101	0.100–0.102
Model 3 (three-factor model)				18013.260	62	0.980	0.975	0.060	0.059-0.060
Factor 1 (Partner-related sexual desire)		0.88	0.92						
Item 1	0.70								
Item 2	0.70								
Item 3	0.77								
Item 6	0.63								
Item 7	0.82								
Item 8	0.66								
Item 9	0.78								
Factor 2 (Solitary Sexual Desire)		0.91	0.92						
Item 10	0.79								
Item 11	0.91								
Item 12	0.80								
Item 13	0.88								
Factor 3 (Attractive-person-related sexual desire)		0.89	0.89						
Item 4	0.90								
Item 5	0.89								
Total Score		0.89	0.94						
Inter-factor correlations of the SDI-2	1	2							
1. Partner-related sexual desire									
2. Solitary sexual desire	0.38***								
3. Attractive-person-related sexual desire	0.43***	0.41***							

All factor loadings and correlations were statistically significant at $p < .001$; λ = standardized factor loading; α = Cronbach's alpha, ω = McDonald's omega. WLSMV = weighted least squares mean- and variance-adjusted estimator; χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root-mean-square error of approximation; 90% CI = 90% confidence interval of the RMSEA. *** indicates $p < .01$.

.92) and its total score (between .89 and .94) exceeded the criterion established by Hunsley and Mash (2008) to consider the reliability excellent. Furthermore, notable convergence occurred between both indices, an aspect that may be considered a good indicator of the internal consistency of the SDI-2 under different conditions (Zinbarg et al., 2005). The inter-factor correlations were positive yet moderate (from .38 to .43).

Measurement Invariance

To test measurement and structural invariance of the SDI-2 according to language, country, gender, and sexual orientation, we conducted multi-group CFAs using the three-factor solution. Table S2 displays results from the language-based invariance tests. Configural invariance according to language was supported (CFI=.978; TLI = .972; RMSEA = .064 [90% CI = .063 to .065]), so we subsequently estimated models with increasing levels of constraints to test higher levels of invariance. Regarding metric invariance, changes in the RMSEA and CFI did not show a significant worsening in the model fit (ΔCFI = 0.001; ΔRMSEA = 0.008), thus supporting a complete equivalence of the SDI-2 factorial solution and factorial loadings according to language. However, the significant Δ in CFI and RMSEA at a scalar level (0.017 and 0.011, respectively) suggested the presence of differences at this measurement level according to language. Therefore, based on modification indices, we conducted partial scalar invariance by relaxing the equality constraint on the residual variance of Item 1 in Spanish and 8 and 12 in Italian, resulting in an appropriate model fit (ΔCFI = 0.010; ΔRMSEA = 0.006). The last level of invariance achieved was at a partial residual level (ΔCFI = 0.006; ΔRMSEA = 0.003), thus reflecting lack of measurement biases according to language. However, latent variance-covariance and latent mean invariance were not met. To further explore this issue, average total scores on the SDI-2 according to language were estimated. We observed significant small-to-moderate differences according to language (F [21] = 175,57; $p < .001$; $\eta^2 = .044$; $f = 0.21$) (see details in Table S3).

Subsequently, we conducted measurement invariance tests according to country in two independent datasets (Table S4; see "Data analysis" for the rationale behind the use of two independent datasets). In dataset 1, full configural (CFI=.976; TLI = .969; RMSEA = .065 [90% CI = .064 to .066]) and metric invariance (ΔCFI = 0.015; ΔRMSEA = 0.011) were achieved, but constraining item intercepts resulted in a significant worsening of the model fit (ΔCFI = 0.024; ΔRMSEA = 0.015). To address this issue, we relaxed the equality constraint of Items 1 and 2 in China and Items 8 and 12 in Israel, resulting in meeting partial scalar invariance (ΔCFI = 0.009; ΔRMSEA = 0.003). Finally, relaxing the equality constraints of Item 12 in Hungary let to partial residual invariance being met (ΔCFI = 0.003; ΔRMSEA = 0.0001). In dataset 2, full configural (CFI=.982; TLI = .977; RMSEA = .061 [90% CI = .060 to .062]), metric (ΔCFI = 0.005; ΔRMSEA = 0.002), and residual invariance (ΔCFI = 0.006; ΔRMSEA = 0.001) were achieved without relaxing any constraint. Furthermore, relaxing equality constraints of Item 2 in Taiwan resulted in meeting partial scalar invariance (ΔCFI = 0.008; ΔRMSEA = 0.006). Latent variance-covariance and latent mean invariance were not met either in dataset 1 or 2, thus suggesting the presence of structural invariance according to country. In this regard, we observed significant small-to-moderate differences in SDI-2 total scores according to country (F [34] = 123.821; $p < .001$; η2=.051; f = 0.23) (Table S5). Countries in the upper end of SDI-2 scores (i.e., Brazil [$M = 64.02$], Hungary [$M = 62.14$],

and Turkey [$M = 61.83$]) scored between 11 and 19 points above those in the lower end (i.e., Taiwan [$M = 50.29$], China [$M = 49.00$], and Colombia [$M = 45.31$]), thus highlighting the existence of important differences in sexual desire across countries (or, alternatively, the existence of cross-cultural differences in the disclosure of sexual desire through self-report).

Regarding gender (Table S6) and sexual orientation-based measurement invariance (Table S8), full configural, metric, scalar, and residual invariance was achieved (i.e., complete measurement invariance according to gender and sexual orientation). However, once again, latent variance-covariance and latent mean invariance were not met. According to gender and sexual orientation (Tables S7 and S9), men ($M = 62.92$) and gay or lesbian individuals ($M = 62.75$) obtained higher scores on the SDI-2. Differences according to gender (F [2] = 3231.65; $p < .001$; η2 = .074; f = 0.28) and sexual orientation (F [7] = 881.85; $p < .001$; η2 = .071; f = 0.27) were moderate-to-large. Notably, asexual participants scored quite low on sexual desire ($M = 18.28$), reflecting that these individuals are characterized by minimal/no sexual attraction/desire.

SDI-2 Validity

As displayed in Table 4 (convergent validity), the SDI-2 showed weak-to-strong associations with theoretically relevant sexual correlates. In particular, the SDI-2 showed positive, weak correlations with the number of past-year sexual partners (r = .11) and lifetime number of sexual partners (r = .13), weak-to-moderate associations with the past-year sexual frequency with a stable partner (r = .20), with casual partners (r = .22) or in general (r = .27), and strong associations with past-year frequency of pornography use (r = .47) and past-year frequency of masturbation (r = .56).

Discussion

Sexual desire is a complex construct in which biological, psychological, and social components interact to determine the intensity of individuals' sexual interest and their proneness to behaving sexually (i.e., seeking or avoiding sexual activity) (Levine, 2003). Multiple definitions and conceptualizations of sexual desire exist, hindering the ways in which sexual desire has been measured. A widely used scale assessing sexual desire in non-clinical samples is the SDI-2 (Spector et al., 1996). Even when this scale presents excellent psychometric properties, it remains limited in several ways. An important limitation of the SDI-2 has been the lack of an unequivocal factorial solution. Another issue involves cross-cultural validity (Cartagena-Ramos et al., 2018): although sexual desire may be conditioned by cultural (Hatfield & Rapson, 1993) and gendered (Rubin et al., 2019) sexual scripts, few studies had investigated the validity of the SDI-2 in different countries and cultural contexts. Moreover, before the ISS commenced, the SDI-2 was only available in a limited number of languages (English [Spector et al., 1996], Spanish [Ortega et al., 2006] or Portuguese [Peixoto et al., 2020]). To address these issues, we translated the SDI-2 into 25 languages from English and used data from the ISS (~82,000 participants from 42 countries) to (1) test the adequacy of three different factorial solutions, (2) explore the psychometric properties of the resulting factorial solution (both reliability and validity), (3) assess its measurement and structural invariance according to country, language, gender, and sexual orientation, and (4) examine the expression of sexual desire in different countries, languages, genders, and sexual orientations.

Regarding the factor structure of the SDI-2, our results showed the superiority of the three-factor solution over the two competing models. This finding resonates with previous ones in which an equivalent three-factor solution for the SDI-2 showed the best fit to the data (Holmberg & Blair, 2009; Mark et al., 2017; Moyano et al., 2017). This factorial structure keeps the original subscale of "solitary sexual desire," but divides the subscale of "dyadic sexual desire" into two subcomponents: one focused on sexual desire for a stable partner (i.e., "partner-related sexual desire") and the other focused on sexual desire for an attractive person (i.e., "attractive person-related sexual desire"). Through this approach, the factorial structure of the SDI-2 recognizes that the psychological and sexual dynamics related to the interest toward a stable partner are different from those involved in the sexual desire for an attractive, and possibly unknown, other person (Diamond, 2003, 2004; Hatfield & Rapson, 2006). Furthermore, this division captures the experience of people displaying no sexual desire for their stable partners but showing an obvious interest for casual sex and vice versa (Sarin et al., 2013; Vowels, 2023). Supporting their view as correlated but independent components of dyadic sexual desire, the moderate association between these two subscales (r = .43) means that high scores on one of the subscales does not necessarily translate into high levels of sexual desire on the other. Similarly, the moderate association between the two dyadic components of sexual desire and the factor of solitary sexual desire (r between .38 and .41) supports the view of sexual desire as multidimensional (Levine, 2003), thus advising for the use of the SDI-2 according to its three

Table 4. Associations between the Sexual Desire Inventory (SDI-2) and theoretically relevant constructs (convergent validity).

	Range	*M*	*SD*	*Mdn*	1.	2.	3.	4.	5.	6.	7.
1. Sexual Desire Inventory (SDI-2)	0–101	56.53	19.11	59							
2. Lifetime number of sexual partners (in and out of a relationship)	0–1000	12.59	42.53	4.00	0.13**	–	–	–	–	–	–
3. Past–year sexual frequency (in and out of a relationship)[a]	0–10	4.07	2.72	5.00	0.27**	0.10**	–	–	–	–	–
4. Past–year sexual frequency (with the partner)[b]	0–1000	5.30	2.14	6.00	0.20**	−0.00	0.86**	–	–	–	–
5. Number of past–year casual sexual partners	0–340	1.12	5.85	0.00	0.11**	0.39**	0.08**	0.00	–	–	–
6. Past-year casual sexual frequency[a]	0–10	0.74	1.59	0.00	0.22**	0.26**	0.18**	0.03**	0.37**		–
7. Past-year frequency of masturbation[a]	0–10	5.36	2.61	6.00	0.56**	0.10**	−0.02**	0.02**	0.10**	0.18**	
8. Past-year frequency of pornography use[a]	0–10	4.22	3.02	4.00	0.47**	0.11**	−0.04**	−0.01	0.11**	0.14**	0.68**

M = mean; *SD* = standard deviation; *Mdn* = median; [a]0: never, 1: once in the past year, 2: 2–6 times in the past year, 3: 7–11 times in the past year, 4: monthly, 5: 2–3 times a month, 6: weekly, 7: 2–3 times a week, 8: 4–5 times a week, 9: 6–7 times a week, 10: more than 7 times a week; [b]Only partnered individuals responded to this question (n = 51,754). *$p < .001$.

subscales rather than on the basis of a total score of sexual desire (as the latter may not totally represent the intrinsic variability in sexual desire that individuals may express in different sexuality-related domains).

Regarding its psychometric properties, this study demonstrates that the SDI-2 is a reliable and valid scale for the assessment of sexual desire. Cronbach's α and ω for the three SDI-2 subscales and for the total score ranged between .88 and .94. These values are comparable to, and in some cases higher than, those obtained in previous studies (for a review, see Mark et al., 2017). In addition, the total SDI-2 score correlated with the frequencies of pornography use and masturbation (strong association). These results resonate with previous studies showing a strong link between sexual desire and frequency of pornography use (Leonhardt et al., 2021) or attitudes toward masturbation (Cervilla et al., 2021). The link between sexual desire and sexual frequency (in particular, for sexual activities involving a partner) is more complex, as engaging in sexual activity does not depend exclusively on the individual's sexual desire (Santtila et al., 2007). This may explain the weak-to-moderate association between sexual desire and sexual frequency with stable or casual partners observed in our study and the weak association with the number of sexual partners.

In the process of validating the SDI-2, we paid special attention to ensure that the factorial solution resulting from the CFA was equally applicable to multiple populations that may be assessed through this scale. According to Sakaluk (2019), testing invariance (in brief, to what extent a measure is equally applicable to different populations) constitutes one of the most pressing statistical challenges in sexual science, in particular when it comes to validating self-report assessment scales. To address this limitation, we tested four levels of measurement invariance (namely, configural, metric, scalar, and residual) and two levels of structural invariance (namely, latent variance-covariance and mean) according to country, language, gender, and sexual orientation. To our knowledge, previous studies have tested the applicability of the SDI-2 according to one of these variables (e.g., gender [Vallejo-Medina et al., 2020] or sexual orientation [Mark et al., 2017]), but this is the first time that the SDI-2 invariance was tested in all these variables simultaneously, including a very large number of subgroups (specifically, 22 languages, 35 countries, three genders, and eight sexual orientations), and through a robust statistical approach (multi-group CFAs testing six different levels of invariance). In this sense, this research provides empirical evidence that the SDI-2 is equally applicable in all investigated languages, countries, genders, and sexual orientations without potential measurement biases (i.e., without changes in its factorial structure, factorial loadings, intercepts, or measurement errors). Given that the SDI-2 has been demonstrated to be psychometrically sound, cross-culturally equivalent in terms of its factorial structure, and meaningful for assessing sexual desire in multiple populations, it may constitute a sound instrument for use in large-scale cross-cultural studies investigating sexual behavior (Bothe et al., 2021; de Graaf et al., 2023).

That said, invariance tests demonstrated group-based differences in variance, covariance, and means according to country, language, gender, and sexual orientation. These differences were supported by analyses in which we inspected the average total SDI-2 scores according to these variables. In particular, we found small-to-moderate differences in sexual desire according to country and language, and moderate-to-large differences according to gender and sexual orientation. These findings support the importance of cultural context with respect to sexual desire (Hakim, 2015). However, it is important to note that the distribution of participants by country was uneven and biased toward European countries (both Eastern and Western), an aspect that may limit the generalizability of the findings. As the SDI-2 has been demonstrated to be psychometrically sound when measuring sexual desire cross-culturally, future studies may use this scale to expand the knowledge on how this sexuality-related domain is expressed in underrepresented voices (e.g., Middle Eastern women). Our research also supports the view that men and sexually diverse individuals (in particular, gay or lesbian individuals) experience higher levels of sexual desire (Frankenbach et al., 2022; Makarenko et al., 2022). Finally, the finding that asexual participants (i.e., individuals characterized by limited/no sexual attraction/desire [Van Houdenhove et al., 2015]) scored significantly lower on sexual desire than any other sexual orientation subgroup provides further support to the validity of the SDI-2.

Limitations and Future Directions

Despite study strengths (e.g., pre-registration, adhesion to open science practices, large sample size, cross-cultural involvement, and sound statistical approach), limitations exist. General limitations attributable to the ISS project include the use of convenience sampling, cross-sectional design, online data collection, and the uneven distribution of participants according to the country (with Western and Eastern European citizens overrepresented) or other sociodemographic characteristics (such as age, level of education, socioeconomic status, or the number of children) (for more elaboration on these general limitations, see https://osf.io/6kscb?view_only=838146f6027c4e6bb68371d9d14220b5). As some of these aspects (e.g., age) may have an impact on the expression of sexual desire (Corona et al., 2013), our results should be interpreted with caution. Although all the collaborators followed the standardized data collection guidelines for the ISS (see Bothe et al., 2021), some differences in the recruitment methods and data collection practices were present (e.g., participants recruited via internet-based market research companies in some countries or participants receiving incentives in others). These differences in the recruitment methods might have resulted in different motivations for participation in certain countries. Another limitation of this study is related to the fact that data collection occurred during the last stages of the COVID-19 pandemic (between 2021 and 2022). As it is well known that the COVID-19 pandemic might have impacted on different aspects of sexuality (including sexual desire [Ballester et al., 2021]), findings should be interpreted with caution. The study was also limited in that it did not assess test–retest reliability or responsiveness (two important psychometric properties of screening scales [Mokkink et al., 2018]). Given that these two properties of the SDI-2 have not been tested yet (Cartagena-Ramos et al., 2018), future studies examining these characteristics are warranted. Similarly, the

SDI-2 lacks clinical cutoff scores for the identification of individuals at risk of showing problems related to their sexual desire. Even though the SDI-2 was not designed for diagnostic purposes, we believe that determining a threshold for the screening of individuals at risk of hypoactive sexual desire may be beneficial. Finally, this study only included a limited number of secondary measures, thus hindering our ability to examine convergent, divergent, and discriminative validity more comprehensively.

Conclusions

The SDI-2 is a psychometrically sound scale for assessing sexual desire. Our study revealed that the SDI-2 assesses three related yet relatively independent factors of sexual desire, namely solitary sexual desire (i.e., desire to engage in sexual activities with oneself), partner-related sexual desire (i.e., sexual desire for a stable partner), and attractive-person-related sexual desire (i.e., sexual desire for an attractive person). The SDI-2 demonstrated potentially bias-free comparisons of scores according to country, language, gender, and sexual orientation. This important property, together with its demonstrated ability to quantify group-based differences in sexual desire, supports the utility of the SDI-2 for large-scale cross-cultural studies involving diverse populations.

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