

A Psychometric Examination of the Interpersonal Sexual Objectification Scale Among College Men

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Whereas sexual objectification has most commonly been studied among women, recent calls by counseling psychologists have urged for an extension of objectification research to more fully include men (e.g., Heimerdinger-Edwards, Vogel, & Hammer, 2011). The present study examined the factor structure of the Interpersonal Sexual Objectification Scale (ISOS; Kozee, Tylka, Augustus-Horvath, & Denchik, 2007) with men. Specifically, analyses included exploratory factor analysis (EFA) with a sample of 287 college men and confirmatory factor analysis (CFA) with an independent sample of 221 college men. A correlated 3-factor structure was suggested by multiple criteria in EFA and was further confirmed by CFA with a bifactor model illustrating the most item variance associated with a general interpersonal sexual objectification dimension for men.

Keywords: Interpersonal Sexual Objectification Scale, factor analysis, objectification, men

Sexual objectification occurs when people are treated as sexual objects rather than as persons. People are said to be sexually objectified when their appearance, sexual body parts, or sexual functions are separated out from their person, are regarded as capable of representing them, and/or are reduced to the status of instruments for other people (Bartky, 1990; Fredrickson & Roberts, 1997; McKinley & Hyde, 1996). In Western societies, sexual objectification is frequently depicted in the media (Archer, Iritani, Kimes, & Barrios, 1983; Goffman, 1979; Kilbourne & Pipher, 1999; Mulvey, 1975) and commonly experienced in social interactions (Henley, 1977; Kaschak, 1992), including appearance commentary, objectifying gazes, uninvited sexual touch, and sexually degrading gestures. Objectification theory (Fredrickson & Roberts, 1997) was developed to explain the negative mental health consequences for women living in a society in which they are inundated with such sexually objectifying messages. A major consequence of this barrage is that women chronically self-objectify (i.e., internalize a third-person's perspective of their body; Fredrickson & Roberts, 1997), come to value their physical

appearance attributes more than their physical competence attributes (Noll & Fredrickson, 1998), and persistently monitor their appearance (McKinley & Hyde, 1996). This self-objectification process sets the stage for numerous negative outcomes including eating disorders, unipolar depression, and sexual dysfunction (see Calogero, Tantleff-Dunn, & Thompson, 2011; Moradi & Huang, 2008, for reviews).

Objectification of Men

Although sexual objectification has most commonly been studied among women, counseling psychologists have recently called to extend objectification research to more fully include men (Heimerdinger-Edwards, Vogel, & Hammer, 2011; Michaels, Parent, & Moradi, 2012; Moradi & Huang, 2008; Parent & Moradi, 2011; Schwartz, Grammas, Sutherland, Siffert, & Bush-King, 2010; Wiseman & Moradi, 2010). The dearth of objectification research among men can be explained by two complementary rationales: (a) Objectification theory was originally posited to understand experiences that appeared to be uniquely female and (b) the mental health outcomes posited by objectification theory (e.g., eating disorders) are more common in women than men (Fredrickson & Roberts, 1997). Despite these explanations, recent research with men supports the applicability of the model proposed by objectification theory to men (Moradi & Huang, 2008).

Current research has shown that objectification is occurring for and having a meaningful impact on men. For example, men are sexually objectified in the media (Bordo, 1999; Kilbourne & Pipher, 1999; Rohlinger, 2002) and by other people (Strelan & Hargreaves, 2005) more than ever before. To wit, Rohlinger (2002) demonstrated that 37% of print advertisements depicted men's bodies in an objectifying manner, focusing on men's body parts to display products. As well, Strelan and Hargreaves (2005)

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found that when people self-objectified, they in turn objectified *both* other women and men. Furthermore, sexual objectification in the media and self-objectification are associated with myriad negative consequences for men, some of which are similar to women (e.g., body dissatisfaction, disordered eating, excessive exercise, depression) and some of which are more specific to men and masculinity (e.g., steroid use, drive for muscularity, muscle dysmorphism; Aubrey, 2006; Baird & Grieve, 2006; Daniel & Bridges, 2010; Grieve & Helmic, 2008; Hallsworth, Wade, & Tiggemann, 2005; Harrison & Cantor, 1997; Harvey & Robinson, 2003; Martens, Tiggemann, & Kirkbride, 2007; Morry & Staska, 2001; Tylka, 2011; Wiseman & Moradi, 2010).

Measurement and Objectification

One of the primary limitations hindering the application of objectification theory to men is the lack of valid measures to assess key objectification constructs among men. The Interpersonal Sexual Objectification Scale (ISOS; Kozee, Tylka, Augustus-Horvath, & Denchik, 2007), which assesses respondents' experiences of being sexually objectified by others, is of particular interest in advancing our understanding in this area because sexual objectification experiences are the critical antecedents theorized to trigger self-objectification and its negative consequences (Fredrickson & Roberts, 1997). As well, men report experiencing such objectifying behaviors on the ISOS (Engeln-Maddox, Miller, & Doyle, 2011; Wiseman & Moradi, 2010); however, the scale has not yet been validated for men. Thus, the purpose of the current study was to examine the factor structure of the ISOS with college men using both exploratory and confirmatory factor analyses.

There is some evidence that the ISOS may have predictive utility for men regarding the relations posited by objectification theory. More specifically, previous research demonstrating that men experience body evaluation (e.g., objectifying gazes; Engeln-Maddox et al., 2011) and unwanted sexual advances (e.g., gender harassment; Wiseman & Moradi, 2010) suggests that the ISOS may be useful for understanding men's sexual objectification experiences. For example, when administered the Body Evaluation subscale of the ISOS, men show variability in their reports of experiencing objectifying gazes from other people (Engeln-Maddox et al., 2011), thus demonstrating that men are the targets of body evaluation. If the ISOS was completely insensitive to men's objectification experiences, then we would expect all or most men to indicate they never had such body evaluation experiences. Additionally, body evaluation has been shown to contribute to body shame and eating disorder symptomatology among men (Engeln-Maddox et al., 2011), consistent with objectification theory tenets. These findings provide some preliminary evidence that the ISOS may yield a similar factor structure for men as it does for women, as well as may demonstrate the utility of the same items across gender. Yet, to date, there is no psychometric evidence establishing that the ISOS is appropriate for use with men. Having such evidence would aid in interpretation of existing studies that have already used the ISOS with men (Engeln-Maddox et al., 2011), as well as build a foundation for future use of the ISOS. Furthermore, although women are theorized to experience sexual objectification from others more frequently than men (Fredrickson & Roberts, 1997) and with more adverse consequences, there is very little empirical evidence to support this notion.

Although the behavioral manifestations may be somewhat gender specific (e.g., women may report other people staring at their breasts or waists, whereas men may report others staring at their biceps or pectorals), validation of the ISOS with men would facilitate cross-gender comparisons for the sexual objectification behaviors that both women and men experience.

In developing the ISOS, Kozee et al. (2007) used exploratory and confirmatory factor analyses (EFA and CFA) with a large sample of undergraduate women and found support for an oblique two-factor scale of interpersonal sexual objectification, including (a) body evaluation (e.g., How often have you felt that someone was staring at your body?) and (b) unwanted explicit sexual advances (e.g., How often has someone made a degrading sexual gesture towards you?), and CFA supported a higher order model. With the emergent research focused on men and objectification, current objectification measures (e.g., the Objectified Body Consciousness Scale, McKinley & Hyde, 1996; the Self-Objectification Questionnaire, Noll & Fredrickson, 1998), including the ISOS, require validation specifically with samples of men as choosing measures that are valid for the population under study is a basic research tenant delineated in the *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999). If a psychometrically valid measure exists to assess the sexual objectification experiences of men, researchers can better investigate the consequences of said objectification and examine objectification theory as it applies to men. Indeed other researchers in the field have asserted the necessity for investigating the validity of sexual objectification measures like the ISOS for samples beyond heterosexual women (Engeln-Maddox et al., 2011; Wiseman & Moradi, 2010).

Thus, the purpose of the current study was to examine the factor structure of the ISOS with two independent samples of college men, using both EFA and CFA. It was hypothesized that the two-factor ISOS structure found for women would be identified in this investigation with men.

Method

Participants

Sample 1: EFA. A total of 296 male undergraduate students from a large midwestern university participated in this study. After removing participants with missing ($n = 7$; missing between one and four items) and invalid data ($n = 2$; missing all items), 287 participants remained in the sample. Participants' ages ranged from 17 to 40 years ($M = 19.43$, $SD = 2.06$), with nine participants not disclosing their age. With respect to racial/ethnic demographics, the majority of the sample described themselves as White (84.8%). Asian American men constituted 4.9% of the sample, 4.2% were biracial or multiracial, 3.9% were Hispanic/Latino, 1.8% were Black/African American, and 0.4% did not disclose their race/ethnicity.

Sample 2: CFA. This sample was independent of Sample 1 used in EFA and included 287 male undergraduate students from the same large midwestern university. After removing participants with missing ($n = 11$; missing between one and three items) and invalid data ($n = 55$, see below for description of validity assessment), 221 participants remained. Participants ranged in age from 17 to 29 years ($M = 19.89$, $SD = 1.74$). Like the EFA sample,

racial/ethnic demographics showed the majority described themselves as White (88.7%). Biracial or multiracial men constituted 4.1% of the sample, 3.9% were Hispanic/Latino, 3.2% were Asian American, 1.4% were Black/African American, and 0.5% did not disclose their race/ethnicity.

Procedure and Instruments

Institutional Review Board approval was obtained prior to study recruitment. Undergraduate students from psychology courses and fraternity chapters were recruited as participants. An online advertisement was posted to the psychology department subject pool website to recruit students, in addition to the first author meeting with fraternity chapter presidents who then shared the advertisement with their members. Each participant provided informed consent and completed the study online via Survey Monkey. For Sample 2, validity items (e.g., "Please answer 'disagree' for this item") were interspersed throughout the survey with one validity item appearing on each online page of the survey. Participants who responded incorrectly to these items were excluded from analyses. Participants either received course credit or were entered into a raffle for \$20 gift certificates for participating.

The ISOS. The ISOS (Kozee et al., 2007) is a 15-item measure composed of two subscales: Body Evaluation and Unwanted Explicit Sexual Advances. Items are rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*almost always*). *Body evaluation* refers to participants' experiences of other people evaluating the participants' bodies, whereas *unwanted explicit sexual advances* refers to participants experiencing such advances from other people. All but one of the items on the ISOS are written in gender-neutral language; thus, one word on the only gender-specific item was modified to be appropriate for men (e.g., "How often have you noticed someone staring at your breasts when you are talking to them?" became "How often have you noticed someone staring at your chest when you are talking to them?"). Scores on the ISOS have shown acceptable internal consistency reliability for women on the total scale ($\alpha = .92$), Body Evaluation subscale ($\alpha = .91$), and Unwanted Explicit Sexual Advances subscale ($\alpha = .78$; Kozee et al., 2007). In the only published study in which the ISOS has been used with men, internal consistency reliability for the Body Evaluation subscale was reported as .90 for heterosexual men and .68 for gay men (Engeln-Maddox et al., 2011). Additionally, scores on the ISOS have demonstrated acceptable 3-week test-retest stability for the total scale ($r = .90$), Body Evaluation subscale ($r = .89$), and Unwanted Explicit Sexual Advances subscale ($r = .80$), as well as convergent and discriminant validity with subscales on the Schedule of Sexist Events in a sample of women (Kozee et al., 2007).

Analyses

EFAs. Principal axis EFAs (Cudeck, 2000; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Tabachnick & Fidell, 2007) were conducted using SPSS 20.0 for Macintosh OSX to analyze shared variance from the ISOS item polychoric correlation matrix (produced via EQS 6.2) as data were not normally distributed and there were no distributional assumptions. Polychoric correlations were used due to the ordinal nature of item responses and because Pearson product-moment correlations often underestimate rela-

tionships between ordinal scaled items (Flora & Curran, 2004). Per Gorsuch (1983), multiple criteria for determining the number of factors to retain were examined, including the visual scree test (Cattell, 1966), standard error of scree (SE_{Scree} ; Zoski & Jurs, 1996), as recommended by Nasser, Benson, and Wisenbaker (2002), Horn's parallel analysis (Horn, 1965), and minimum average partials (Velicer, 1976). Final exploratory models were determined viable when resulting factors included at least three items, demonstrated item factor pattern coefficients (loadings) $\geq .40$ (promax rotation $\kappa = 4$), achieved or approached simple structure, produced factor internal consistency estimates $\geq .70$ (Nunnally, 1978), and made theoretical sense. Factors were rotated obliquely using promax to examine correlated factors.

CFAs. CFAs were performed using EQS 6.2 with polychoric correlations for ISOS item data serving as the basis of CFA. Robust maximum likelihood estimation was used per Satorra and Bentler's (2001) corrected chi-square. Byrne (2006) noted "the $S - B \chi^2$ has been shown to be the most reliable test statistic for evaluating mean and covariance structure models under various distributions and sample sizes ([sic], Hu, Bentler, & Kano, 1992; Curran, West, & Finch, 1996)" (p. 138). Contemporary criteria for well fitting models including the normed fit index (NFI) $\geq .95$, comparative fit index (CFI) $\geq .95$ (Hu & Bentler, 1999), and root-mean-square error of approximation (RMSEA) $\leq .06$ (Browne & Cudeck, 1993; Hu & Bentler, 1999) were used. Although controversial (Marsh, Hau, & Wen, 2004), Hu and Bentler (1998, 1999) recommended a dual criterion to guard against both Type I and Type II errors with values of .95 for the CFI and .06 for the RMSEA. Chi-square and Akaike's information criterion values provided supplemental criteria. Additional criteria for meaningful or practical model differences (i.e., $\Delta CFI > +.01$, Cheung & Rensvold, 2002, and $\Delta RMSEA > -.015$, Chen, 2007) were also used. Finally, latent factor reliabilities were estimated with coefficient omega (ω) and omega hierarchical (ω_h). Omega estimated the reliability of the latent factor combining the general and specific factor variance, whereas omega hierarchical (what Reise, 2012, termed "omega subscale") estimated the reliability of the latent factor with the general factor variance removed (Brunner, Nagy, & Wilhelm, 2012).

Results

EFAs

Table 1 presents the ISOS item correlation matrix and descriptive statistics. As frequently observed in ordinal data, polychoric correlations (below diagonal) were larger than Pearson product-moment correlations (above diagonal) and served as the basis for subsequent EFA. Several items demonstrated nonnormal distribution (Onwuegbuzie & Daniel, 2002; West, Finch, & Curran, 1995) with univariate skewness estimates ranging from -0.20 to 2.69 , with two of the 15 items greater than $|2.0|$; and univariate kurtosis estimates ranging from -0.66 to 6.94 , with three items greater than $|3.0|$ and one greater than $|5.0|$. Principal axis EFA produced a Kaiser-Meyer-Olkin measure of sampling adequacy coefficient of .89 (exceeding the .60 criterion; Tabachnick & Fidell, 2007), and Bartlett's test of sphericity was $3,400.37$ ($p < .0001$), indicating that the correlation matrix was not random. Community estimates ranged from .50 to .88 ($Mdn = .70$). Given the present

Table 1
 ISOS Item Correlation Matrix and Descriptive Statistics for EFA Sample (n = 283)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	—	.47	.28	.42	.35	.35	.62	.46	.51	.45	.45	.29	.27	.23	.21
2	.55	—	.36	.45	.38	.43	.49	.49	.50	.54	.51	.37	.37	.20	.32
3	.34	.45	—	.73	.65	.29	.34	.54	.31	.35	.36	.20	.15	.12	.15
4	.49	.53	.76	—	.76	.46	.45	.67	.48	.45	.42	.28	.13	.20	.18
5	.44	.48	.68	.78	—	.46	.43	.64	.53	.50	.44	.40	.24	.26	.24
6	.41	.52	.36	.52	.54	—	.46	.53	.65	.49	.51	.40	.36	.28	.41
7	.67	.61	.36	.48	.48	.55	—	.55	.53	.46	.47	.42	.35	.26	.30
8	.52	.58	.58	.71	.67	.58	.58	—	.62	.63	.59	.41	.30	.25	.31
9	.59	.60	.40	.58	.63	.74	.61	.70	—	.66	.68	.52	.44	.27	.42
10	.57	.66	.41	.56	.61	.60	.56	.72	.75	—	.70	.47	.48	.24	.35
11	.55	.61	.42	.50	.55	.61	.55	.66	.76	.79	—	.42	.38	.19	.36
12	.36	.49	.25	.38	.54	.57	.51	.51	.66	.59	.54	—	.58	.51	.37
13	.36	.51	.15	.20	.37	.51	.48	.40	.62	.62	.53	.77	—	.38	.47
14	.30	.32	.15	.25	.35	.39	.34	.33	.37	.37	.31	.66	.57	—	.42
15	.28	.39	.17	.23	.33	.51	.38	.35	.51	.45	.47	.50	.68	.57	—
<i>M</i>	1.83	1.56	2.90	2.60	2.23	1.62	1.88	2.12	1.54	1.53	1.56	1.35	1.23	1.47	1.37
<i>SD</i>	0.91	0.83	1.05	1.02	1.03	0.82	0.92	0.99	0.86	0.81	0.83	0.69	0.59	0.69	0.71
<i>S</i>	1.32	1.58	-0.20	0.01	0.40	1.27	0.89	0.54	1.63	1.54	1.39	2.00	2.69	1.29	2.15
<i>K</i>	2.13	2.50	-0.58	-0.66	-0.66	1.21	0.37	-0.48	2.17	1.86	1.26	3.38	6.94	0.81	4.86

Note. Polychoric correlations appear below diagonal; Pearson product-moment correlations appear above diagonal. ISOS = Interpersonal Sexual Objectification Scale; EFA = exploratory factor analysis; *S* = skewness; *K* = kurtosis.

communality estimates, number of variables, and factors, the current sample size was judged adequate for factor analysis procedures (Fabrigar et al., 1999; Floyd & Widaman, 1995; MacCallum, Widaman, Zhang, & Hong, 1999). Parallel analysis suggested two factors, but the other criteria suggested three latent factors. Two factors were extracted and examined but resulted in three items (Items 9, 10, and 11) that cross-loaded equally well on both factors, one item migrating to an alternate and theoretically incompatible factor; thus, two factors were judged unacceptable. Additionally, this two-factor model is incompatible with the original two-factor solution determined by Kozee et al. (2007). The three-factor solution produced only one item with a salient cross-loading (Item 8), as well as a more theoretically reasonable and simpler solution. Table 2 provides detailed information regarding this three-factor solution. As frequently provided in factor analyses of tests of intelligence (e.g., Dombrowski, Watkins, & Brogan, 2009), unrotated factor structure coefficients (loadings) on the *first* factor were examined as an indication of each item's relationship (correlation) to an overall general factor (interpersonal sexual objectification [ISO]) and ranged from .53 to .87. Factor I (Items 1, 2, and 6–11) accounted for 52.36% of variance, and $\alpha = .90$. Salient items for Factor I relate to the body evaluation (BE) dimension specified by Kozee et al. (2007). Factor II (Items 3, 4, 5, and 8 [cross-loaded with Factor I]) accounted for 10.25% of variance, and $\alpha = .89$. Salient items within Factor II appear to relate to contexts of body gazes (BG), without a concomitant negative or positive appraisal, and was so named. Factor III (Items 12–15) accounted for 4.11% of variance, and $\alpha = .77$. Salient items within Factor III relate to unwanted explicit sexual advances (UESA) consistent with Kozee et al. (2007). On the basis of promax rotation, Factors I and II, I and III, and II and III had correlations of .67, .70, and .40, respectively, implying a higher order or general (ISO) dimension.

CFAs

Descriptive statistics for participants' ISOS scores are presented in Table 3. As with the EFA sample, several items demonstrated nonnormal distribution with univariate skewness estimates ranging from -0.22 to 2.89, with five of 15 items greater than |2.0|, and univariate kurtosis estimates ranging from -0.60 to 10.52, with five of 15 items greater than |5.0| and one of 15 greater than |7.0|. Mardia's (1970) normalized multivariate kurtosis estimate of 39.80 indicated ISOS data were multivariately nonnormal (values > 15.001 indicative of nonnormality; Bentler, 2005). This, in addition to the use of polychoric correlations in analyses, necessitated the use of the robust maximum likelihood estimation method with Satorra and Bentler's (2001) corrected chi-square as the most reliable test statistic (Byrne, 2006).

Model fit statistics presented in Table 4 illustrate the increasingly better fit from the null independence model to three oblique factors. Regarding the one-factor (ISO) model, fit statistics indicated the model was inadequate (Browne & Cudeck, 1993; Hu & Bentler, 1998, 1999). In terms of the oblique two-factor model identical to the original model specified for women by Kozee et al. (2007), this model did meet the NFI and CFI standards for a well fitting model (Browne & Cudeck, 1993; Hu & Bentler, 1998, 1999), but fell just short of the RMSEA standard (Hu & Bentler, 1999). The oblique three-factor model (see Figure 1) produced significantly better fit than both the one-factor and oblique two-factor models, providing good fit to these data with the RMSEA standard within the 90% confidence interval RMSEA. Because the two- and three-factor models had correlated factors, bifactor models (Holzinger & Swineford, 1937; Reise, 2012) were also examined.

Bifactor models include direct paths from a broad general dimension to each of the indicators in addition to direct paths from the narrow specific factors to their related indicators. A two-factor

Table 2

One- and Three-Factor ISOS Solution From Principal Axis Extraction and Promax Rotation (n = 283) Using Item Polychoric Correlations

ISOS scale item ("How often have you [1–13]/has someone [14–15] . . .")	Unrotated Factor Coefficients ^a	Promax Rotated Factor Pattern (Structure) Coefficients			<i>h</i> ²
	Factor I (ISO)	Factor I (BE)	Factor II (BG)	Factor III (UESA)	
1. been whistled at while walking down a street?	.65	.82 (.70)	-.01 (.48)	-.17 (.40)	.50
2. noticed someone staring at your chest when you are talking to them?	.73	.69 (.75)	.07 (.54)	-.01 (.53)	.57
3. felt like or known that someone was evaluating your physical appearance?	.57	-.01 (.49)	.84 (.80)	-.10 (.23)	.65
4. felt that someone was staring at your body?	.73	.09 (.64)	.91 (.94)	-.08 (.35)	.88
5. noticed someone leering at your body?	.76	-.02 (.66)	.78 (.85)	.21 (.51)	.76
6. heard a rude, sexual remark made about your body?	.74	.43 (.71)	.14 (.54)	.28 (.63)	.56
7. been honked at when you were walking down the street?	.72	.73 (.74)	.01 (.50)	.02 (.53)	.55
8. seen someone stare at one or more of your body parts?	.80	.52 (.78)	.41 (.75)	-.02 (.51)	.71
9. overheard inappropriate sexual comments made about your body?	.87	.73 (.88)	.05 (.60)	.16 (.69)	.78
10. noticed that someone was not listening . . . but instead gazing at your body or a body part?	.84	.78 (.86)	.04 (.59)	.08 (.64)	.74
11. heard someone make sexual comments or innuendos when noticing your body?	.80	.85 (.84)	-.02 (.55)	.00 (.59)	.70
12. been touched or fondled against your will?	.75	.01 (.65)	.11 (.44)	.80 (.86)	.74
13. experienced sexual harassment (on the job, in school, etc.)?	.70	.25 (.65)	-.24 (.25)	.80 (.88)	.80
14. grabbed or pinched one of your private body areas against your will?	.53	-.28 (.41)	.12 (.28)	.87 (.73)	.55
15. made a degrading sexual gesture towards you?	.58	.12 (.52)	-.09 (.25)	.68 (.72)	.52
Eigenvalues (Extraction)		7.85	1.54	0.62	
% Variance (Extraction)		52.36	10.25	4.11	
<i>r</i> _α	.91 ^b	.90 ^c	.89 ^c .88 ^d	.77 ^c	

Note. Factor I (BE) includes ISOS Items 1, 2, 6–11; Factor II (BG) includes ISOS Items 3–5 and 8 (cross-loaded with Factor I); Factor III (UESA) includes ISOS Items 12–15 based on salient factor pattern coefficients $\geq .40$. ISOS = Interpersonal Sexual Objectification Scale; ISO = interpersonal sexual objectification; BE = body evaluation; BG = body gazes; UESA = unwanted explicit sexual advances; *h*² = communality. Salient factor structure coefficients ($\geq .40$) are presented in bold.

^a Factor structure coefficients. ^b Internal consistency (*r*_α) estimate for the total scale (all items included). ^c Internal consistency (*r*_α) estimates based on items with salient factor pattern coefficients ($\geq .40$). ^d Internal consistency (*r*_α) estimate based on items with salient factor pattern coefficients ($\geq .40$) not including the cross-loading item (8). Factor correlations from oblique solution: *r*_{I,II} = .67, *r*_{I,III} = .70, *r*_{II,III} = .40.}}}

bifactor model and a three-factor bifactor model were examined, with the two-factor bifactor model using the original women's model from Kozee et al. (2007). Both the two-factor and three-factor bifactor models (Bifactor Models 2a and 3a) provided significant and meaningful improvement in fit over their respective oblique two-factor and oblique three-factor models, however; both bifactor models produced several negative path coefficients from the BE factor to items (indicators). Thus, both bifactor models were respecified with the ISOS BE paths to Items 6 and 9 removed. Although both the two-factor bifactor (2b; see Figure 2) and three-factor bifactor (3b; see Figure 3) models showed slight but statistically nonsignificant increases in chi-square, no meaningful changes in other CFA fit statistics were observed, and both provided significant improvements in fit over their respective oblique two-factor and oblique three-factor models. Figures 1, 2, and 3 present the standardized structural models for the oblique two-factor, two-factor bifactor (2b), and three-factor bifactor (3b) models, respectively. Although statistically significant ($\Delta\chi^2$) or meaningful, differences (Chen, 2007; Cheung & Rensvold, 2002) were not observed between the two-factor bifactor (2b) and the three-factor bifactor (3b) models, and slightly better fit was observed for the three-factor bifactor model across all CFA fit statistics, including Akaike's information criterion. On the basis of these data and recommendations that agreement between EFA and CFA provide greater confidence in the model (Gorsuch, 1983), the three-factor bifactor (3b) model was judged as the better ISOS representation for male respondents.

Decomposed ISOS item variance from this three-factor bifactor model is presented in Table 5. The broad general ISO factor accounted for the greatest proportion of total (48%) and common (67.6%) variance, dwarfing that accounted for by the BE, BG, and UESA dimensions. Omega (ω) coefficients illustrated the reliabilities of the ISOS specific scales (BE, BG, UESA) that also included variance from the broad (ISO) scale and appeared encouraging, similar to alpha coefficients. However, omega hierarchical (ω_h) coefficients illustrated ISOS specific scales' reliabilities with the variance from the broad ISO scale removed and ranged from .081 to .513. For comparison purposes, ω_h estimates were calculated for the two-factor bifactor model consistent with the structure suggested for women by Kozee et al. (2007), resulting in BE $\omega_h = .196$ and UESA $\omega_h = .527$. Thus, only the broad ISO scale possessed acceptable precision of measurement (Brunner et al., 2012) whether applying the Kozee et al. (2007) inspired two-factor bifactor or the three-factor bifactor model suggested by EFA in the current study.

Discussion

The purpose of this investigation was to examine the structural validity and reliability of the ISOS (Kozee et al., 2007) for college men. Results of the EFA and CFA demonstrated that the ISOS is structurally valid for college men with general agreement between EFA and CFA results. The 15 items originally developed for women by Kozee et al. contributed to three, moderately correlated

Table 3
ISOS Item Correlation Matrix and Descriptive Statistics for CFA Sample (n = 221)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	—	.58	.36	.39	.41	.34	.65	.53	.46	.48	.53	.21	.28	.30	.25
2	.68	—	.38	.43	.54	.46	.54	.54	.52	.54	.51	.21	.26	.32	.26
3	.43	.42	—	.65	.50	.30	.35	.50	.27	.30	.38	.28	.30	.36	.22
4	.48	.51	.66	—	.70	.37	.42	.62	.40	.49	.47	.30	.35	.30	.30
5	.50	.66	.54	.73	—	.45	.51	.64	.52	.61	.55	.26	.29	.27	.30
6	.41	.55	.34	.41	.53	—	.37	.44	.71	.54	.54	.31	.37	.34	.39
7	.74	.63	.39	.47	.59	.45	—	.54	.53	.54	.53	.21	.31	.37	.28
8	.64	.66	.53	.67	.69	.52	.62	—	.52	.55	.55	.28	.28	.23	.32
9	.56	.60	.31	.45	.63	.76	.66	.63	—	.71	.66	.31	.42	.36	.42
10	.58	.67	.37	.55	.67	.59	.62	.66	.76	—	.66	.37	.39	.27	.41
11	.62	.64	.42	.51	.63	.61	.61	.65	.74	.71	—	.37	.50	.31	.39
12	.40	.38	.39	.41	.37	.39	.34	.45	.47	.52	.48	—	.63	.54	.62
13	.44	.40	.38	.46	.39	.48	.45	.42	.59	.49	.61	.76	—	.52	.63
14	.44	.42	.43	.37	.35	.37	.48	.35	.46	.41	.42	.74	.68	—	.51
15	.40	.43	.29	.34	.40	.50	.40	.41	.58	.51	.47	.75	.75	.71	—
M	1.75	1.43	2.78	2.47	1.98	1.58	1.73	1.99	1.54	1.53	1.67	1.25	1.24	1.36	1.33
SD	0.99	0.86	0.99	0.98	1.00	0.84	0.92	1.01	0.83	0.82	0.90	0.55	0.56	0.68	0.69
S	1.37	2.38	-0.22	0.07	0.73	1.62	1.09	0.81	1.61	1.69	1.41	2.42	2.53	2.14	2.89
K	1.54	5.87	-0.48	-0.60	-0.30	2.81	0.50	0.01	2.39	2.86	1.94	6.47	6.63	5.11	10.52

Note. Polychoric correlations appear below diagonal; Pearson product-moment correlations appear above diagonal. Mardia's (1970) normalized multivariate kurtosis estimate was 39.80, indicating ISOS data were multivariately nonnormal (values > 15.001 indicative of nonnormality; Bentler, 2005). ISOS = Interpersonal Sexual Objectification Scale; CFA = confirmatory factor analysis; S = skewness; K = kurtosis.

narrow specific factors representing dimensions of interpersonal sexual objectification among college men, including BE, BG, and UESA. Although this factor structure does not replicate the original two-factor model, these three constructs are consistent with the conceptualization of interpersonal sexual objectification for women by Kozee et al. but appear somewhat more delineated for men. Given that the three-factor structure was not hypothesized, however, it may be sample specific, and future research should further examine the utility of these factors. Regarding reliability, each factor demonstrated adequate internal consistency reliability for research purposes (based on Cronbach's α), and two factors approached minimum levels recommended for individual decision making ($\geq .90$; Salvia & Ysseldyke, 2001). The content of Item 8 (i.e., "How often have you seen someone stare at one or more of

your body parts?") was conceptually related to both BE and BG and thus cross-loaded with both these factors. However, this item demonstrated a stronger association with BE than BG.

With respect to the dimensionality of the ISOS and importance of the specific primary scales (BE, BG, UESA), the current results are a bit sobering. Although the structure of the ISOS clearly showed three narrow specific latent dimensions based on EFA and lower order CFA, the ISOS was dominated by a broad general dimension that accounted for the greatest portions of common and total variance. Once the effects of the broad general dimension were removed from items, little reliable variance remained in the narrow specific dimensions. The resulting low ω_h values indicated that there may be too little variance in the narrow specific dimensions to be significant, particularly the BE and BG dimensions. If

Table 4
CFA Fit Statistics for ISOS Polychoric Correlations

Model	S-B χ^2	df	NFI	CFI	RMSEA	90% CI RMSEA	AIC
Independence (Null)	6,008.04	105					5,798.04
One factor	427.50*	90	.929	.943	.131	[.118, .143]	247.50
Two oblique factors ^a	208.61*	89	.965	.980	.078	[.064, .092]	30.62
Three oblique factors ^b	169.56*	87	.972	.986	.066	[.051, .080]	-4.44
Bifactor Model 2a	117.98*	75	.980	.993	.051	[.032, .068]	-32.02
Bifactor Model 2b	119.89*	77	.980	.993	.050	[.032, .067]	-34.11
Bifactor Model 3a	100.25*	75	.983	.996	.039	[.014, .058]	-49.76
Bifactor Model 3b	105.69*	77	.982	.995	.041	[.018, .059]	-48.31

Note. Analyses based on item polychoric correlation matrix. Two correlated factors model is based on Kozee, Tylka, Augustus-Horvath, and Denchik (2007). CFA = confirmatory factor analysis; ISOS = Interpersonal Sexual Objectification Scale; S-B = Satorra-Bentler; NFI = normed fit index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; AIC = Akaike's information criterion.

^a The oblique two-factor model is identical to the model specified for women by Kozee et al. (2007). ^b ISOS Item 8 loading on Factor 1 (Body Evaluation). Bifactor Models 2a and 2b were bifactor representations of the Kozee et al. (2007) structure, whereas Bifactor Models 3a and 3b were bifactor representations of the three-correlated factors model suggested in the current study.

* Statistically different ($p < .001$) from previous factor model (for bifactor models, comparisons were against respective correlated two- or three-factor models).

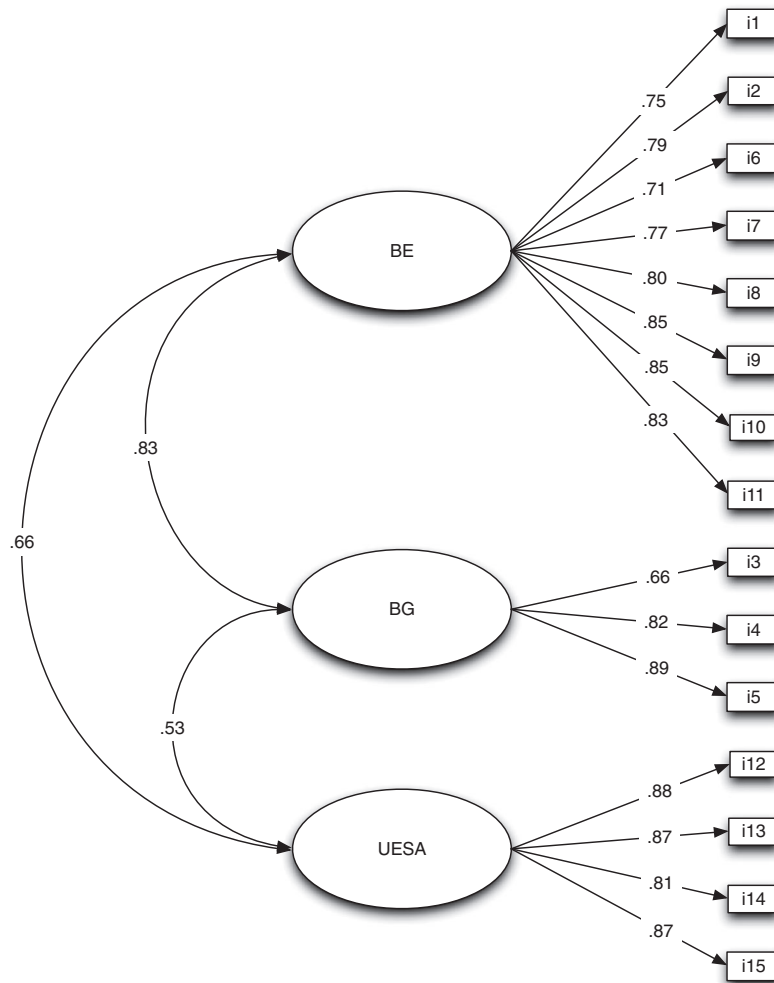


Figure 1. Interpersonal Sexual Objectification Scale correlated three-factor model with standardized coefficients. BE = body evaluation; BG = body gazes; UESA = unwanted explicit sexual advances.

measurement of the narrow specific dimensions is to be the focus of research and ISOS interpretation, then increasing the number of indicators for these dimensions (with the hope that this will increase their unique variance) will be required. Importantly, results indicated that the overall broad general ISO dimension accounted for an acceptable proportion of variance and is sufficiently reliable for use with college men.

A number of considerations were taken into account regarding our recommendation to accept the three-factor bifactor model. First, there was agreement between the three factors suggested in EFA, and this three-factor bifactor model determined via CFA, demonstrating greater confidence in this structure (Gorsuch, 1983). Second, the EFA-based two-factor solution in the current study was not consistent with that of Kozee et al. (2007), nor with the current CFA analyses. Moreover, the two-factor EFA solution found three items that cross-loaded on both factors, as well as items migrating to alternate factors than those originally conceptualized by Kozee et al. (2007) based on objectification theory (Fredrickson & Roberts, 1997). Thus, a two-factor ISOS model for men is questionable. Third, slightly better fit was observed for the

three-factor bifactor model compared with the two-factor bifactor model across *all* CFA fit statistics. Although a two-factor bifactor model might allow for more direct gender comparisons, the current data and results for men from both EFA and CFA appear to more closely align with the three-factor bifactor model from both statistical and conceptual standpoints.

Bifactor Modeling

Recently, Reise (2012) noted the resurgence in bifactor modeling, which has given rise to challenges regarding previous and contemporary thoughts on measurement. For example, Brouwer, Meijer, and Zevalkink (2012) found when bifactor modeling was used with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), a general depression dimension accounted for large portions of BDI-II common and total item variance, but the specific group factors, although distinguishable, accounted for small portions of variance and produced small ω_h coefficients. Likewise in the intellectual assessment area, similar results have been reported for Wechsler scales, with the general intelligence

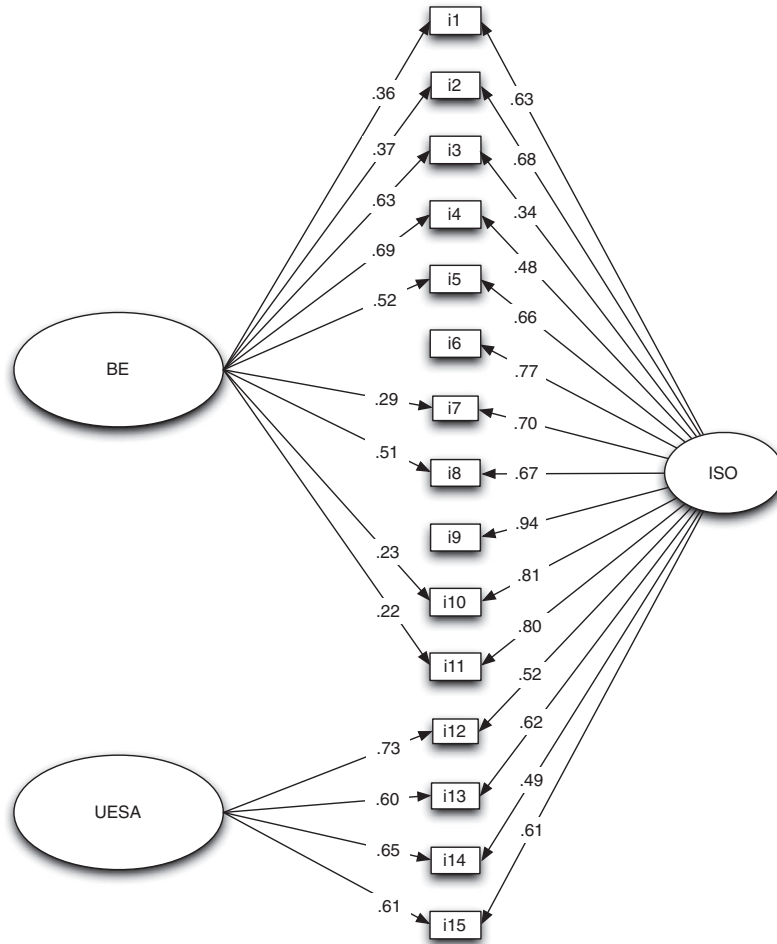


Figure 2. Interpersonal Sexual Objectification Scale Bifactor Model 2b, representing the Kozee et al. (2007) structure, with standardized coefficients (BE paths to ISOS Items 6 and 9 deleted). BE = body evaluation; ISO = interpersonal sexual objectification; UESA = unwanted explicit sexual advances.

construct dominating explanation of subtest performance (Gignac, 2005, 2006; Golay, Reverte, Rossier, Favez, & Lecerf, 2012; Watkins, 2010) and little reliable subtest variance remaining at the factor index score level. Such results illustrate dimensionality of the test, whereas dominance of a single, general construct limits interpretation to that level, as was observed in the current study.

It remains unclear whether the general ISO factor dominates ISOS measurement for women, as it did for men in the current investigation. In the original work with women by Kozee et al. (2007), the correlation of .62 between the BE and UESA factors based on EFA implied a higher order or general factor, and their subsequent CFA examined a higher order structure that provided adequate fit. Unfortunately, Kozee et al. did not report testing the higher order structure against an alternate single factor, a lower order structure, or a rival bifactor model. Decomposed item variance from Schmid and Leiman's (1957) orthogonalization of the higher order model was also not presented by Kozee et al. (2007) to disentangle item variance attributable to the higher order versus lower order dimensions so that the relative importance of the higher order ISO dimension versus lower order BE and UESA

dimensions could be judged. Thus, direct comparisons of the bifactor model found in the current study cannot be made. It seems plausible that, similar to the current study, a bifactor model for the Kozee et al. data would also show dominance of the broad general ISO dimension. This is a critical next step for future research.

ISOS Comparisons by Gender

Although the content of the items on the ISOS have the potential to facilitate between-gender comparisons (e.g., gender neutrality of the ISOS items, the items are related to both women's and men's reported objectification experiences), this investigation revealed a differing factor structure for the ISOS among men compared with women. Two factors (BE and BG) emerged with respect to one's body being evaluated by others among men, whereas these same 11 items loaded on one factor of BE among women (Kozee et al., 2007). Compared with women, men may have a somewhat more nuanced experience of objectifying gazes, distinguishing between someone staring at their body or evaluating their appearance, but without a clear valence of the evaluation (body gazes), and staring

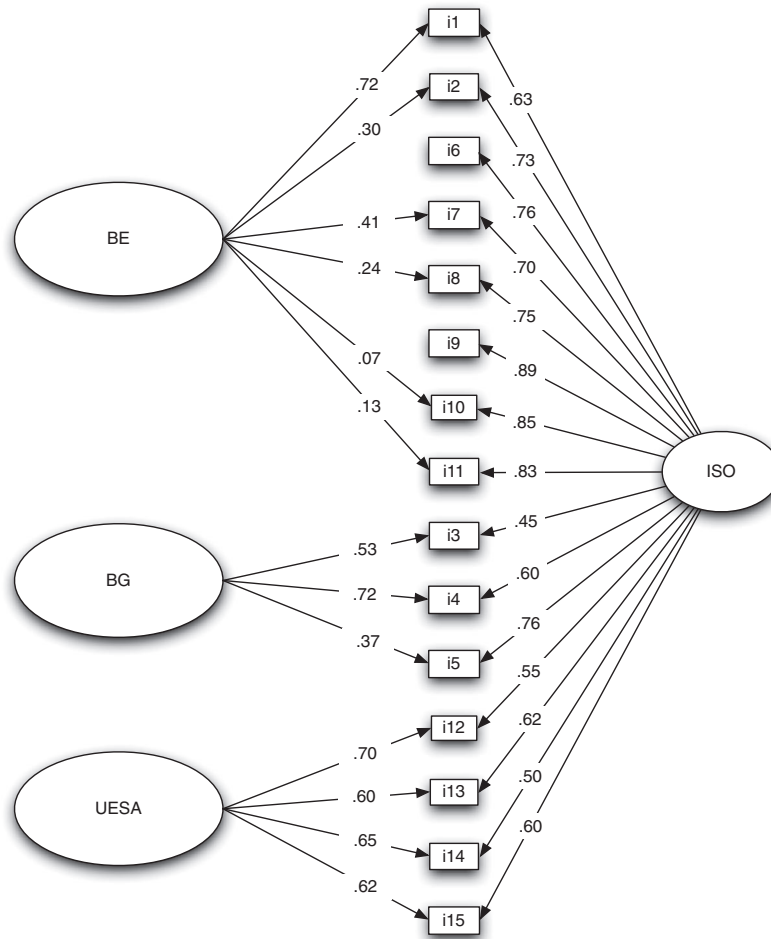


Figure 3. Interpersonal Sexual Objectification Scale (ISOS) Bifactor Model 3b with standardized coefficients (BE paths to ISOS Items 6 and 9 deleted). BE = body evaluation; ISO = interpersonal sexual objectification; BG = body gazes; UESA = unwanted explicit sexual advances.

at their body or body parts with a clear evaluation (rude remarks about the body, focusing on body parts rather than what the man is saying). As discussed above, should a general ISO dimension emerge for women when a bifactor model is tested, factor invariance could be assessed to determine whether responses on the general ISO could be compared more directly for men and women.

Future research should also further consider the content of men's specific sexual objectification experiences that are assessed with the ISOS. For example, several items assess experiences with being "checked out" by other people (i.e., the objectifying gaze). By and large, women's experiences with the objectifying gaze involve other people staring at their breasts (Gervais, Vescio, & Allen, 2011; Young, 2003); however, men's experiences may include others staring at different body parts, evaluating the size of their chests and biceps. This consideration is similar to work that has been conducted with the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) where women may report more body shame when their bodies are not thin enough, whereas men may report more body shame when their bodies are not muscular enough (see Parent & Moradi, 2011). Future research using the

ISOS, and including a qualitative component to assess the specific nature of the objectifying gazes, would help researchers to further articulate similarities and differences in men's and women's sexual objectification experiences.

Limitations

The current investigation is not without some limitations. First, the lack of information regarding participants' sexual orientation limits the findings. Most previous objectification research with men has examined the moderating role of sexual orientation. For example, Martins et al. (2007) demonstrated similarities among straight and gay men regarding drive for thinness and muscularity; however, they also found higher levels of self-objectification, body surveillance, and body shame for gay men compared with heterosexual men. As well, a recent study showed that gay men reported more body surveillance and body dissatisfaction after being exposed to muscularity-idealizing media images compared with heterosexual men (Michaels et al., 2012; see also Wiseman & Moradi, 2010). Whereas both gay and heterosexual men experience self-

Table 5
Sources of Variance in the ISOS Male Sample (N = 221) According to Bifactor Model 3b

Item	General (ISO)		BE		BG		UESA		h^2	u^2
	b	Var	b	Var	b	Var	b	Var		
1	.628	.394	.724	.524					.919	.081
2	.733	.537	.303	.092					.629	.371
3	.454	.206			.532	.283			.489	.511
4	.604	.365			.716	.513			.877	.123
5	.758	.575			.373	.139			.714	.286
6	.759	.576							.576	.424
7	.700	.490	.413	.171					.661	.339
8	.749	.561	.238	.057					.618	.382
9	.892	.796							.796	.204
10	.849	.721	.069	.005					.726	.274
11	.827	.684	.133	.018					.702	.298
12	.548	.300					.702	.493	.793	.207
13	.623	.388					.596	.355	.743	.257
14	.501	.251					.646	.417	.668	.332
15	.602	.362					.618	.382	.744	.256
% Total variance		48.0		5.80		6.20		11.0	71.0	29.0
% Common variance		67.6		8.10		8.80		15.5		
ω		.964		.945		.866		.918		
ω_h		.860		.081		.384		.513		

Note. ISOS = Interpersonal Sexual Objectification Scale; ISO = interpersonal sexual objectification; BE = body evaluation; BG = body gazes; UESA = unwanted explicit sexual advances; b = standardized loading of the item on the factor; Var = variance explained in the item; h^2 = communality; u^2 = uniqueness; ω = omega; ω_h = omega hierarchical.

objectification, it appears that more significant negative consequences exist for gay men, and this has been posited to be the result of a meaningful association between self-objectification and body shame among this population (Martin et al., 2007). Differences between gay and heterosexual men may also be related to differing frequency or content of sexual objectification in interactions with others, as well as differential power status between the individuals. Thus, not knowing participants' sexual orientation in the current study limits both the comparisons we were able to make and the findings' generalizability.

Second, the ISOS is an instrument that was developed by women for women. Kozee et al. (2007) focused exclusively on two types of interpersonal sexual objectification that women frequently experience based on theorizing from Fredrickson and Roberts (1997): body evaluation and unwanted explicit sexual advances. Thus, the current study with men is primarily a confirmatory one. Because there was no sampling of men's experiences, it is possible that objectification behaviors that are unique to or more commonly experienced by men are not represented in this measure. Future research should complement the current examination by adopting an inductive approach with an item pool based specifically on men's objectification experiences. This type of investigation might reveal a different factor structure than the current investigation.

Additional limitations include the use of a self-report measure and the dearth of diversity among participants. The accuracy and truthfulness of responses are called into question when using self-report data, despite the data collection methods being online and anonymous. As well, the predominantly young, White sample in this study limits the applicability and generalizability of the current findings to populations representing greater age and racial diversity. Relatedly, the generalizability of the findings to noncollege men is limited, as the current participant sample consisted of college men. Recruiting samples of men with greater ethnic, age,

and education diversity, as well as in differing geographic areas, would lend additional support to the ISOS' psychometric strength.

Conclusion

This investigation examined the factor structure of the ISOS (Kozee et al., 2007) with two independent samples of college men and contributes to the literature in a number of ways. First, the current study is the first to respond to calls in the literature to validate the ISOS for men (Engeln-Maddox et al., 2011). Second, as recommended by other researchers (e.g., Heimerdinger-Edwards et al., 2011), this study adds to the scant but growing extant literature regarding objectification among men, particularly with regard to men's interpersonal sexual objectification experiences, a key contributor to self-objectification and adverse mental health consequences. Moreover, the current investigation provides important evidence for the appropriate use of the ISOS with men, which in turn, opens the door for future studies investigating sexual objectification among men. Although the results from the bifactor model indicate that additional work is needed to improve measurement of the three narrow specific dimensions, the broad general ISO dimension appears to provide reliable assessment of interpersonal sexual objectification for men.

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