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Why Humans Have Sex: Development and Psychometric Assessment of a Short-Form Version of the YSEX? Instrument

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ABSTRACT

Research has documented 237 distinct reasons for engaging in sex, which have been clustered into the 141-item, 13 subscale YSEX? instrument. Although the YSEX? has impressive psychometric properties, the required completion time is a barrier to its use in time-constrained contexts. The current studies develop and validate a short-form version of the instrument. The new 28-item, 14 subscale YSEX?-SF demonstrates acceptable model fit and good internal-reliability, with evidence for cross-form and construct validity. The YSEX?-SF maintains the original instrument's sound psychometric properties with a significantly shorter completion time, which may facilitate the study of sexual motivation.

Introduction

Within the field of human sexuality, sexual motivations represent a critically important area of empirical investigation. Understanding the reasons humans have sex can provide invaluable insight into larger questions of interest within the field, including the mechanisms underlying sexual desire and arousal, interpersonal drivers of sexual behavior, and gender differences in sexual patterns and preferences (Meston & Stanton, 2017). Despite this, there has historically been little research exploring the specific and potentially highly diverse reasons for why humans have sex.

One potential explanation for this general dearth of research may be that motivations for engaging in sex can seem relatively obvious: for pleasure, for procreation, for love. In 2007, however, a large-scale study of sexual motivations challenged this traditional belief, finding evidence that such motives are not only large in number, but also psychologically and socially complex and varied in nature. Meston and Buss (2007) found 237 relatively distinct reasons individuals report for having sex, with themes ranging from mate guarding to experience-seeking to love and commitment.

From these 237 distinct reasons, factor analyses yielded the YSEX? instrument, a 141-item measure that comprehensively assesses sexual motivations across four broad domains and 13 subscales. The instrument has demonstrated sound psychometric properties, with Cronbach's coefficient alphas exceeding 0.85 for each of the four domains. In addition, the YSEX? instrument has been linked to theoretically meaningful personality traits and individual differences in human mating strategies, providing further evidence for its relevance and empirical utility (Meston & Buss, 2007).

Since the inventory was originally constructed, many studies have utilized the YSEX? to examine sexual motivations in relation to important sexual constructs, such as sexual dysfunction, sexual orientation, and relationship context/attachment (e.g., Armstrong & Reissing, 2015; Stephenson, Ahrold, & Meston, 2011; Watson et al., 2017; Wood, Milhausen, & Jeffrey, 2014). Despite the growing body of empirical research using the YSEX? instrument, the length of such a

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comprehensive measure limits the full range of scientific inquiry, since many research endeavors are necessarily time-constrained.

While longer questionnaires like the original YSEX? have the advantage of providing more comprehensive data, there is also evidence to suggest that such measures result in survey fatigue and may even increase the rate of response errors in measurement (Saucier, 1994). Indeed, in a systematic review comparing short-form to long-form measures, long-form questionnaires were linked to decreased response rates, a proxy for overall response burden (Rolstad, Adler, & Ryden, 2011). Moreover, there is evidence to suggest that more concise measures maintain psychometric quality simply by reducing item redundancy rather than reducing specificity or content coverage, and that shorter measures may even outperform longer instruments in some indices of validity (Burisch, 1997).

For participants, it is clear that more concise measures would be preferable, as they mitigate issues related to survey fatigue. For researchers, the reduction in measurement error and decreased time required for implementation also provides distinct logistic and financial advantages. Therefore, it is beneficial to develop a multidimensional instrument that optimizes efficiency while maintaining psychometric integrity (Jonason & Webster, 2010).

The current studies

The authors of the current study developed a short-form version of the YSEX? instrument (YSEX?-SF) using the sample from the original measure development (Study 1). To psychometrically assess the newly developed instrument, the original YSEX? and the new YSEX?-SF were then administered to a new sample concurrently, with several additional instruments included to assess for construct and cross-form validity (Study 2). Our primary goal for the YSEX?-SF was to retain the psychometric integrity of the long-form YSEX?. The adequacy in achieving this goal was assessed by correlating the YSEX?-SF subscales with their respective long-form subscales and assessing the internal consistency and reliability of the new subscales.

A secondary goal of this analysis was to assess the construct validity of the YSEX?-SF. Literature from evolutionary psychology has demonstrated that men and women employ differing sexual strategies (e.g., Buss & Schmitt, 1993) as a result of sex differences in parental investment and reproductive goals (e.g. Buss, 1989). As such, it is likely that variations in the reasons men and women endorse for engaging in sex, as reflected by the YSEX?, should align with these variations in sexual strategies (e.g., engaging in sex for physical reasons may be positively associated with a high desire for casual and uncommitted sex). Indeed, in the original YSEX? article, both men and women's physical motivations for sex (e.g., physical desirability, pleasure) were significantly related to greater openness towards uncommitted sexual encounters (Meston & Buss, 2007). The original article also demonstrated significant relationships between personality variables and reasons for having sex, such that individuals who were more conscientious were less likely to engage in sex for reasons of obligation. Additionally, previous research has shown that darker personality traits, such as Machiavellianism, are related to engaging in sex for reasons such as increasing social status or seeking revenge (Brewer & Abell, 2015). Elements of personality and sexual strategy were used to confirm both the convergent and divergent validity of a short-form version of the YSEX?

Study 1 Preliminary assessment and development

Method

Participants

The sample from the original YSEX? measure development was used for the current analyses. A total of 1,549 undergraduates (1046 women, 68%) enrolled in a Fall (September-December,

2000–2003) or Spring (January-May, 2001–2004) Introductory Psychology course participated in the study in exchange for course credit. Participants were predominantly between the ages of 18 and 22 (96%) with an overall age range of 16 to 42. Further demographic information for the original sample is reported in the original article (see (Meston & Buss, 2007)).

Measures

YSEX? Instrument (Meston & Buss, 2007). The YSEX? instrument assesses individuals' reasons for having sex across thirteen subscales of sexual motivation: (1) Stress Reduction (12 items, $\alpha = .83$), (2) Pleasure (8 items, $\alpha = .81$), (3) Physical Desirability (10 items, $\alpha = .80$), (4) Experience Seeking (15 items, $\alpha = .86$), (5) Resources (15 items, $\alpha = .83$), (6) Social Status (11 items, $\alpha = .82$), (7) Revenge (10 items, $\alpha = .76$), (8) Utilitarian (10 items, $\alpha = .76$), (9) Self-Esteem Boost (9 items, $\alpha = .75$), (10) Duty/Pressure (13 items, $\alpha = .87$), (11) Mate Guarding (9 items, $\alpha = .79$), (12) Love and Commitment (12 items, $\alpha = .82$), and (13) Expression (7 items, $\alpha = .77$). The measure has been widely used and demonstrates strong reliability and validity (Meston & Buss, 2007; Meston & Stanton, 2017). Participants responded to various reasons for engaging in sex on a Likert scale reflecting the frequency of their sexual experiences that were motivated by the specific reason, ranging from 1 (*none of my experiences*) to 5 (*all of my experiences*). Total scores for the subscales are calculated by summing the items within each domain, such that higher scores reflect more frequent engagement in sex motivated by those factors.

Procedure

The full procedure for data collection on the original YSEX? is published elsewhere (see Meston & Buss, 2007). Briefly, participants were administered questionnaires in groups of 5–10 same-gender peers. Same-gender researchers informed participants about the sexual nature of the study, obtained informed consent, answered questions, and administered the questionnaire packets. After completion, participants returned their packets to a drop box to allow for anonymity. All research procedures were approved by the Institutional Review Board at The University of Texas at Austin throughout 2000–2004.

Data analyses

Given the specificity and comprehensiveness of the original YSEX?, the method employed for item selection was somewhat different than traditional approaches. First, the four authors of the current paper independently examined item loadings onto each of the 13 respective subscales of sexual motivation from the original principal components analysis (PCA). Item-total correlations have been found to be a valid metric for guiding short-form development (Smith, McCarthy, & Anderson, 2000). Using factor loadings to guide item reduction is an approach that is mathematically distinct yet conceptually similar to using item-total correlations, as they both are intended to infer the degree to which a single item represents an underlying construct.

The highest loading items were subsequently examined for conceptual fit with the overall construct of the subscale, by determining the degree to which they captured the essence of the construct and encapsulated other similar items of the subscale. The *a priori* goal of analysis was to retain two items from each of the 13 domains that could be used in a short-form of the YSEX? When the highest loading item was not representative of the overall subscale, alternative items with similarly high loadings were considered and evaluated. For example, in the Experience Seeking subscale, the highest loading item was "I was curious about sex," which did not appear to represent the rest of the items as well as the third highest loading item, "I wanted the experience."

With the multitude of specific reasons for engaging in sex demonstrated in the YSEX?, there were instances where original items could not be used to capture the construct of the overall

subscale. If the authors agreed that all potential items were too specific and did not adequately represent the overall subscale, a new item was written to qualitatively capture the construct. For instance, within the Expression subscale, all of the items assessed specific messages (e.g., Goodbye) or contexts (e.g., birthdays) for which sex was used as a means of expression. Thus, to retain a meaningful construct in fewer items the authors wrote new items that could more readily capture the range of items within the original subscale. When all four authors were in agreement on each of the retained, excluded, and novel items based on both factor loadings and conceptual representativeness, the process was considered complete. In Table 1 all of the items of the original YSEX? items retained, modified, or re-written are indicated with superscripts to demonstrate the procedure of item reduction.

The factor loadings for the original YSEX? items onto their respective subscales are reported in Table 1. For the majority of the subscales, highly-loaded items that were descriptive of the overall subscale were retained. In some instances, (e.g., the Utilitarian subscale; renamed the Practical subscale in the short-form) the items were too specific (e.g., "I wanted to get rid of a headache") and new conceptually broader items were written to capture the overall construct (e.g., "I wanted the physical benefits (e.g., burn calories, sleep, relieve pain)"). Other items were slightly modified to reduce specificity and increase conceptual applicability (e.g., "I wanted to get back at my partner for having cheated on me" became "I wanted to get back at my partner"). Additionally, the items "I wanted to have a child" and "I wanted to reproduce" that loaded onto the Resources subscale in the long-form did not fit conceptually with the rest of the Resources factor. In order to encompass this important motivation for having sex, the two items were compiled into a new subscale called Reproduction. The resulting preliminary YSEX?-SF is a 28-item instrument made up of 14 subscales of sexual motivation, with two items in each subscale.

Discussion

The goal of the preliminary analysis was to develop a short-form version of the YSEX? instrument that was still comprehensive but could increase usage of the YSEX? by decreasing barriers to efficient implementation. The most conceptually and statistically rich items from the original YSEX? instrument were retained and, where necessary, new broader items were written to capture elements of the domains that were missed by relying only on current items. The resulting instrument is the 28-item YSEX?-SF that is face-valid and in-line with the comprehensiveness of the original YSEX? instrument. The YSEX?-SF contains roughly a fifth of the number of items as the original YSEX? and includes several entirely new items, necessitating further testing of validity and internal consistency—the rationale for Study 2.

Study 2 Confirmatory factor analysis and psychometric assessment

Method

Participants
A total of 223 participants (107 women, 48.0%) completed an online study on sexual motivation. Participants ranged in age from 19 to 76 with a median age of 33. Full demographic information for the current sample is reported in Table 2.

Measures
YSEX? (Meston & Buss, 2007). As the original YSEX? was validated on an undergraduate sample, it was included in this second study, separate from the YSEX?-SF, to both assess the internal reliability of the YSEX? in the current sample and assess cross-form validity with the YSEX-SF?

Table 1. Loadings of the YSEX? Items from the original study.

Subscale and Item	λ^{a}
Stress Reduction	
I was frustrated and needed relief.[a]	−0.67
I wanted to release anxiety/stress.[a]	−0.60
I wanted to release tension.	−0.59
I was bored.	−0.57
It seemed like good exercise.	−0.55
I thought it would relax me.	−0.54
I'm addicted to sex.	−0.54
It would allow me to "get sex out of my system" so that I could focus on other things.	−0.53
I'm a sex addict.	−0.49
I thought it would make me feel healthy.	−0.43
I hadn't had sex for a while.	−0.39
I wanted to satisfy a compulsion.	−0.33
Pleasure	
It feels good.[b]	−0.75
I wanted to experience physical pleasure.	−0.73
I was "horny."[a]	−0.64
It's fun.	−0.61
I wanted the pure pleasure.	−0.53
I wanted to achieve an orgasm.	−0.47
It's exciting, adventurous.	−0.45
I was "in the heat of the moment."	−0.44
Physical Desirability	
The person had an attractive face.[a]	−0.89
The person had a desirable body.[a]	−0.85
The person had beautiful eyes.	−0.76
The person smelled nice.	−0.75
The person's physical appearance turned me on.	−0.73
I saw the person naked and could not resist.	−0.66
The person was a good dancer.	−0.55
The person was too physically attractive to resist.	−0.54
The person wore revealing clothes.	−0.53
The person was too "hot" (sexy) to resist.	−0.53
Experience Seeking	
I was curious about sex.	−0.73
I was curious about my sexual abilities.	−0.70
I wanted the experience.[a]	−0.67
I wanted to experiment with new experiences.	−0.64
I wanted to see what all the fuss is about.	−0.62
I wanted to see what it would be like to have sex with another person.	−0.58
I wanted the adventure/excitement.[a]	
I wanted to improve my sexual skills.	−0.49
I was curious about what the person was like in bed.	−0.48
I wanted to lose my inhibitions.	−0.47
I wanted to get the most out of life.	−0.41
I wanted to try out new sexual techniques or positions.	−0.40
The opportunity presented itself.	−0.37
I wanted to act out a fantasy.	−0.35
I wanted to see whether sex with a different partner would feel different or better.	−0.34
Resources	
I wanted to get a raise.[c]	−0.61
I wanted to punish myself.	−0.60
I wanted to get a job.[c]	−0.57
I wanted to hurt/humiliate the person.	−0.57
I wanted to get a promotion.[c]	−0.57
I wanted to give someone else a sexually transmitted disease (e.g., herpes, AIDS).	−0.53
Someone offered me money to do it.[c]	−0.49
I wanted to feel closer to God.	−0.48
I wanted to make money.	−0.46
I wanted to have a child.[d]	−0.45
I wanted to reproduce.[d]	−0.43
It was an initiation rite to a club or organization.	−0.40
The person offered me drugs for doing it.[c]	−0.35

Table 1. Continued.

Subscale and Item	λ^a
I wanted to end the relationship.[c]	−0.34
I wanted to be used or degraded.	−0.33
Social Status	
I wanted to be popular.	−0.79
I wanted to enhance my reputation.[a]	−0.57
I wanted to have more sex than my friends.	−0.54
I was competing with someone else to "get the person."	−0.48
It would damage my reputation if I said "no."	−0.48
The person was famous and I wanted to be able to say I had sex with him/her.	−0.47
I thought it would boost my social status.[b]	−0.47
My friends pressured me into it.	−0.41
It was a favor to someone.	−0.40
Someone dared me.	−0.38
I wanted to impress friends.	−0.38
Revenge	
I wanted to get back at my partner for having cheated on me.[b]	−0.77
I was mad at my partner so I had sex with someone else.	−0.71
I wanted to get even with someone.[a]	−0.64
I wanted to even the score with a cheating partner.	−0.60
I wanted to make someone else jealous.	−0.59
I wanted to break up rival's relationship by having sex with his/her partner.	−0.57
I was on the "rebound" from another relationship.	−0.56
I wanted to break up another's relationship.	−0.51
I wanted to hurt an enemy.	−0.44
Utilitarian[e]	
I wanted to get out of doing something.	−0.72
I wanted to burn calories.[c]	−0.69
I wanted to keep warm.[c]	−0.61
The person had taken me out for an expensive dinner.	−0.60
I wanted to get rid of a headache.[c]	−0.59
I wanted to change the topic of conversation.	−0.58
I thought it would help me to fall asleep.[c]	−0.57
I wanted to become more focused on work - sexual thoughts are distracting.	−0.54
I wanted to get a favor from someone.	−0.50
I wanted to defy my parents.	−0.41
Love & Commitment	
I wanted to feel connected to the person.[a]	−0.80
I wanted to increase the emotional bond by having sex.	−0.78
I wanted to communicate at a deeper level.	−0.76
I wanted to express my love for the person.[a]	−0.73
I wanted to show my affection to the person.	−0.73
I wanted to intensify my relationship.	−0.72
I desired emotional closeness (i.e., intimacy).	−0.67
I wanted to become one with another person.	−0.64
It seemed like the natural next step in my relationship.	−0.59
I realized I was in love.	−0.58
I wanted to get a partner to express love.	−0.50
I wanted the person to feel good about himself/herself.	−0.40
Expression	
I wanted to welcome someone home.[c]	−0.88
I wanted to say "I'm sorry."[c]	−0.85
I wanted to say "thank you."[c]	−0.83
I wanted to say "good bye."[c]	−0.83
I wanted to celebrate a birthday or anniversary or special occasion.[a]	−0.73
I wanted to say "I've missed you."[c]	−0.71
I wanted to lift my partner's spirits.	−0.56
Self-Esteem Boost	
I wanted to feel powerful.	−0.86
I wanted to make myself feel better about myself.[b]	−0.73
I wanted to boost my self-esteem.[a]	−0.70
I wanted to feel attractive.	−0.59
I wanted my partner to notice me.	−0.47
I wanted the attention.	−0.43

(continued)

Table 1. Continued.

Subscale and Item	λ^a
I wanted to "gain control" of the person.	−0.42
I wanted to manipulate him/her into doing something for me.	−0.41
I felt insecure.	−0.41
Duty/Pressure	
I didn't know how to say "no."	−0.75
I was pressured into doing it.[a]	−0.74
I felt obligated to.[a]	−0.73
I was verbally coerced into it.	−0.70
I felt like it was my duty.	−0.69
I wanted him/her to stop bugging me about sex.	−0.65
My partner kept insisting.	−0.63
I felt like I owed it to the person.	−0.51
I was physically forced to.	−0.51
It was expected of me.	−0.50
I felt guilty.	−0.49
I didn't want to disappoint the person.	−0.47
I wanted to be nice.	−0.45
Mate Guarding	
I wanted to keep my partner from straying.[a]	−0.83
I wanted to get my partner to stay with me.[a]	−0.79
I wanted to decrease my partner's desire to have sex with someone else.	−0.74
I wanted to prevent a breakup.	−0.73
I was afraid my partner would have an affair if I didn't have sex with him/her.	−0.63
I wanted to ensure the relationship was "committed."	−0.60
I didn't want to "lose" the person.	−0.58
I wanted the person to love me.	−0.43
I thought it would help "trap a new partner."	−0.40

Note. N = 1,549. All loadings are for the original items loading onto their respective subscale on the YSEX? From the original study (see Meston & Buss, 2007).
[a]These items were retained in their current form for the short form.
[b]These items were slightly modified and included in the short form.
[c]These items were combined with others from the respective subscale into a rewritten, more general item.
[d]These items were pulled from the Resources subscale of the long form to create a separate Reproduction subscale in the short form.
[e]The Utilitarian subscale was renamed Practical in the short form.

YSEX?-SF. The YSEX?-SF that was developed in Study 1 was administered to the current sample.

Sociosexual Orientation Inventory-Revised (*SOI-R*; Penke & Asendorpf, 2008). The SOI-R is a widely used nine-item, self-report measure assessing the sexual strategies of short-term mating across three domains including (1) behavior, (2) attitudes, and (3) desire. The behavior domain is comprised of three items ($\alpha = 0.68$) that participants respond to on a nine-point scale, ranging from 1 (*0*) to 9 (*20 or more*), indicating the number of partners they have engaged in various casual sexual experiences with (e.g., "With how many different partners have you had sexual intercourse with on one and only one occasion?"). The attitudes domain is made up of three items ($\alpha = 0.81$) that participants respond to on a nine-point scale, ranging from 1 (*strongly disagree*) to 9 (*strongly agree*), indicating their attitudes to various statements about uncommitted sex (e.g., "Sex without love is OK"). The desire domain consists of three items ($\alpha = 0.90$) that participants respond to on a nine-point scale, ranging from 1 (*Never*) to 9 (*At least once a day*), indicating the frequency with which they experience desire, arousal, or fantasies related to casual or uncommitted sexual experiences (e.g., "How often do you have fantasies about having sex with someone you are not in a committed romantic relationship with?"). All provided Cronbach's alphas are for the current sample.

The Dirty Dozen (Jonason & Webster, 2010). The Dirty Dozen is a valid and reliable 12-item self-report scale measuring the Dark Triad of personality traits: Machiavellianism, Narcissism, and Psychopathy. Participants respond to a series of a self-statements using a nine-point Likert

Table 2. Demographic information for the whole sample.

Continuous Variables

	Range	M	SD	95% CI LL	UL
Age	19–76	35.72	10.78	34.30	37.14
Same-sex attraction[a]	1–5	4.55	0.90	4.43	4.67
Same-sex behavior[a]	1–5	4.61	0.88	4.49	4.73
Age 1st sex[b]	10–34	17.26	3.45	16.81	17.72

Categorical Variables

	n	%
Gender[c]		
Man	113	50.7
Woman	107	48.0
MtF Woman	1	0.4
FtM Man	0	0.0
Other	2	0.9
Ethnicity[c]		
White/Caucasian	165	74.0
Black/African American	19	8.5
Hispanic/Latin American	14	6.3
Asian	10	4.5
Mixed or Multiple	8	3.6
Native American/First Nations	4	1.8
Middle Eastern	1	0.4
Other	1	0.4
Religion[c]		
Christianity	83	37.2
Atheist/Agnostic	50	22.4
Non Religious	34	15.2
Catholicism	29	13.0
Spiritual/New Age	13	5.8
Judaism	4	1.8
Wiccan	2	0.9
Buddhism	2	0.9
Islam	1	0.4
Hinduism	0	0.0
Jainism	0	0.0
Native American/First Nations Beliefs	0	0.0
Taoism	0	0.0
Other	5	2.2
Education Level		
Less than high school	3	1.3
High school graduate/GED	27	12.1
Some college/university	68	30.5
College diploma/university degree (3-4 years)	97	43.5
Advanced degree (M.D., Ph.D., M.S., etc.)	28	12.6
Household Income		
< $15,000	13	5.8
$15,000–$25,000	25	11.2
$25,000–$50,000	79	35.4
$50,000–$75,000	50	22.4
> $75,000	55	24.7
Did not disclose	1	0.4
Sexual Orientation Identity[c]		
Heterosexual/Straight	180	80.7
Bisexual	23	10.3
Homosexual/Lesbian/Gay	12	5.4
Pansexual	5	2.2
Prefer no label	2	0.9
Asexual	1	0.4
Queer	0	0.0
Other	0	0.0

Table 2. Continued.

Continuous Variables

	Range	M	SD	95% CI	
				LL	UL
Relationship Status[c]					
Married		90		40.4	
Single		57		25.6	
Committed Relationship(s)		55		24.7	
Cohabitating		21		9.4	
Divorce History[c]					
No		181		81.2	
Yes		42		18.8	

Note. N = 223.
[a]These items were scored on a scale from 1 (Only same-sex partners) to 5 (Only other-sex partners).
[b]Age of first sex included consensual oral, anal, or vaginal intercourse.
[c]These categories are presented in descending order of frequency, followed by "Other" categories.

scale ranging from 1 (*disagree strongly*) to 9 (*agree strongly*). The Machiavellianism subscale is comprised of four items ($\alpha = 0.84$) that tap into the use of manipulation for gain (e.g., "I have used flattery to get my way"). The Narcissism subscale is made up of four items ($\alpha = 0.87$) that examine individuals' entitlement and vanity (e.g., "I want others to admire me"). The Psychopathy subscale includes four items ($\alpha = 0.85$) that measure individuals' callous-unemotionality (e.g., "I tend to lack remorse"). The Cronbach's alphas provided here are for the current sample.

Procedure

Individuals residing in the U.S. who were over the age of eighteen and fluent in English were invited to take part in an anonymous online study, titled "Examining the Sexual Motivations of Men and Women." Recruitment took place through Amazon's Mechanical Turk (MTurk), which is a participant recruitment platform that has demonstrated demographically diverse participant pools (Buhrmester, Kwang, & Gosling, 2011). Participants were directed to an informed consent form through a Qualtrics survey tool and consenting participants then proceeded to the study. Participants completed a battery of surveys, presented in the order provided above, and were then given a debriefing form that detailed further aspects of the study and online resources. After study completion, participants who supplied complete and quality data were compensated with $0.75 to their MTurk accounts. In order for the data to be considered complete, participants needed to respond to more than 50% of the surveys. Data quality was assessed by ensuring participants responded correctly to at least three of six attention check items (e.g., "For this statement, please select many times."). All research procedures were reviewed and approved by the Institutional Review Board at The University of Texas at Austin.

Data analysis

In order to ensure only quality data were used within the analyses, participants' data were set to missing for a given measure if they responded incorrectly to an attention check item within that measure. This included a total of 8 cases for the YSEX?-SF, 27 cases for the long-form YSEX?, 0 cases for the SOI-R, and 4 cases for the Dirty Dozen. No imputation methods were employed for missing data.

In order to evaluate the 14-factor structure of the YSEX?-SF proposed in the preliminary analyses, a confirmatory factor analysis was conducted using the lavaan package for R (Rosseel, 2012). The model was estimated with a full information maximum likelihood method to allow the model to be estimated based on all available data. This method has been found to yield similar results as multiple imputation methods (Collins, Schafer, & Kam, 2001). To identify the model, the

variances of the latent variables were constrained to one. The initial test of the solution yielded a Heywood case (i.e., negative residual variance) for a single item ("I wanted to have a child."). In order to address this problematic estimate, the residual variance of that indicator was constrained to be above zero. This constraint to the model did not result in a meaningful loss of fit. Additionally, a chi-square difference test was conducted between models with and without the covariances of the latent constructs included. The model with the covariances included was retained as the better fitting model ($X^2(9) = 1252.15$, $p < .001$). This decision is also based on the logical assumption that reasons for engaging in sex are not mutually exclusive (e.g., an individual could engage in sex both out of feelings of obligation and to feel connected to their partner). The bivariate relationships amongst the YSEX?-SF subscales are reported in Table 3.

Cronbach's alpha analyses were used to determine the internal consistency of the subscales for both the original and short form of the YSEX? in the current sample. To assess the cross-form validity of the YSEX?, the subscale totals of the short and original forms were correlated with one another. Construct validity was assessed by determining the bivariate relationships of the YSEX?-SF subscales with the subscales of the SOI-R and the Dirty Dozen for men and women separately. Lastly, independent samples t-tests were also conducted, with a Bonferroni correction for multiple comparisons, to assess differences in the YSEX?-SF subscales as well as the original YSEX? subscales between men and women. For these gender comparison analyses, gender was coded as a binary variable (0 = Women, 1 = Men) that excluded individuals who did not gender identify with one of these categories ($n = 3$).

Results

Confirmatory factor analysis
The 14-factor solution demonstrated acceptable model fit (CFI = 0.91, TLI = 0.86; RMSEA = 0.070, 90% CI [0.061, 0.078], $p < .001$). The standardized indicator loading estimates of the items onto their respective subscales are reported in Table 4.

Internal reliability
The YSEX?-SF subscales demonstrated acceptable internal reliability for all but one of the 14 subscales. The Cronbach's alphas of the short form subscales ranged from 0.42 to 0.93, with an average of 0.74. The one subscale with weak internal consistency and reliability was the Practical subscale. The original YSEX? also demonstrated acceptable internal reliability across all of the subscales in the current sample. The Cronbach's alphas of the subscales for the YSEX? ranged from 0.85 to 0.94, with an average of 0.91. All alphas for both the YSEX?-SF and YSEX? for the current sample are reported in Table 5.

Cross-Form validity
A high degree of association between the YSEX?-SF and YSEX? suggests strong cross-form validity. The cross-form correlation coefficients for most of the respective subscales ranged from $r = 0.61$ to 0.85, $ps < .001$. One subscale demonstrated only modest cross-form validity; the Practical subscale of the short-form was only moderately related to the long-form Utilitarian subscale, $r = 0.43$, $p < .001$. While the Reproduction subscale of the YSEX?-SF does not have a corresponding subscale in the YSEX?, the items that make up the subscale were pulled from the Resources subscale. The relationship between the Reproduction subscale of the YSEX?-SF and the Resources subscale of the YSEX? were moderately related, $r = 0.39$, $p < .001$. All bivariate correlations between the YSEX?-SF and YSEX? subscales are reported in Table 6.

Table 3. Bivariate relationships (Pearson's correlation coefficients) amongst the YSEX?-SF subscales.

Subscale	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Stress Reduction	1.00***													
2. Pleasure	.138*	1.00												
3. Physical Desirability	.083	.511***	1.00											
4. Experience Seeking	.299***	.460***	.590***	1.00										
5. Resources	.207**	−.179**	−.021	.155*	1.00									
6. Reproduction	.205**	−.082	.007	.078	.369***	1.00								
7. Social Status	.281***	−.106	.010	.131	.624***	.343***	1.00							
8. Revenge	.244***	−.174*	−.030	.114	.662***	.312***	.692***	1.00						
9. Practical	.376***	.135	.136*	.333***	.347***	.312***	.382***	.378***	1.00					
10. Love & Commitment	.133	.279***	.358***	.332***	−.045	.123	.013	.018	.403***	1.00				
11. Expression	.383***	.088	.193**	.277***	.373***	.248***	.359***	.355***	.481***	.366***	1.00			
12. Self-Esteem Boost	.447***	.046	.145*	.365***	.391***	.215**	.443***	.486***	.511***	.246***	.443***	1.00		
13. Duty/Pressure	.211**	−.190**	−.103	.046	.369***	.058	.302***	.465***	.189**	.005	.340***	.334***	1.00	
14. Mate Guarding	.394***	−.109	.001	.164*	.439***	.291***	.567***	.562***	.410***	.132	.412***	.551***	.553***	1.00

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4. Standardized factor loadings and z-statistics from the 14-factor solution confirmatory factor analysis.

Item	Item	λ	z-statistic
Stress Reduction	1. I was frustrated and needed relief.	0.730	10.705
	15. I wanted to release anxiety/stress.	0.916	13.435
Pleasure	2. It felt good.[a]	0.726	9.962
	16. I was "horny."	0.713	9.716
Physical Desirability	3. The person had an attractive face.	0.816	12.775
	17. The person had a desirable body.	0.818	12.882
Experience Seeking	4. I wanted the experience.	0.705	10.847
	18. I wanted the adventure/excitement.	0.862	13.606
Resources	5. I wanted something in exchange for sex (e.g., money, a job, a raise, drugs, etc.).[a]	0.783	12.893
	19. I wanted a favor from someone.[a]	0.888	15.124
Reproduction	6. I wanted to have a child.[b]	1.000[d]	20.706
	20. I wanted to reproduce.[b]	0.874	16.306
Social Status	7. I wanted to enhance my reputation.	0.746	11.900
	21. I thought it would boost my status.[a]	0.820	13.203
Revenge	8. I wanted to get back at my partner.[a]	0.751	11.806
	22. I wanted to get even with someone.	0.726	11.246
Practical[c]	9. I wanted the physical benefits (e.g., burn calories, sleep, pain relief, etc.).[a]	0.516	6.412
	23. I wanted the emotional benefits.[a]	0.519	6.430
Love & Commitment	10. I wanted to feel connected to the person.	0.697	9.939
	24. I wanted to express my love for the person.	0.913	12.745
Expression	11. I wanted to welcome someone home or say goodbye.[a]	0.658	8.910
	25. I wanted to celebrate a birthday or anniversary or special occasion.	0.680	9.180
Self-Esteem Boost	12. I wanted to boost my self-esteem.	0.715	10.874
	26. I wanted to feel better about myself.	0.828	12.714
Duty/Pressure	13. I was pressured into doing it.	0.779	11.622
	27. I felt obligated to.	0.823	11.089
Mate Guarding	14. I wanted to keep my partner from straying.	0.821	13.332
	28. I wanted to get my partner to stay with me.	0.847	13.758

Note. $N = 218$. All indicator loadings were significant at $p < .001$. CFI = 0.91; RMSEA = 0.70, 90% CI [0.61, 0.78], $p < .001$.
[a]These items were written for the YSEX?-SF to be a composite item representative of the larger set of items from the original YSEX?
[b]These items were pulled from the Resources subscale of the YSEX? to create a separate Reproduction subscale in the YSEX?-SF.
[c]This subscale was named Practical for the YSEX?-SF as we found it to be more descriptive, though in the YSEX? it is called the Utilitarian subscale.
[d]Initial solution of the CFA demonstrated a Heywood case that was corrected for by constraining the item's variance to be greater than zero.

Construct validity

Construct validity was evaluated through theoretically meaningful statistical relationships between the YSEX?-SF subscales and the subscales of the SOI-R and the Dirty Dozen. Given substantial sex differences, analyses were conducted separately for men and women. For instance, having more Physical Desirability motivations for sex was significantly associated with less Machiavellianism and Psychopathy in men, but such motivations demonstrated no significant relationships with the dark triad traits in women. Higher scores on all three dark triad traits were significantly related to more Social Status, Revenge, and Mate Guarding motivations for sex in both men and women. Higher scores on all three dark triad traits were significantly associated with more Stress Reduction and Practical motivations for sex in men, but not in women. For women only, more trait-level Machiavellianism and Narcissism was associated with more Pleasure-related reasons for having sex.

In terms of the SOI-R, greater endorsement of sociosexual behaviors and desires were significantly associated with more Revenge reasons for having sex in both men and women. Higher scores on the attitude, desire, and behavior scales of the SOI-R were significantly negatively associated with Love and Commitment motivations for having sex in women, but not in men, for whom there was no association. Additionally, higher degrees of sociosexual attitudes and desires were significantly associated with more Social Status motivations for engaging in sex in men, but

Table 5. Cronbach's alpha coefficients for the subscales of the YSEX?-SF and YSEX? for the current sample.

Form	Subscale	# of Items	α
YSEX?-SF	Stress Reduction	2	0.80
	Pleasure	2	0.68
	Physical Desirability	2	0.80
	Experience Seeking	2	0.75
	Resources	2	0.81
	Reproduction[a]	2	0.93
	Social Status	2	0.76
	Revenge	2	0.70
	Practical[b]	2	0.42
	Love & Commitment	2	0.78
	Expression	2	0.62
	Self-Esteem Boost	2	0.74
	Duty/Pressure	2	0.75
	Mate Guarding	2	0.82
YSEX?	Stress Reduction	12	0.87
	Pleasure	8	0.88
	Physical Desirability	10	0.89
	Experience Seeking	15	0.92
	Resources	15	0.92
	Social Status	11	0.94
	Revenge	10	0.94
	Utilitarian[b]	10	0.90
	Love & Commitment	12	0.92
	Expression	7	0.85
	Self-Esteem Boost	9	0.90
	Duty/Pressure	13	0.94
	Mate Guarding	9	0.93

[a]The Reproduction subscale was created for the YSEX?-SF from items within the Resources subscale of the YSEX?
[b]The Utilitarian subscale of the YSEX? Was renamed the Practical subscale in the YSEX?-SF.

not in women. For women, greater endorsement of sociosexual attitudes was associated with more Physical Desirability reasons for having sex. In men, more sociosexual behaviors and desires were associated with more Self-Esteem Boost reasons for having sex. Bivariate correlations between all of the YSEX?-SF subscales and the subscales of the SOI-R and the Dirty Dozen are reported in Table 7 for women and in Table 8 for men.

Comparisons between men and women

Between-group comparisons of the YSEX?-SF subscales demonstrated that men endorsed Physical Desirability ($d = 0.37$), Experience Seeking ($d = 0.33$), and Social Status ($d = 0.35$) motives for engaging in sex more frequently than did women. After the conservative Bonferroni correction for 14 comparisons was applied to the significance criterion ($.05/14 = \alpha = .004$), however, these differences were no longer significant. The between-group comparisons of the YSEX? subscales demonstrated that men endorsed Stress Reduction ($d = 0.37$), Physical Desirability ($d = 0.49$), Resources ($d = 0.30$), and Social Status ($d = 0.35$) motives for engaging in sex more frequently than women did; while women endorsed more Love and Commitment reasons for engaging in sex ($d = 0.28$). After the correction for multiple comparisons, ($.05/13 = \alpha = .004$), only the gender difference on Physical Desirability maintained significance. The descriptive information for men and women and the between-group test statistics for the YSEX?-SF and YSEX? subscales are reported in Table 9 and Table 10, respectively.

Discussion

Within psychometric development, there is an increasing trend to develop concise measures that balance informational richness with administrative efficiency. Such measures have been shown to

Table 6. Bivariate relationships (Pearson's correlation coefficients) between the YSEX?-SF and the original YSEX? subscales.

Subscale	YSEX? - Stress Reduction	YSEX? - Pleasure	YSEX? - Physical Desirability	YSEX? - Experience Seeking	YSEX? - Resources	YSEX? - Social Status	YSEX? - Revenge	YSEX? - Utilitarian[b]	YSEX? - Love & Commitment	YSEX? - Expression	YSEX? - Self-Esteem Boot	YSEX? - Duty/Pressure	YSEX? - Mate Guarding
YSEX?-SF - Stress Reduction	.700***	.175*	.095	.378***	.246**	.280***	.298***	.394***	.169*	.368***	.558***	.335***	.383***
YSEX?-SF - Pleasure	.196**	.662***	.355***	.250***	-.172*	-.138	-.130	-.120	.259***	.058	.070	-.199**	-.053
YSEX?-SF - Physical Desirability	.197**	.397***	.776***	.313***	.071	.060	.024	.083	.311***	.199**	.204**	-.022	.076
YSEX?-SF - Experience Seeking	.391***	.459***	.554***	.621***	.045	.068	.028	.164*	.410***	.336***	.454***	.105	.202**
YSEX?-SF - Resources	.328***	-.094	.170*	.259***	.609***	.507***	.504***	.463***	-.076	.332***	.476***	.474***	.372***
YSEX?-SF - Reproduction[a]	.222**	.034	.125	.150*	.387***	.153*	.166*	.202**	.108	.324***	.275***	.206**	.235***
YSEX?-SF -Social Status	.326***	-.106	.139	.264***	.596***	.760***	.659***	.557***	-.012	.250***	.493***	.438***	.450***
YSEX?-SF - Revenge	.266***	-.166*	.072	.216**	.661***	.699***	.812***	.622***	-.072	.258***	.474***	.536***	.529***
YSEX?-SF - Practical[b]	.468***	.192**	.181*	.433***	.313***	.310***	.263***	.426***	.374***	.459***	.513***	.307***	.381***
YSEX?-SF - Love & Commitment	.131	.335***	.288***	.254***	-.021	-.016	-.044	.041	.783***	.348***	.250***	.073	.177*
YSEX?-SF - Expression	.490***	.154*	.292***	.383***	.373***	.357***	.318***	.450***	.328***	.800***	.523***	.410***	.405***
YSEX?-SF - Self-Esteem Boost	.504***	.078	.167*	.491***	.389***	.386***	.367***	.486***	.190**	.393***	.787***	.431***	.526***
YSEX?-SF - Duty/Pressure	.239**	-.193**	-.145*	.137	.403***	.441***	.471***	.463***	-.068	.283***	.402***	.846***	.581***
YSEX?-SF - Mate Guarding	.351***	-.054	.048	.302***	.427***	.481***	.537***	.511***	.090	.362***	.576***	.638***	.837***

Note. *p < .05, **p < .01, ***p < .001.
[a]The Reproduction subscale was created for the YSEX?-SF from items within the Resources subscale of the original YSEX?.
[b]The Utilitarian subscale of the YSEX? Was renamed to be the Practical subscale of the YSEX?-SF.

Table 7. Bivariate relationships (Pearson's correlation coefficients) between the YSEX?-SF subscales and the subscales of the SOI-R and the Dirty Dozen for women.

Subscale	DD Machiavellianism	DD Narcissism	DD Psychopathy	SOI-R Behavior	SOI-R Attitudes	SOI-R Desire
Stress Reduction	.139	.276	.155	.157	.218*	.233*
Pleasure	.139*	−.141	−.248*	−.064	.003	.089
Physical Desirability	−.188	−.071	−.149	−.169	−.196*	−.100
Experience Seeking	−.093	.047	−.106	−.084	−.159	−.004
Resources	.172	.120	.213*	.028	.013	.162
Reproduction	−.031	−.125	−.041	−.095	−.049	−.117
Social Status	.244*	.343***	.307**	.118	.065	.103
Revenge	.327**	.262**	.260**	.195*	.066	.222*
Practical	.119	.155	.117	−.056	−.122	.056
Love & Commitment	−.099	−.038	−.121	−.234*	−.425***	−.326**
Expression	−.039	−.006	−.081	−.004	−.081	−.100
Self-Esteem Boost	.127	.208*	.138	.130	.001	.179
Duty/Pressure	.235*	.139	.102	.254*	.069	.142
Mate Guarding	.280**	.310**	.291**	.201*	.070	.275**

Note. *$p < .05$, **$p < .01$, ***$p < .001$. DD = Dirty Dozen; SOI-R = Sociosexual Orientation Inventory – Revised.

Table 8. Bivariate relationships (Pearson's correlation coefficients) between the YSEX?-SF subscales and the subscales of the SOI-R and the Dirty Dozen for men.

Subscale	DD Machiavellianism	DD Narcissism	DD Psychopathy	SOI-R Behavior	SOI-R Attitudes	SOI-R Desire
Stress Reduction	.276**	.320**	.371***	.114	.039	.252**
Pleasure	−.102	.048	−.088	−.108	.154	.168
Physical Desirability	−.207*	−.050	−.203*	−.092	−.103	.115
Experience Seeking	.069	.146	−.122	−.125	−.153	.063
Resources	.408***	.153	.393***	.239*	.025	.314**
Reproduction	.154	.191	.260**	−.158	−.204*	.048
Social Status	.467***	.360***	.389***	.194*	.025	.406***
Revenge	.368***	.199*	.320**	.267**	−.006	.410***
Practical	.216*	.196*	.292**	.001	.059	.232*
Love & Commitment	−.124	.065	−.112	−.161	−.121	−.016
Expression	.234*	.234*	.289**	.032	.003	.170
Self-Esteem Boost	.338***	.332**	.192	.237*	.076	.359***
Duty/Pressure	.287**	.119	.322**	.286**	−.001	.208*
Mate Guarding	.333**	.347***	.308**	.183	−.077	.271**

Note. *$p < .05$, **$p < .01$, ***$p < .001$. DD = Dirty Dozen; SOI-R = Sociosexual Orientation Inventory – Revised.

reduce response errors, minimize redundancies, and maximize several indices of validity (Burisch, 1997; Saucier, 1994). In the current study, the YSEX?-SF was shown to capture much of the content of the original measure, with a 14-factor solution demonstrating acceptable model fit and adequate to strong internal reliability for 13 of the 14 subscales. The Practical subscale demonstrated weak internal validity, which is not entirely surprising given the items were fairly distinct, with one item assessing sexual motivations pertaining to physical benefits and the other assessing emotional benefits as a motivation for sex. The cross-form and construct validity of the YSEX?-SF, discussed in more detail below, were also assessed, with evidence that the subscales of the YSEX?-SF correlate strongly with their respective original YSEX? subscales and to theoretically related constructs. Overall, the YSEX?-SF succeeds at maintaining the structure and utility of the original instrument, while taking the item count from 141 to 28, an overall item reduction of 80.14%.

A key element of short-form development is ensuring the short-form cogently maps onto the measure it is attempting to condense. Here, there is strong evidence that the YSEX?-SF maintains a high degree of fidelity to the original structure of the YSEX?. Twelve of fourteen YSEX?-SF factors demonstrated excellent cross-form validity, correlating highly (i.e., above 0.60) with their respective original YSEX? subscales. Only two subscales demonstrated modest, rather than

Table 9. Results and descriptives of the independent samples t-tests for the YSEX?-SF subscale comparisons between men and women.

Subscale	Women		Men		t-statistic	df	p-value	Cohen's d	MD	SE	95% CI	
	M	SD	M	SD							LL	UL
Stress Reduction	4.15	1.74	4.56	1.85	−1.65	210	.100	0.23	−0.41	0.25	−0.90	0.79
Pleasure	7.09	1.74	7.43	1.93	−1.39	207	.166	0.19	−0.34	0.24	−0.82	0.14
Physical Desirability	6.10	2.15	6.86	1.93	−2.71	209	.007	0.37	−0.76	0.28	−1.32	−.21
Experience Seeking	5.63	2.15	6.30	1.94	−2.36	208	.019	0.33	−0.67	0.28	−1.23	−0.11
Resources	2.66	1.61	2.93	1.74	−1.20	208.10[a]	.231	0.17	−0.28	0.23	−0.73	0.18
Reproduction	3.59	2.07	3.41	1.92	0.66	208	.512	0.09	0.18	0.28	−0.36	0.72
Social Status	2.53	1.13	3.02	1.60	−2.560	187.39[a]	.011	0.35	−0.49	0.19	−0.87	−0.11
Revenge	2.63	1.07	3.04	1.76	−2.04	171.13[a]	.043	0.28	−0.41	0.20	−0.81	−0.12
Practical	4.55	1.80	4.64	1.92	−0.33	208	.739	0.05	−0.09	0.26	−0.59	0.42
Love & Commitment	6.88	2.07	6.34	1.90	1.95	208	.052	0.27	0.54	0.27	0.01	1.08
Expression	4.53	1.82	4.74	1.98	−0.77	209	.440	0.11	−0.20	0.26	−0.72	0.31
Self-Esteem Boost	3.84	1.73	4.00	1.82	−0.66	209	.508	0.09	−0.16	0.24	−0.64	0.32
Duty/Pressure	3.16	1.39	2.82	1.31	1.72	187	.087	0.25	0.34	0.20	−0.05	0.73
Mate Guarding	3.29	1.72	3.20	1.83	0.36	207	.719	0.05	0.09	0.25	−0.40	0.57

Note. After the Bonferroni correction for multiple comparisons (.05/14), α = .004. For this comparison, women were coded as 0 and men were coded as 1.
[a]Corrected degrees of freedom were used for these comparisons due to a significant Levene's test of equality of variances between groups (p < .05).

Table 10. Results and descriptives of the independent samples t-tests for the original YSEX? Subscale comparisons between men and women in the current sample.

Subscale	Women		Men		t-statistic	df	p-value	Cohen's d	MD	SE	95% CI	
	M	SD	M	SD							LL	UL
Stress Reduction	24.71	7.74	27.67	8.10	−2.60	192	.010	0.37	−2.95	1.14	−5.20	−0.71
Pleasure	30.91	5.80	31.42	5.43	−0.63	192	.530	0.09	−0.51	0.81	−2.10	1.08
Physical Desirability	27.49	8.45	31.53	7.96	−3.43	192	.001	0.49	−4.04	1.18	−6.36	−1.71
Experience Seeking	38.23	11.08	41.02	11.67	−1.71	192	.089	0.25	−2.79	1.63	−6.01	−0.43
Resources	17.68	5.40	19.87	8.90	−2.08	158.12[a]	.039	0.30	−2.20	1.06	−4.29	−0.11
Social Status	12.78	4.36	14.75	6.65	−2.44	165.64[a]	.016	0.35	−1.97	0.81	−3.56	−0.38
Revenge	12.49	4.12	13.80	6.34	−1.71	164.74[a]	.089	0.25	−1.31	0.77	−2.83	0.20
Utilitarian	13.41	4.30	14.59	6.66	−1.47	164.07[a]	.145	0.21	−1.18	0.80	−2.76	0.40
Love & Commitment	41.78	9.66	38.94	10.29	1.99	192	.049	0.28	2.84	1.43	0.02	5.67
Expression	15.89	5.16	15.22	5.81	0.85	192	.398	0.12	0.67	0.79	−0.88	2.22
Self-Esteem Boost	18.35	6.68	17.53	7.63	0.79	192	.430	0.11	0.81	1.03	−1.22	2.85
Duty/Pressure	20.43	7.85	19.53	8.10	0.78	192	.437	0.11	0.89	1.14	−1.37	3.15
Mate Guarding	15.10	6.62	14.03	7.02	1.09	192	.277	0.16	1.07	0.98	−0.87	3.00

Note. After the Bonferroni correction for multiple comparisons (.05/13), α = .004. For this comparison, women were coded as 0 and men were coded as 1.
[a]Corrected degrees of freedom were used for these comparisons due to a significant Levene's test of equality of variances between groups (p < .05).

excellent cross-form validity. The Practical subscale of the YSEX?-SF was only moderately correlated with the original scale's Utilitarian subscale, most likely because the original subscale was particularly broad, and items required substantive condensing and modification. In addition, the new subscale, Reproduction, was only moderately correlated with its original subscale, Resources, as it was intentionally isolated to capture a specific subset of the original construct.

In addition to cross-form validity, there was strong evidence of construct validity, with significant correlations between YSEX?-SF factors and theoretically related constructs contained within the Dirty Dozen and the SOI-R. From the Dirty Dozen, several YSEX?-SF factors are significantly correlated with the Machiavellianism subscale for both men and women (i.e., Social Status, Revenge, Duty/Pressure, and Mate Guarding). These correlations are consistent with previous research examining the connection between Machiavellianism and sexual motivations using the original YSEX? instrument, which found very similar relationships between subscales and similarly found no connection between Machiavellianism and YSEX? subscales such as Love and

Commitment and Expression (Brewer & Abell, 2015). While no previous research has examined the connection between the Dirty Dozen subscales of Narcissism and Psychopathy and the original YSEX? subscales, the observed correlations here contain a fair amount of face validity. For instance, for both men and women, Narcissism is significantly correlated with sexual motivations related to Social Status and Self-Esteem. Similarly, Psychopathy is highly correlated with sexual motivations related to Revenge and Resources. In addition to these theoretically-meaningful associations, there was also evidence that the YSEX?-SF was sufficiently discriminant. Indeed, the Love and Commitment subscale showed no associations with any of the dark triad traits in men or women, as would be expected. These associations and non-associations provide evidence that the YSEX?-SF demonstrates some specificity, and can be coherently linked to seemingly related constructs.

Further evidence for construct validity was found through correlations between the YSEX?-SF factors and the subscales of the SOI-R. The SOI-R can be thought of as a measure of individual differences in sexual strategies (Buss & Schmitt, 1993), wherein those who favor a short-term mating strategy tend to score high, and those who favor a long-term mating strategy tend to score low (Gangestad & Simpson, 1990). In both men and women, behavior related to short-term sexual strategies was linked to the Revenge and Duty/Pressure subscales. These correlations make logical sense; an individual who is motivated to exact revenge on a previous partner through sexual means might, as a result, be more motivated to engage in casual sex with a new partner, as might an individual who feels as though sex in their own relationship is entirely motivated by obligation. Similarly, there were positive correlations between sociosexual desires and the Stress Reduction, Revenge, and Mate Guarding subscales of the YSEX?-SF for both men and women. These associations closely map onto previous findings that women considering casual sex are motivated more by physical reasons for engaging in sex and/or reasons that involve personal benefit or gain, while women considering sex within the context of relationships were motivated much more by relational and emotional factors (Armstrong & Reissing, 2015). Given the face validity of these correlations and consistency with previous research, these associations provide further evidence that the factors of the YSEX?-SF are accurately measuring their intended constructs and can be effectively used to study differences in sexual motivations across distinct populations.

Across both the Dirty Dozen and the SOI-R, there were theoretically-meaningful gender differences in correlations with subscales of the YSEX?-SF. For instance, Physical Desirability was significantly and negatively correlated with Machiavellianism in men, but not in women. Men typically select for potential mates on physical desirability more than women because physical characteristics (e.g., hip to waist ratio, clear skin) are cues to a woman's fertility (Buss, 1989). Given the prevalence and evolutionary underpinnings of physical desirability as a male mate selection motive, it makes theoretical sense that the subscale would be associated with few dark triad traits for men, and that it would not be significantly related to the dark triad personality traits of women. Motivations related to Love and Commitment were significantly negatively correlated with all three SOI-R scales in women, and were not significantly related to any of the SOI-R scales in men. This is theoretically meaningful, as women who are interested in short-term mating and have more positive attitudes toward uncommitted sexual activities overall would seemingly be less motivated by Love and Commitment reasons to engage in sex, since love and commitment are linked to long-term mating (Buss, 2019). That the YSEX?-SF was able to capture such differences provides further support for the instrument's convergent and divergent validity. More broadly, the gender differences found between the YSEX?-SF and the SOI-R mirror those found in the original YSEX? validation, wherein the SOI was correlated with physical motivations for sex (e.g., Stress Reduction) in women and with goal attainment motivations for sex (e.g., Resources) in men. The gender differences observed here are quite similar to the original validation study, suggesting that the YSEX?-SF can capture similar gender differences using far fewer items.

There were also significant gender differences in some subscales when analyzed individually. The largest gender difference in which men exceeded women as a reason for having sex using the YSEX?-

SF was physical desirability ($d = .37$). This corresponds to the analogous largest gender difference in the original YSEX instrument ($d = .49$). Similarly, the largest gender difference in which women exceeded men in citing a reason for having sex was Love and Commitment ($d = .27$ for the YSEX?-SF). This also corresponds to the largest analogous gender difference in the original love and commitment subscale of the YSEX? instrument ($d = .28$). These correspondences support the conclusion that the short form does a reasonable job of capturing these key facets of the original instrument.

While we believe the efficiency of the YSEX?-SF will lead to advances in our understanding of sexual motivations, there are several limitations worth mentioning with regard to the construction and dissemination of the measure. To our knowledge, the original YSEX? instrument is the most comprehensive measure of sexual motivations developed to date. It was a challenge to maintain the measure's informational depth while also reducing the item count by over 80%. As a result, a primary limitation of the current study is that, in developing a short-form version, we were unable to rely entirely on quantitative methodological approaches for item reduction. Instead, short-form development relied on a mix of both quantitative and subjective methods for selecting the most valid and reliable items to represent each construct. While we believe this approach was necessary given the structure of the original measure, it also introduced the potential for subjectivity, and thus bias, into our item selection process. Additionally, in condensing and modifying items, some specificity has certainly been lost relative to the long-form measure. For instance, while the YSEX?-SF now assesses whether someone is motivated to engage in sex because they wanted the physical benefits (e.g., burn calories, sleep, pain relief, etc.), the instrument will be unable to determine which of those physical benefits the individual is motivated by specifically. For researchers who are looking for that level of granularity in results, we recommend using the original YSEX? instrument. For researchers aiming for a more general overview of sexual motivations, or the reasons for which people have sex, the YSEX?-SF may be more efficient and economical. Lastly, it is important to note that the sample employed here for measure validation was a convenience sample recruited from MTurk. While research has found MTurk to be a platform for obtaining both high-quality data and more diverse samples than other common recruitment techniques (Buhrmester, Kwang, & Gosling, 2011), there are known challenges associated with this method. More specifically, MTurk recruitment introduces increased risk of selection bias, as well as automated survey completion and random responding. While we implemented attention check items to mitigate these risks, we hope that the psychometric properties of the YSEX?-SF will be further validated in the future using random sampling techniques.

In conclusion, the YSEX?-SF is a 28-item measure that takes minimal time to administer and, yet retains in large measure the psychometric rigor of the original YSEX? instrument. Thus, the YSEX?-SF may have utility in a wider range of research contexts than the original measure. The application of the efficient YSEX?-SF may aid in advancing the study of sexual motivations and human mating. We believe that the YSEX?-SF sufficiently captures the range of sexual motivations originally outlined in the YSEX? instrument, and as such, is a concise measure of this deeply nuanced and important construct within sexuality.

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