Measuring Self-Perceived Effects of Pornography:

A Short-Form Version of the Pornography Consumption Effects Scale

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ABSTRACT

The Pornography Consumption Effects Scale (PCES) is a 47-item measure of self-perceived effects of pornography use. While the PCES is frequently used in the pornography research literature, its length may limit its applicability in some research situations. This study investigated if a short-form version of the PCES could be created for use with heterosexual men. The study employed an online sample of 312 self-identified heterosexual men. Confirmatory factor analysis was used to produce a 14-item version of the PCES. This short-form PCES (PCES-SF) showed excellent psychometric properties in terms of reliability, concurrent validity with the long-form PCES, and discriminant validity with respect to social desirability. Similar to the full-length PCES, the PCES-SF generates both an overall positive effect score and an overall negative effect score.

Keywords: Pornography; Sexual Explicit Media; Self-Perceived Effects; Psychometrics; Men

INTRODUCTION

Pornography's impact on consumers is a frequently studied and much debated topic (for an overview, see Hald, Seaman, & Linz, 2014). However, only recently have researchers begun to assess the effects of pornography consumption from the perspective of consumers, that is to say, the self-perceived effects of consumers' pornography use. The Pornography Consumption Effects Scale (PCES), developed by Hald and Malamuth (2008) using a sample of 688 Danish young adults, was the first measure to quantitatively assess such self-perceived effects and has since been instrumental to this nascent line of research.

The PCES assesses a variety of positive and negative effects of pornography consumption across 47 items (e.g., "Pornography has improved your knowledge of sex?", "Pornography has adversely affected your views of the opposite gender?", and "Pornography has reduced your sexual activities?"). These scale items were generated and arranged into putative effects dimensions and subscales (see Method) on the basis of extant research into the effects of pornography consumption on consumers' lives (e.g., Barak, Fisher, Belfry, & Lashambe, 1999; Frable, Johnson, & Kellman, 1997). In addition to Hald and Malamuth's (2008) sample, the PCES has been utilized in surveys of general samples of pornography users (Wetterneck, Burgess, Short, Smith, & Cervantes, 2012) and experimental studies into the effects of pornography (Prause, Staley, & Fong, 2013; Steele, Staley, Fong, & Prause, 2013).

One practical limitation of the PCES is its length. Longer surveys have been found to be associated with lower response and completion rates and poorer overall data quality (Deutskens, De Ruyter, Wetzels, & Oosterveld, 2004; Galesic & Bosnjak, 2009). Part of minimizing study length involves minimizing the length of the scales used within a study. For this reason, the PCES may be of limited utility, especially in research not focussing solely on

self-perceived effects of pornography consumption. Accordingly, shortening the PCES may bolster its applicability, both in pornography research and sexuality research more generally.

In response to this length limitation, Hald, Smolenski, and Rosser (2013) developed a 7-item version of the PCES for use with populations of men who have sex with men (MSM). The 7-item PCES has proved popular, having been used in numerous other surveys of MSM in the short time since its publication (e.g., Hald et al., 2015; Noor, Rosser, & Erickson, 2014; Rosser, Noor, & Iantaffi, 2014) and a slightly modified version of the 7-item PCES has also been used with a general sample of Scandinavian young adults (Kvalem, Træen, Lewin, & Štulhofer, 2014). Further, Mulya and Hald (2014) reported on a study into self-perceived effects of pornography consumption among a sample of Indonesian university students utilizing a 14-item version of the PCES. However, no psychometric validation of this version of the PCES has been conducted.

Three core limitations pertain to existing research utilizing shortened versions of the PCES. First, the 7-item PCES has been validated using samples of MSM only. Thus, it is unclear as to whether the psychometric properties of the scale would hold for other groups, such as heterosexual men (who remain the most studied cohort in pornography research). Second, the 7-item PCES provides only a single overall score, with a positive value indicating an overall positive effect and a negative value indicating an overall negative effect. This is unlike the 47-item PCES which generates both an overall positive effect score and an overall negative effect score. Accordingly, the 7-item PCES may be of limited use to researchers who wish to simultaneously assess the degree to which pornography has had both a positive and negative influence on consumers' lives and not only a "net" effect. Third, Mulya and Hald (2014) did not provide systematic psychometric validation of the shortened version of the PCES used in their study. Consequently, it is unknown as to whether their short-form scale is a reliable and valid analogue of the original PCES.

The present study responds to these limitations by utilizing a sample of heterosexual men to investigate if the original 47-item PCES can be significantly reduced in length without loss to its psychometric properties or core measurements of both positive and negative self-perceived effects of pornography consumption.

METHOD

Participants

Data for this study were taken from a larger online survey of the effects of pornography use. A total of 470 men completed the study. The sample was checked for duplicate data by matching IP addresses and demographic information; 10 duplicate cases were detected and deleted. Participants were excluded from the present study if they did not self-identify as heterosexual (n = 134), had never viewed pornography (n = 10), or did not respond to any of the PCES items (n = 4). This resulted in a final sample of 312 heterosexual men who had had previous experience with pornography. Participants' ages ranged from 18 to 73 years (M = 27.80, SD = 10.71). Students constituted 41.3% (n = 129) of the final sample, with the remaining 58.7% (n = 183) being community members. A large majority of the sample had viewed pornography in the last six months (94.2 %). Around three quarters (72.4%) of the sample indicated that they had viewed pornography at least once per week on average over the last six months. Other characteristics of the final sample are shown in Table 1.

Measures

Background Variables

Participants were assessed on a number of demographic variables, including sexual orientation (heterosexual; gay; bisexual; other), age (in years), highest level of formal education, country of residence, relationship status (in a relationship and cohabiting; in a

relationship but not cohabiting; not in a relationship)[1] and pornography use (ever used pornography; used pornography in the last six months; frequency of use in the last six months). Frequency of pornography use was measured with a Likert-type scale ranging from 1 = *less than monthly* to 8 = *more than once a day*. Only the measures used in this study are outlined here. More detailed information on the survey and results relating to self-perceived effects of pornography among the sample are discussed in Miller, Hald, and Kidd (2018).

Social Desirability

Social desirability was assessed using the Lie Scale of the Abbreviated Form of the Revised Eysenck Personality Questionnaire (Francis, Brown, & Philipchalk, 1992). The scale comprises six dichotomous items (where 0 = *Yes* and 1 = *No*). An example item is: "Have you ever blamed someone for doing something you knew was really your fault?" This 6-item Lie Scale has been shown to be a functional equivalent of longer versions of the Lie Scale (Francis et al., 1992). The Lie Scale was originally developed to detect "faking good" on Eysenckian personality inventories (Francis, Brown, & Philipchalk, 1991), but has since been used as a more general measure of socially desirable responding (Birbenbaum & Montag, 1989; Ferrando & Anguiano-Carrasco, 2009; Stöber, 2001). In the current study, the Cronbach's alpha of the Lie Scale was .68.

Self-Perceived Effects of Pornography Use

The long-form version of the PCES was included in the survey so that a short-form version of the scale could be generated (to avoid confusion, this short-form scale is referred to as the PCES-SF from this point). The long-form PCES consists of 47 Likert-type items, all employing a 7-point scale (where 1 = *not at all*, 2 = *to a very small extent*, 3 = *to a small extent*, 4 = *to a moderate extent*, 5 = *to a large extent*, 6 = *to a very large extent*, and 7 = *to an extremely large extent*). The instrument has nine subscales arranged along two effects

[1] To facilitate model invariance testing (see below), this variable was later dichotomised to "in a relationship/not in a relationship."

dimensions: (1) the Positive Effects Dimension (PED) and (2) the Negative Effects Dimension (NED). The PED has five subscales: Sex Life, Positive (SL-P); Life in General, Positive (LG-P); Attitudes Toward Sex, Positive (ATS-P); Perceptions and Attitudes Towards the Opposite Gender, Positive (PATOG-P); and Sexual Knowledge, Positive (SK-P). The NED has four subscales: Sex Life, Negative (SL-N); Life in General, Negative (LG-N); Attitudes Toward Sex, Negative (ATS-N); and Perceptions and Attitudes Toward the Opposite Gender, Negative (PATOG-N). There is no negative counterpart to SK-P. PED and NED scores were calculated by averaging responses on the items making up that dimension's subscales.

The scale was originally developed as part of the Pornography Consumption Questionnaire (Hald, 2006) and initially consisted of 64 items. After 17 items were deleted on the basis of redundancy, small factor loadings, poor inter-item correlations, or inappropriate wording, the remaining items were factor analyzed (Hald & Malamuth, 2008). This process supported the arrangement of items into a PED and NED consisting of five and four factors, respectively.

Procedure

Participation in the study was open to all adult males. Non-student participants were recruited through websites which host psychological studies (e.g., callforparticipants.com, lehmiller.com, facebook.com/psychologyparticipantsresearchers, and socialpsychology.org). Student participants were recruited through James Cook University. Participants were informed of the nature of the study and asked to confirm that they were at least 18 years of age before survey questions were presented. Participation in the survey was anonymous and took roughly 30 minutes. In exchange for their participation, participants were offered the chance to go into a prize-draw for a $50 gift voucher. Ethical approval to conduct the study was obtained from the Human Research Ethics Committee of James Cook University.

RESULTS

Missing Data Analysis

Before analyses were conducted, PCES items were inspected for missing data. All 47 items were missing fewer than 2.5% of responses and it was deemed that this was unlikely to bias results (Graham, 2009; Olinsky, Chen, & Harlow, 2003). Expectation-maximization was used to obtain maximum likelihood estimates for missing values.

Scale Construction

The PED and NED were found to have mean inter-item correlations of .48 and .53, respectively. Based on these values, following Widaman, Little, Preacher, and Sawalani (2011), it was determined that both effects dimensions could be reduced by approximately two-thirds without negatively impacting reliability. A two-thirds reduction in both effect dimensions would result in a total scale length of roughly 16 items. It was thought that a scale of this length would be long enough to tap all relevant content domains, while also being easily implementable. Further, as noted above, Mulya and Hald (2014) employed a 14-item version of the PCES, indicating the practical utility of a scale of this length.

In order for each of the nine constructs to be given the same weighting in the PCES-SF as in the original 47-item PCES, the number of items selected to be retained on each subscale was proportional to the number of items making up that subscale in the long-form PCES. For example, three items were taken from SK-P (which consists of nine items in the long-form version of the PCES), whereas only one item was taken from PATOG-N (which consists of only three items in the long-form PCES). The items with the highest salient loading on each subscale were retained for the PCES-SF. Widaman et al. (2011) maintain that this approach to short-form scale construction better preserves the factor integrity of the original scale compared to other approaches (e.g., retaining the items with the highest factor loadings regardless of subscale).

To determine which items best represented each subscale, a hierarchal confirmatory factor analysis model was constructed using Amos version 24. This model is depicted in Fig. 1. As can be seen, nine first-order factors (SK-P, SL-P, LG-P, PATOG-P, ATS-P, SL-N, LG-N, PATOG-N, and ATS-N) and two second-order factors (PED and NED) were specified. The 47 scale items were treated as reflective indicators of their respective first-order constructs, with these first-order factors in turn being treated as indicators of their second-order factors. The two second-order factors were permitted to covary.

On this basis, 16 items were retained (nine from the PED and seven from the NED). A new model was then constructed with these items acting as reflective indicators of their respective effects dimensions. Error terms for items originating from the same PCES subscale were freed to covary. The factors were also freed to covary (as a small, but significant correlation has been observed between the PED and NED in past research; Hald & Malamuth, 2008). Due to issues of identification, factor variances were fixed to one (unit variance identification; Kline, 2011). This 16-item model showed adequate fit (see Table 2), with the exception of the chi-square statistic. Model fit was assessed on the basis of the other fit indices as the chi-square statistic is sensitive to even minor departures from perfect fit (Hoyle, 2011). Inspection of modification indices indicated overlap between two sets of items: Items 8 and 33 and 17 and 40. Inspection of the wording of items confirmed possible overlap of content. Thus, Items 8 and 40 were dropped in order to minimize redundancy and maximize brevity. This 14-item model (consisting of eight positive and six negative items) also showed adequate fit (see Table 2). There was a reduction in the Akaike information criterion (16-item model = 370.78, 14-item model = 255.32) and the Bayes information criterion (16-item model = 375.64, 14-item model = 258.77) across the two models, indicating improvement in fit. Factor loadings between items and their respective factors and item means are shown in Table 3. All factor loadings were significant at the $p < .001$ level.

Invariance Testing

Invariance testing was performed to ascertain whether the final scale was invariant across relationship status subsamples (in a relationship and not in a relationship) and student status subsamples (student and non-student). Due to the study's final sample size, invariance testing was limited to these two variables, both of which break the sample into two groups of roughly equal size. Invariance testing involves sequentially comparing increasingly constrained models. We assessed invariance in the order recommended by others (Gregorich, 2006; Hirschfeld & von Brachel, 2014; Schmitt & Kuljanin, 2008; Steenkamp & Baumgartner, 1998): configural invariance, invariance of factor loadings (metric or pattern invariance), invariance of item intercepts (scalar invariance), invariance of factor variances,[2] and invariance of factor covariances. The first three steps relate to a scale's measurement invariance, while the latter two relate to structural invariance. Configural invariance was assessed through fit indices, while other forms of invariance were assessed on the basis of a non-significant chi-square difference ($\Delta\chi^2$) test (Byrne, Shavelson, & Muthén, 1989) or a change in the comparative fit index (ΔCFI) of less than −.01 (Cheung & Rensvold, 2002).

Invariance testing is reported in Table 2. The scale showed configural and metric invariance across relationship groups. Full scalar invariance was not achieved on the basis of the $\Delta\chi^2$ test. Item intercept constraints were then relaxed iteratively, starting with the intercepts with the largest between group differences. Partial invariance was established after relaxing intercept constraints for items 12 and 33 (both of which originate from the SL-P subscale). While full scalar invariance was not achieved, Steenkamp and Baumgartner (1998) suggest that meaningful group comparisons can still be made as long as at least two indicators on each factor are invariant. The $\Delta\chi^2$ test did not indicate invariance of factor variances. However, Little (1997) suggests that changes in fit indices are more informative

[2] To free the factor variances (both of which were fixed to one in the previous analysis), a loading on each factor had to be fixed to one (unit loading identification; Kline, 2011). These loadings were selected on the basis of whichever were the least variant between groups (Sass, 2011).

than the $\Delta\chi^2$ test when assessing aspects of structural invariance (such as the invariance of factor variances and covariances). As such, the ΔCFI was given more weight here. On this basis, both the factor variances and covariance were found to be invariant across relationship groups.

Concerning comparisons between the student and non-student subsamples, again configural and metric invariance were achieved. Partial scalar invariance was achieved after relaxing intercepts constraints for Items 7, 26, and 36 (all NED items). The ΔCFI indicated invariance of both factor variances and the factor covariance.

Reliability, Concurrent Validity, and Discriminant Validity

The short-form versions of the PED and NED (PED-SF and NED-SF) showed good internal consistency, both having Cronbach's alphas of .91. As the Spearman-Brown coefficient is a more appropriate measure of reliability than Cronbach's alpha for two-item scales (Eisinga, Grotenhuis, & Pelzer, 2013), Spearman-Brown coefficients were calculated for the multi-item subscales: SL-P, ATS-P, SK-P, SL-N, and ATS-N. These coefficients ranged from .79 to .86.

Large correlations were observed between the PED and PED-SF, $r(310) = .97$, $p < .001$, and the NED and NED-SF, $r(310) = .96$, $p < .001$, supporting the concurrent validity of the short-form scale. A paired-samples *t* test was used to compare mean PED ($M = 3.24$, $SD = 1.25$) to mean NED ($M = 1.86$, $SD = 1.05$). This difference was significant, $t(311) = 17.22$, $p < .001$, Cohen's $d = 1.19$. Mean PED-SF ($M = 3.19$, $SD = 1.42$) was then compared to mean NED-SF ($M = 1.83$, $SD = 1.16$). This difference was also significant and of a similar magnitude (as evidenced by the Cohen's *d* statistic), $t(311) = 16.14$, $p < .001$, Cohen's $d = 1.17$. Furthermore, the differences between positive and negative dimension scores were of a similar magnitude for the PCES and PCES-SF across all subscales (see Table 4).

The PED-SF was not found to correlate with Lie scores,[3] $r(306) = -.07$, $p = .219$; however, a significant correlation was detected between the NED-SF and Lie scores, $r(306) = -.12$, $p = .038$. Given this significant (albeit small) correlation, the instrument's discriminant validity with respect to social desirability was further probed. This was done using Henseler, Ringle, and Sarstedt's (2015) hetero-trait mono-trait (HTMT) ratio method for testing discriminant validity. The HTMT ratio method involves calculating the average cross-scale correlation between scale items (i.e., the mean of the heterotrait-heteromethod correlations) and dividing this average by the square root of the product of the inter-item correlations for each scale (i.e., the geometric mean of the monotrait-heteromethod correlations). A HTMT ratio with an absolute value of less than .85 indicates that the scales being assessed diverge (Henseler et al., 2015; Voorhees, Brady, Calantone, & Ramirez, 2016). This process resulted in an HTMT ratio of –.11 for the PED-SF and Lie Scale and –.20 for the NED-SF and Lie Scale. As can be seen, the absolute value of both ratios fell well below the .85 criterion.

A significant, but small, positive correlation was detected between the PED-SF and NED-SF, $r(310) = .16$, $p = .005$. The magnitude of this relationship was greater for the full length PED and NED, $r(310) = .26$, $p < .001$. The HTMT ratio (.17) indicated the discriminant validity of the PED-SF and NED-SF.[4]

DISCUSSION

This study utilized a sample of heterosexual men to produce a 14-item version of the PCES. The PCES-SF showed excellent psychometric performance in terms of reliability and concurrent validity with the long-form PCES. Like the long-form PCES, the PCES-SF taps the effects of pornography across the content domains of sex life, life in general, attitudes towards sex, perceptions and attitudes towards the opposite gender, and sexual knowledge.

[3] Due to a positive skew in the distribution, Lie Scale total was first square root transformed (Tabachnick & Fiddel, 2013).

[4] In Miller et al. (2018), we show that different variables predict PED-SF and NED-SF scores, further indicating their discriminant validity.

The PCES-SF has been constructed to weight these domains in a way similar to the PCES. Invariance testing indicated that the scale measures negative and positive self-perceived effects of pornography similarly among students and non-students and those in a relationship and those not in a relationship, demonstrating the PCES-SF's potential for use with convenience samples of students, community samples, and men in and out of relationships. Analysis indicated that both the PED-SF and NED-SF show discriminant validity in relation to social desirability. This being said, the current study utilized an anonymous, online survey design. Accordingly, in other study designs (e.g., laboratory experiments), social desirability may have a greater impact on scale scores.

The major advantage of the PCES-SF over the PCES is its length. The scale is sufficiently brief to be easily included in studies, even alongside multiple other instruments, without creating issues of participant fatigue or dropout—two problems associated with long surveys (Deutskens et al., 2004; Galesic & Bosnjak, 2009). This has the potential to open up new lines of enquiry in sexual media socialization research. For example, by allowing researchers to assess the self-perceived effects of pornography consumption while also assessing the effects of pornography consumption from an external standpoint (e.g., by correlating pornography consumption with a measure of sexism or body image or relationship satisfaction) and then comparing consumers' self-perceptions to the externally measured effects of pornography. Additionally, the PCES-SF's length makes the scale's use in clinical settings possible.

The sample self-perceived pornography to have a greater positive than negative effect on their lives across all the domains measured by the PCES-SF. Men perceiving pornography to have a greater positive than negative effect on their lives is in line with past research (Hald & Malamuth, 2008; Kvalem et al., 2014; Mulya & Hald, 2014). Possible explanations for these findings are discussed at length in Miller et al. (2018). While reported positive effects

were larger than reported negative effects, it is worth nothing that the mean for the NED-SF was closest to two ("a very small effect"), indicating that many men still feel that pornography has some degree of negative effect on their lives.

The fact that many participants reported that pornography has had both a positive and negative effect on them (even if reported positive effects were larger than reported negative effects) indicates that pornography consumption can simultaneously positively and negatively impact consumers' lives. As the PCES-SF produces both a positive effect score and a negative effect score, researchers who wish to assess both the positive and negative effect of pornography, rather than pornography's net effect, may find the PCES-SF especially useful. This is in contrast to the 7-item PCES, which produces an overall effect score only.

Two potential limitations pertain to the PCES-SF. First, most of the original nine PCES subscales are represented in the PCES-SF by one or two items only, which may adversely affect the reliability of the PCES-SF subscales. Therefore, we suggest that researchers who are especially interested in the effects of pornography use on a specific domain (e.g., consumers' sex lives) consider including more items from the long-form PCES for that specific subscale than those available in the PCES-SF. Second, the study made use of a non-probability sample of heterosexual men. Accordingly, we cannot know if, or how, the study findings generalize across genders, cultures, and sexual orientations.

Future research may focus on assessing the psychometric performance of the PCES-SF with full-probability samples of men and women of various sexual orientations and cultural backgrounds. Further investigation into the effect of social desirability on scale responding in other study designs would also be useful. These issues aside, our study offers researchers interested in both the positive and negative self-perceived effects of heterosexual men's pornography consumption a practical and psychometrically-sound alternative to the full-form PCES.

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Table 1

Characteristics of Final Sample

Variable	%
Age	
18-24	54.8
25-34	22.1
35-44	11.9
≥45	11.2
Country of residence	
Australia/New Zealand	42.0
Asia	18.9
Europe	7.4
USA	26.9
North America, other	4.2
Other	0.6
Relationship status	
In a relationship, cohabiting	31.7
In a relationship, not cohabiting	22.1
Not in relationship	46.2
Highest level of formal education	
No university study	23.8
Some undergraduate study	32.2
Undergraduate degree	25.1
Some postgraduate study or postgraduate degree	19.0

Note. $N = 312$

Table 2

Fit Indices for PCES-SF Models

	χ^2 (*df*)	CFI	TLI	SRMR	RMSEA [90% CI]	$\Delta\chi^2$ (*df*)	ΔCFI
16-item, 2 factor model	286.78 (94)***	.946	.931	.070	.081 [.071, .092]		
14-item, 2 factor model	187.32 (71)***	.948	.936	.062	.073 [.060, .085]		
Comparison: in a relationship (*n* = 168), not in a relationship (*n* =144)							
Configural invariance	272.16 (142)***	.955	.942	.086	.054 [.045, .064]		
Constrain factor loadings	280.82 (154)***	.956	.948	.085	.052 [.042, .061]	8.66 (12)	.001
Constrain item intercepts	314.91 (168)***	.949	.945	.086	.053 [.044, .062]	34.09 (14)**	-.007
Constrain item intercepts (excl. items 12 & 33)	294.23 (166)***	.955	.951	.085	.050 [.040, .059]	13. 41 (12)	-.001
Constrain factor variances	304.51 (168)***	.953	.949	.087	.051 [.042, .060]	10.28 (2)**	-.002
Constrain factor covariance	305.82 (169)***	.952	.949	.097	.051 [.042, .060]	1.31 (1)	-.001
Comparison: student (*n* = 129), non-student (*n* = 183)							
Configural invariance	299.02 (142)***	.946	.931	.076	.060 [.050, .069]		
Constrain factor loadings	316.43 (154)***	.945	.934	.076	.058 [.049, .067]	17.41 (12)	-.001
Constrain item intercepts	364.37 (168)***	.933	.927	.079	.061 [.053, .070]	47.94 (14)***	-.012
Constrain item intercepts (excl. items 7, 26, & 37)	334.68 (165)***	.942	.936	.077	.058 [.049, .066]	18.25 (11)	-.003
Constrain factor variances	341.21 (167)***	.940	.935	.085	.058 [.049, .067]	6.53 (2)*	-.002
Constrain factor covariance	348.28 (168)***	.938	.933	.123	.059 [.050, .068]	7.07 (1)**	-.002

Note. CFI = comparative fix index; CI = confidence interval; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual; TLI = Tucker-Lewis index.

*p < .05; **p < .01; ***p < .001

Table 3

Item Means, and Factor Loadings (Unstandardized and Standardized) between Each Item and its Respective Factor (PED-SF or NED-SF)

Item content	Original PCES Subscale	*M*	*SD*	*B*	*SE*	β	h^2
PED-SF							
12. Overall, has improved your sex life?	SL-P	3.10	1.86	1.37	.09	.74	.54
33. Has added something positive to your sex life?	SL-P	3.28	1.83	1.47	.09	.80	.65
30. Has improved your quality of life?	LG-P	2.62	1.73	1.32	.09	.76	.58
20. Has made you more respectful towards the opposite gender?	PATOG-P	2.72	1.80	1.05	.10	.58	.34
31. Has had a positive influence on your attitudes toward sex?	ATS-P	3.10	1.89	1.67	.09	.90	.81
43. Has positively influenced your opinions of sex?	ATS-P	3.04	1.85	1.48	.09	.80	.65
29. Has improved your knowledge of sex?	SK-P	3.90	1.75	1.18	.09	.67	.45
39. Has improved your knowledge of oral sex?	SK-P	3.73	1.81	1.06	.10	.59	.35
NED-SF							
22. Overall, has made your sex life worse?	SL-N	1.61	1.24	0.97	.06	.78	.61
44. Has added something negative to your sex life?	SL-N	1.77	1.38	1.16	.07	.84	.71
17. Has made your life more problematic?	LG-N	1.96	1.52	1.23	.07	.81	.65
7. Has led you to view the opposite gender more stereotypically?	PATOG-N	1.94	1.43	1.04	.06	.73	.54
26. Has had a negative influence on your attitudes toward sex?	ATS-N	1.72	1.28	1.15	.08	.90	.81
37. Has adversely influenced your opinions of sex?	ATS-N	2.00	1.53	1.07	.07	.70	.49

Note. All loadings significant at $p < .001$. Numbers given in *Item content* refer to the numbering of the original PCES (Hald & Malamuth, 2008). h^2 = item communalities; ATS = attitudes toward sex; LG = life in general; PATOG = perceptions and attitudes toward the opposite gender; SK = sexual knowledge; SL = sex life.

Table 4

Mean Score by Subscale for both the Long-Form PCES and PCES-SF

	Positive effect		Negative effect		Paired-samples *t* test	
	M	*SD*	*M*	*SD*	*t* value	Cohen's *d*
Long-form PCES						
SL	3.27	1.52	1.79	1.07	15.3***	1.13
LG	2.54	1.42	2.00	1.35	5.15***	0.39
PATOG	2.54	1.44	1.84	1.21	7.67***	0.53
ATS	3.29	1.52	1.87	1.10	14.36***	1.07
SK[a]	3.80	1.39				
PCES-SF						
SL	3.19	1.73	1.70	1.22	12.87***	1.00
LG	2.62	1.73	1.96	1.52	5.10***	0.41
PATOG	2.72	1.80	1.94	1.43	6.59***	0.48
ATS	3.07	1.73	1.86	1.28	10.99***	0.80
SK[a]	3.82	1.67				

Note. For all tests *df* = 311. SL = sex life; LG = life in general; ATS = attitudes toward sex; PATOG = perceptions and attitudes toward the opposite gender; SK = sexual knowledge.

[a]There is no negative counterpart to the sexual knowledge subscale.

***$p < .001$

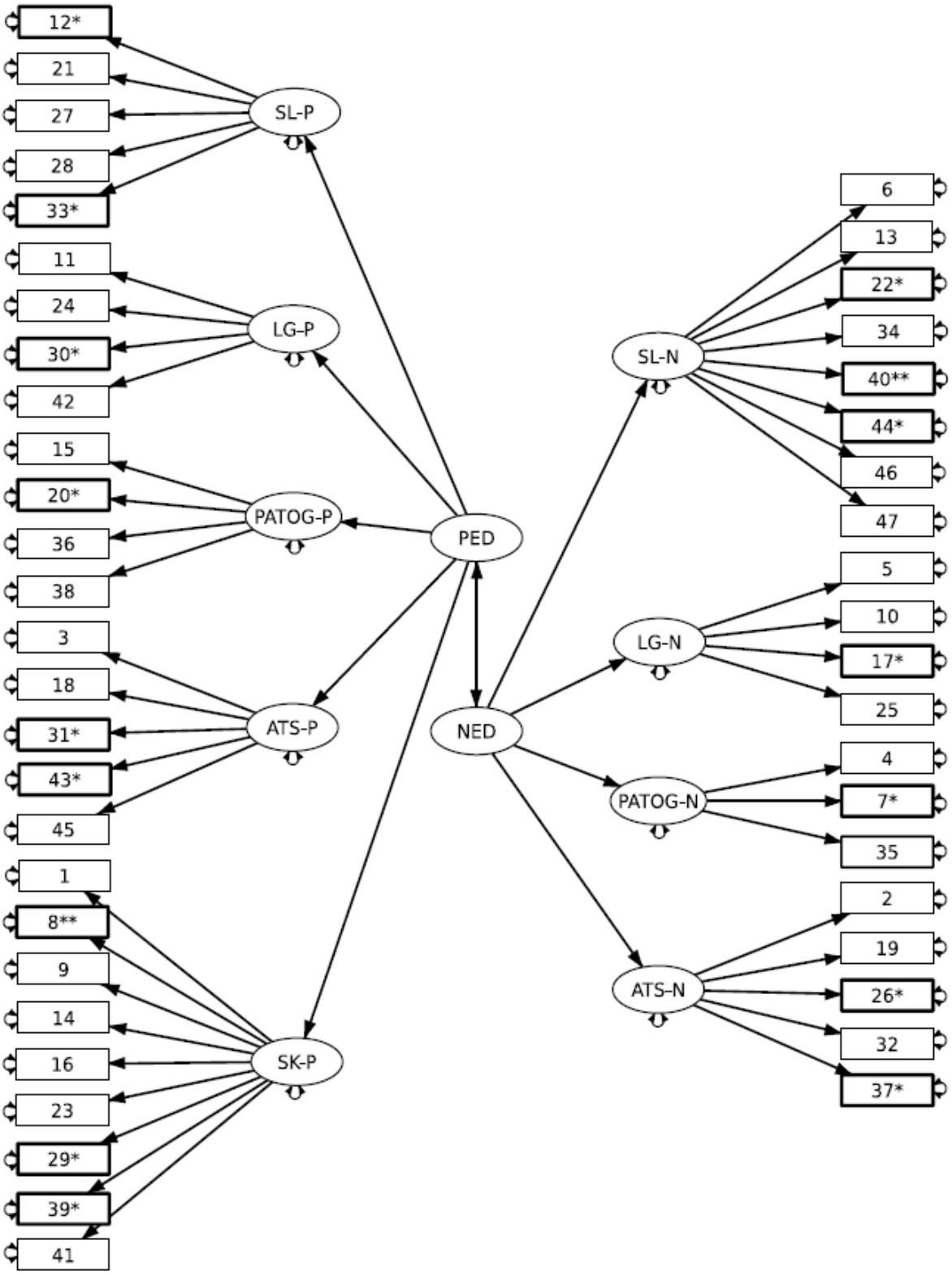
12*
21
27
28
33*
SL-P
11
24
30*
42
LG-P
15
20*
36
38
PATOG-P
3
18
31*
43*
45
ATS-P
1
8**
9
14
16
23
29*
39*
41
SK-P
PED
NED
6
13
22*
34
40**
44*
46
47
SL-N
5
10
17*
25
LG-N
4
7*
35
PATOG-N
2
19
26*
32
37*
ATS-N

Figure 1. Hierarchal confirmatory factor analysis model for the long-form PCES. * indicates item was retained for both the 16-item and 14-item scales; ** indicates item was retained for the 16-item scale only; ATS = attitudes toward sex; LG = life in general; NED = negative effects dimension; PATOG = perceptions and attitudes toward the opposite gender; PED = positive effects dimension; SK = sexual knowledge; SL = sex life.