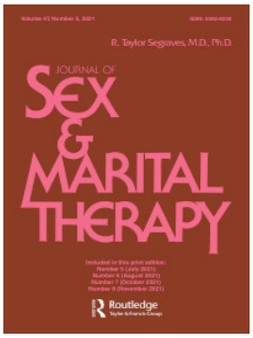

Journal of Sex & Marital Therapy

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/usmt20

Disordered Eating and Body Dissatisfaction Associated with Sexual Concerns in Undergraduate Women

Cara R. Dunkley & Lori A. Brotto

To cite this article: Cara R. Dunkley & Lori A. Brotto (2021) Disordered Eating and Body Dissatisfaction Associated with Sexual Concerns in Undergraduate Women, Journal of Sex & Marital Therapy, 47:5, 460-480, DOI: 10.1080/0092623X.2021.1898502

To link to this article: https://doi.org/10.1080/0092623X.2021.1898502

Published online: 18 Mar 2021.

JOURNAL OF SEX & MARITAL THERAPY
2021, VOL. 47, NO. 5, 460–480
https://doi.org/10.1080/0092623X.2021.1898502

Disordered Eating and Body Dissatisfaction Associated with Sexual Concerns in Undergraduate Women

Cara R. Dunkley[a] and Lori A. Brotto[b]

[a]Department of Psychology, University of British Columbia Sexual Health Research, Vancouver, BC, Canada; [b]Department of Obstetrics and Gynacology, University of British Columbia Sexual Health Research, Vancouver, BC, Canada

ABSTRACT

While research has shown an association between eating disorders and sexual dysfunction, few studies have examined the association between disordered eating and sexuality in non-clinical samples. Here we measured self-reported symptoms of disordered eating, body dissatisfaction, and psychological features characteristic of eating disorders in relation to sexual difficulties among a sample of n = 656 (mean age = 20.59 years) undergraduate women. Disordered eating symptoms were associated with sexual distress, sexual function problems, more cognitive distractions during sexual activity, and poorer sexual self-efficacy. Psychological features characteristic of those with an eating disorder were found to mediate the association between disordered eating and sexual concerns. These findings suggest that eating concerns are associated with sexual difficulties even among women without an eating disorder diagnosis. Further, results highlight the importance of assessing eating disorder symptoms and body dissatisfaction among those seeking treatment for sexual concerns.

An increasing body of research points to considerable sexual difficulties among women diagnosed with an eating disorder. Anorexia nervosa, bulimia nervosa, and binge eating disorder, are often comorbid with sexual function problems, such as low desire, sexual pain, and impaired orgasm (Castellini, Lelli, Cassioli, & Ricca, 2019). Sexual concerns among women with an eating disorder reflect both the physiological and psychological consequences of disordered eating and compensatory behaviors (e.g., vomiting, laxative use). Eating disorders and sexual function conditions also share specific etiological factors and psychopathological features. Comparatively, the association between eating symptoms and sexual dysfunction in non-clinical samples has received little research attention, despite the high prevalence of shape, weight, and eating concerns in the general population. The current study examines disordered eating and body dissatisfaction in relation to sexual function and sexual insecurities[1] in a non-clinical sample of undergraduate women.

Given the overlap between eating disorders and sexual function problems, certain psychological characteristics may serve as risk and maintenance factors for both types of these important women's health concerns (Dunkley, Svatko, & Brotto, 2020). For example, anxiety and mood disorders are common comorbid concerns among women with an eating disorder and women with sexual function conditions (Desrochers, Bergeron, Landry, & Jodoin, 2008; Pollice, Kaye, Greeno, & Weltzin, 1997). Various, relatively stable, psychological traits, such as perfectionism, insecure attachment, low self-esteem, and body dissatisfaction, are similarly characteristic of women with an eating disorder and women with sexual difficulties (Armstrong & Roth, 1989;

CONTACT Cara R. Dunkley cdunkley@psych.ubc.ca Department of Psychology, 2136 West Mall, Vancouver, BC V6T 1Z4, Canada.

[1]Sexual insecurity refers to the tendency to feel unconfident and self-conscious about the sexual aspects of one's life.

Granot, Zisman-Ilani, Ram, Goldstick, & Yovell, 2010; Van Lankveld et al., 2010). Developmental risk factors, such as a greater likelihood of history of sexual abuse, are also associated with both eating disorders and sexual concerns (Harlow & Stewart, 2005; Waller, 1992). These shared etiological and psychopathological features may thus underlie or contribute to the development of both sexual dysfunctions and eating disorders, and help explain the high comorbidity between these conditions.

The Hierarchical Taxonomy of Psychopathology (HiTOP) conceptualizes eating disorders, sexual function conditions, and disorders of mood and anxiety, as subfactors under an overarching class of internalizing disorders based on the covariation of symptoms (Kotov et al., 2017). Internalizing disorders are identified principally by the temperamental antecedent of negative emotionality (Andrews, 2018), with shared risk factors for the development of symptoms constant with all forms of internalizing psychopathology. Unlike categorical systems of nosology, HiTOP's dimensional approach to conceptualizing psychopathology captures people experiencing difficulties outside of diagnostic cutoffs of clinically significant impairment. Research examining disordered eating and sexual concerns in relation to psychopathological characteristics within non-clinical populations is needed to more fully describe the complex comorbidity between sexual dysfunctions and eating disorders. As body dissatisfaction and appearance concerns are known to negatively affect sexual function (Woertman & Van den Brink, 2012), research on the association between disordered eating and sexuality among non-clinical samples may have broader applications for women in the general population.

The few studies examining disordered eating in relation to sexual concerns among non-clinical samples support an association between eating disorder symptoms and sexual problems. Among a community sample of women, a tendency toward binge-eating behaviors and poor body-image esteem were associated with greater sexual distress and dissociation during sex with a partner (Castellini et al., 2017). In a sample of undergraduate women, sexual insecurities were associated with disordered eating behavior severity, with higher levels of disordered eating predicting greater sexual insecurities (Dunkley, Gorzalka, & Brotto, 2016). A follow up study found drive for thinness, bulimia, and body dissatisfaction to predict sexual difficulties across various domains of sexual function, including desire, arousal, orgasm, lubrication, sexual satisfaction, sexual pain, and sexual distress (Dunkley, Gorzalka, & Brotto, 2020). In this study, psychological features associated with disordered eating symptoms and characteristic of people with an eating disorder (i.e., low self-esteem, perfectionism, interpersonal alienation, interpersonal insecurity, ascetism, maturity fears, interoceptive deficits, and emotional dysregulation) also predicted greater sexual function difficulties. Furthermore, the associations between disordered eating and sexual function were either totally or partially mediated by psychological features characteristic of women with an eating disorder. These findings indicate that general psychological maladjustment accounted for much of the association between disordered eating and sexual response in a non-clinical sample, which is consistent with the HiTOP theoretical framework for internalizing disorders. A large body of research on body image and sexuality in non-clinical samples has also shown that body-dissatisfaction—a key feature of eating disorders—is tied to a variety of sexual difficulties (Woertman & Van den Brink, 2012).

The present study examined disordered eating and body dissatisfaction in relation to sexual function difficulties and sexual insecurities in a sample of undergraduate women. Psychological features characteristic of women with an eating disorder (e.g., perfectionism, low self-esteem, emotional dysregulation, insecure attachment) are dimensional constructs that apply to individuals without an eating disorder, which may increase vulnerability to developing an eating disorder. As female college students are considered to be at particularly high risk of developing an eating disorder (Eisenberg, Nicklett, Roeder, & Kirz, 2011; Hoerr, Bokram, Lugo, Bivins, & Keast, 2002), the current research focused on undergraduate women.

Hypotheses

Higher levels of disordered eating and body dissatisfaction were predicted to be associated with poor sexual function, greater sexual distress, low sexual self-efficacy, and more cognitive distractions during sexual activity. Based on the psychopathological features theorized to underlie both eating disorders and sexual dysfunctions (Kotov et al., 2017), psychological features associated with disordered eating symptoms and characteristic of people with an eating disorder were predicted to be associated with sexual concerns. Specific psychological features included general areas of psychological maladjustment that are often elevated in people with an eating disorder (i.e., low self-esteem, perfectionism, interpersonal alienation, interpersonal insecurity, ascetism, maturity fears, interoceptive deficits, and emotional dysregulation). In addition to being associated with sexual concerns, these psychological features were predicted to at least partially account for the association between disordered eating and sexual difficulties. Specifically, we first hypothesized that eating concern would predict sexual insecurity and sexual function. Secondly, we hypothesized that the indirect effect characterized by disordered eating and psychological maladjustment would also predict sexual function and sexual insecurities. Lastly, when controlling for this indirect effect, we expected disordered eating to be significantly less predictive or no longer be directly predictive of either sexual function or sexual insecurities. This final hypothesis would allow us to test whether or not psychological maladjustment acts as a mediator between eating concern and the outcome variables. To test these hypotheses, we constructed a structural equation model in which these paths were specified.

Method

Participants

A total of 678 undergraduate women were recruited from the human subject pool system at a major North American university, requesting completion of an online survey of disordered eating and sexuality. Eligibility requirements included age (over 19 years) and proficiency with understanding written English. Twenty-two participants were omitted from this study because of incomplete data, leaving a final sample of 656 participants. Only participants who endorsed having engaged in sexual activity (partnered sexual activity and/or masturbation) within 4 weeks prior to participation were included in analyses involving the FSFI ($n = 487$). Data were collected between December 2016–2018.

Procedure

Participants were recruited by advertisements posted on the university human subject pool system for undergraduate students enrolled in psychology classes. The advertisements directed interested participants to a website (www.redcap.com) to complete a web-based questionnaire. After arriving at the website, participants were presented with an online consent form which provided further information on the study topic and procedures. Upon indicating consent to participate, participants were presented with a series of online questionnaires assessing demographic information, sexual function, sexual insecurities, disordered eating symptoms, and psychological features characteristic of individuals with an eating disorder diagnosis. Students received one course credit in exchange for participation. This study was approved by the Behavioral Research Ethics Board and all participants provided consent.

Measures

Sexuality measures

Female sexual function index revised (FSFI; Rosen et al., 2000***)*:** The FSFI is a 19-item self-report scale, designed to measure several key dimensions of sexual function in women over the previous 4 weeks. An additional item was added to determine whether or not a woman has been sexually active within the past month which allowed us to remove sexually inactive women from the analyses by adding one item that asked about recent dyadic and solitary sexual activity. A total score and scores on six subdomains of female sexuality are produced: sexual desire, arousal (both subjective and physiologic), lubrication, orgasm, satisfaction, and pain. Participants rate each item on a 5-point Likert scale, in which lower scores are associated with higher levels of sexual dysfunction. Total scores range from 2 to 36 and subscale scores range from 0–5 or 1–5, with higher scores indicating better sexual functioning. Subscale scores range from 0 to 6 with the exception of sexual desire, which ranges from 1.2 to 6. The FSFI has high test-retest reliability across all domains of sexual dysfunction, as well as good construct validity (Rosen et al., 2000). FSFI-Total, a measure of overall sexual dysfunction, has been used with good discriminant validity in correctly identifying women with sexual dysfunction (Wiegel, Meston, & Rosen, 2005). The Cronbach's alpha for the FSFI-R in the current sample was good at .809.

Female sexual distress scale—revised (FSDS-R; Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002***)*:** The FSDS-R is a validated 13-item questionnaire that measures personal distress associated with sexual dysfunction and low desire in women, a domain not captured by the FSFI. Respondents indicated their degree of agreement with statements on a 5-point scale ranging from never (0) to always (4), with scores ranging from 0 to 48. Higher scores indicate more sexual distress, and a total score of 15 or higher indicates significant sexual distress (Derogatis et al., 2002). The FSDS-R has shown strong psychometric properties (Derogatis et al., 2002; Rosen et al., 2009). The Cronbach's alpha for the FSDS-R in the current sample was excellent at .940.

The cognitive distraction during sexual activity scale (CDDSA; Dove, Michael, & Wiederman, 2000***)*:** The CDDSA is a 20-item measure that assesses thoughts and worries during sexual activity. Items are divided into two subdomains: appearance-based distraction and performance-based distraction (Dove et al., 2000). Participants rate the frequency with which they have each thought on a 6-point Likert scale, from 1 (always) to 6 (never). Possible scores ranged from 10 to 60, with higher scores indicating lower frequency of distracting appearance- and performance-related thoughts during sexual activity. Dove et al. (2000) demonstrated excellent internal consistency for each subscale. The Cronbach's alpha for the CDDSA in the current sample was excellent at .983.

***Sexual self-efficacy scale for female function (SSES-F; Bailes et al., 2011)*:** The SSES-F is a 37-item measure of perceived competence in the behavioral, cognitive, and effective dimensions of female sexual response. A total score, as well as eight subscales are produced, including: interpersonal orgasm, desire, sensuality, individual arousal, affection, communication, body acceptance, and refusal. For each item, the woman indicates whether or not she is able to perform the activity; and then rates her confidence for that activity on a 10 (quite uncertain) to 100 (quite certain) scale. Scores for inability to perform an activity are 0. Scores are averaged over all items to yield a total score between 0 and 100, with higher scores indicating greater levels of sexual self-efficacy (Bailes et al., 2011). The SSES-F has shown good internal consistency, test-retest reliability, and validity (Creti et al., 1989). The Cronbach's alpha for the SSES-F in the current sample was excellent at .957.

Eating measures

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994***)*:** The EDE–Q is a 28-item scale that was derived from the Eating Disorder Examination Interview (Fairburn,

Cooper, & O'Connor, 1993), and assesses key attitudes and behavioral features of eating disorders. It measures disordered eating over a 28-day period using a 7-point rating scheme, and is scored across 5 subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern, as well as a global score which is an average of the subscales. Scores of four or higher on key items are considered to be in the clinical range (Fairburn & Beglin, 1994). The EDE-Q has good concurrent validity and acceptable criterion validity (Mond, Hay, Rodgers, Owen, & Beumont, 2004). The Cronbach's alpha for the EDE-Q in the current sample was excellent at .951.

***Eating Disorders Inventory-3 (EDI-3; Garner, 2004)*:** The EDI-3 is a 91-item self-report questionnaire designed to measure attitudes, personality features, and eating disorder symptom severity associated with Anorexia Nervosa and Bulimia Nervosa. Respondents are asked to rate each item on a 4-point scale. The EDI-3 yields 12 distinct but related subscales: 3 of which assess eating disorder risk (drive for thinness, bulimia, and body dissatisfaction), which combined create an eating disorder risk composite score, and 9 of which assess various psychological variables that have been associated with eating disorder symptoms and are characteristic of women with an eating disorder (expanded upon below). Lower scores indicate lower eating pathology and lower scores on personality factors. The EDI-3 has shown excellent internal consistency and test-retest reliability, as well as acceptable convergent validity and discriminant validity (Clausen, Rosenvinge, Friborg, & Rokkedal, 2011; Cumella, 2006). The Cronbach's alpha for the EDI-3 in the current sample was excellent at .922.

Psychological variables

***Eating Disorders Inventory-3 (EDI-3; Garner,* 2004*)*:** As noted above, the EDI-3 contains 9 subscales measuring psychological features highly associated with eating disorder symptoms and characteristic of women with an eating disorder. Psychological subscales include: maturity fears, low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation, interoceptive deficits, emotional dysregulation, perfectionism, and asceticism. With the exception of maturity fears, which stands alone as a subscale, these psychological features can be divided into four composite scores, including ineffectiveness, interpersonal problems, affective problems, and over control, which together produce a global psychological maladjustment score. The scoring and psychometrics of EDI-3 psychological subscales parallels that of disordered eating symptom subscales described above. The Cronbach's alpha for the EDI-3 in the current sample was excellent at .922.

Data analysis

Zero-order correlations between study variables were calculated to examine sexuality in relation to disordered eating and psychological maladjustment. The correlation results were then used to inform a series of linear regression analyses. Although regressions were based on a-priori hypotheses, only predictor variables that were significantly correlated with the criterion variable of interest were entered into the regression analysis to minimize the number of predictor variables in each model. Sexuality variables were independently entered as the criterion variable in all regression analyses. In the first set of regressions, disordered eating variables that were significantly correlated with a given criterion variable were entered as predictor variables. In the second set, psychological features characteristic of people with an eating disorder that were significantly correlated with the criterion variable were entered as predictor variables. Composite scores for psychological maladjustment were used in place of individual psychological features where possible to reduce the number of predictors. For example, interoceptive awareness and emotional dysregulation combine to create the EDI-3 affective problems composite score, which was entered as a predictor variable instead of both interoceptive awareness and emotional dysregulation in cases

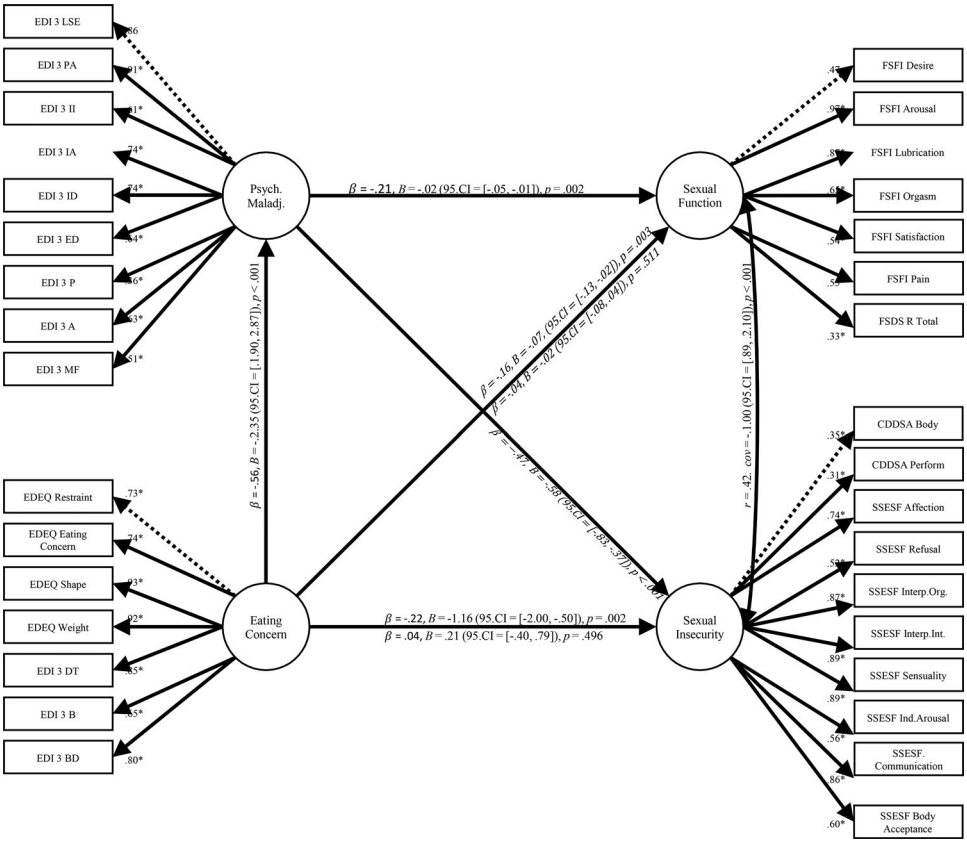

Figure 1. Mediation Model of psychological maladjustment on the association between disordered eating and sexual function and the association between disordered eating and sexual insecurities.

where both of these subscales were correlated with the criterion variable of interest. Though the directionality of the association between eating disorder symptoms and sexuality has not been established empirically, disordered eating variables and associated psychological features were chosen as predictors due to the characteristically earlier age of onset for eating disorders relative to sexual function concerns. A Bonferroni alpha adjustment was not employed, as doing so substantially decreases statistical power and results in evaluating effects on the basis of the number of effects examined rather than on the size of the effect or theoretical expectations (e.g., Feise, 2002; O'Keefe, 2003; Tutzauer, 2003).

The hypothesized model shown in Figure 1 was examined using structural equation modeling (SEM). Models fits were considered adequate if they showed Comparative Fit Index (CFI) $> .90$, Root Mean Square Error of Approximation (RMSEA) $< .10$, and Standardized Root Mean Square Residual (SRMR) $< .08$ (Hu & Bentler, 1998). A bootstrapping approach was used to create percentile confidence intervals, and through this, a significance test performed for all hypothesized indirect effects (i.e., the indirect effects underlying disordered and psychological maladjustment when predicting sexual insecurity and sexual function). All reported confidence intervals within this manuscript were based on unstandardized values. Analyses were conducted using the lavaan package 0.5–12 (Rosseel, 2012) for R (R Foundation for Statistical Computing). The SEM analysis was run with disordered eating predicting sexuality variables and not the other way around due to the relative age of onset of eating disorders compared to sexual concerns; however, it is possible that the associations also run in the reverse direction.

Results

Sample characteristics

The mean age of women for the entire sample was 20.59 years ($SD = 2.93$; range = 18–51). With respect to ethnicity, 37.9% reported being Chinese, 25.7% Euro-Caucasian, and 36.4% belonging to mixed or other ethno-cultural groups. A total of 63.2% identified as heterosexual, 21.5% heteroflexible, 11.9% bisexual, 2.4% lesbian, and 1.1% asexual. Eleven percent of the sample endorsed being sexually assaulted as an adult, while 6.7% of participants endorsed a history of childhood sexual abuse. Five percent of participants reported being diagnosed with an eating disorder at some point in their lives, with 2.1% of those participants endorsing a current diagnosis of an eating disorder.

With respect to the mean scores on each of the validated measures of sexuality and eating behaviors, these are presented in Table 1. Women who had not been sexually active (including masturbation) within 4 weeks prior to participation were not included in analyses involving the FSFI due to scale composition. The means and standard deviations of study variables for the total sample are displayed in Table 1. The descriptive statistics of the current sample are consistent with those of published in research with samples of undergraduate women: Eating Disorders Inventory-3, Cognitive Distractions During Sexual Activity Scale, Female Sexual Function Index-Revised, Female Sexual Distress Scale, Sexual Self-Efficacy for Female Function (Dunkley, Gorzalka, et al., 2020; Dunkley et al., 2016), Eating Disorder Examination Questionnaire (Lipson & Sonneville, 2017), Adult Eating Behavior Questionnaire (O'Reilly, 2018).

Associations between disordered eating and sexuality variables

Zero-order correlations

Zero-order correlations between eating behavior and sexuality variables are provided in Tables 2 and 3. All disordered eating and body concern subscales were significantly correlated with sexual distress, overall sexual function, overall sexual self-efficacy, and cognitive distractions during sexual activity. In all cases, disordered eating was associated with poorer sexual function and greater sexual insecurities.

Regression analyses

A series of linear regression models were conducted to examine the association between disordered eating and sexuality. In each regression model, sexuality measures and corresponding subscales were independently entered as the criterion variables. Disordered eating and body concern measures that were significantly correlated with the criterion variable of interest determined which variables served as predictors within each model. As body dissatisfaction was the only variable correlated with sexual satisfaction, a regression model with satisfaction as the criterion variable was not performed. Total model statistics and individual regression coefficients are shown in Tables 4 and 5, respectively.

The overall models for all linear regression analyses were significant. In each case, disordered eating explained a significant proportion of the variance in sexual distress, sexual function, sexual self-efficacy, and cognitive distractions during sexual activity. Sexual distress was significantly predicted by the eating concerns, shape concerns, and weight concerns. Disordered eating similarly accounted for a significant proportion of the variance in overall sexual function and all areas of sexual response measured. Body dissatisfaction and eating concern significantly predicted overall sexual function, arousal, and orgasm, while body dissatisfaction and no other disordered eating variables predicted sexual pain. Desire and lubrication were not significantly predicted by any disordered eating variable.

Table 1. Means and standard deviations of study variables among total sample ($n = 678$; $n = 487$ for the FSFI).

Variable	*M*	*SD*
EDI risk	147.35	28.12
Drive for thinness	10.38	7.42
Bulimia	6.89	6.72
Body dissatisfaction	15.69	8.96
Low self-esteem	6.59	5.10
Personal alienation	7.68	5.40
Interpersonal insecurity	7.98	5.28
Interpersonal alienation	6.64	4.48
Interoceptive deficits	9.86	7.34
Emotional dysregulation	5.30	5.20
Perfectionism	11.16	5.16
Asceticism	6.37	4.78
Maturity fears	11.13	6.21
Over control comp.	98.21	19.20
Ineffective comp.	98.64	20.70
Affective comp.	98.64	19.52
Interpersonal comp.	98.92	19.50
Global psych mal	393.28	64.27
EDEQ total	1.34	1.17
Restraint	1.35	1.44
Eating concern	0.72	1.02
Shape	2.17	1.54
Weight	1.81	1.53
Body dissatisfaction	1.95	1.46
AEBQ hunger	3.08	0.74
Food responsiveness	3.21	0.80
Emotional under eating	2.94	0.90
Emotional over eating	2.69	0.94
Food enjoyment	4.18	0.75
Food fussy	2.35	0.86
Slow eating	2.87	0.83
Satiety response	2.81	0.76
FSDS sexual distress	10.79	9.83
FSFI total	24.67	3.71
FSFI desire	3.70	1.28
FSFI arousal	3.45	2.24
FSFI lubrication	4.85	1.63
FSFI orgasm	4.56	1.75
FSFI satisfaction	3.42	1.33
FSFI pain	4.69	2.29
SESEF total	5.42	2.87
Affection	6.60	3.34
Body acceptance	4.64	3.43
Refusal	5.40	3.55
Interpersonal orgasm	4.68	3.08
Desire	5.79	3.27
Sensuality	6.37	3.57
Individual arousal	5.18	3.43
Communication	5.04	3.29
CDDSA Appearance	42.22	14.03
Performance	40.93	13.54

Bulimia, body dissatisfaction, eating concerns, and shape concerns were significant predictors for both appearance- and performance-based cognitive distractions during sexual activity, with weight concerns also emerging as a significant predictor for performance-based cognitive distractions. All disordered eating subscales entered into the model for overall sexual self-efficacy emerged as significant predictors. For sexual self-efficacy subscales, bulimia was a significant predictor of affection, sensuality, and sexual communication. Body dissatisfaction was a significant predictor for all sexual self-efficacy subscales except refusal and individual arousal. Eating concerns significantly predicted self-efficacy for body acceptance, interpersonal orgasm, and desire.

Table 2. Correlation between sexuality variables and all other study variables ($n = 678$; $n = 487$ for the FSFI).

	FSFI								CDDSA	
Study variables:	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Total	FSDS	Body	Perform
EDI-3 eating symptoms										
Drive 4 thinness	−.101*	−.170***	−.123**	−.177***	−.006	−.058	−.146**	.209**	−.452**	−.383**
Bulimia	−.066	−.115*	−.124**	−.126**	−.028	−.079	−.128**	.223**	−.404**	−.371**
Body dissatisfaction	−.131**	−.174***	−.150**	−.193***	−.090*	−.166***	−.202***	.216**	−.469**	−.372**
ED risk total	−.087*	−.148**	−.126**	−.148**	−.033	−.088	−.144**	.22**	−.49**	−.42**
EDI-3 psychological features										
Low self-esteem	−.078*	−.143**	−.152**	−.159***	−.132**	−.201***	−.212***	.253**	−.409**	−.387**
Personal alienation	−.080*	−.176***	−.187***	−.160***	−.190***	−.208***	−.237***	.304**	−.400**	−.396**
Interpersonal insecurity	−.142***	−.191***	−.162***	−.141**	−.207***	−.198***	−.244***	.155**	−.275**	−.267**
Interpersonal alienation	−.139***	−.176***	−.187***	−.126**	−.185***	−.183***	−.231***	.230**	−.276**	−.262**
Interoceptive deficits	−.045	−.094*	−.105*	−.136**	−.063	−.108*	−.134**	.268**	−.390**	−.374**
Emotional dysregulation	−.050	−.087	−.134**	−.061	−.073	−.088	−.116*	.278**	−.284**	−.282**
Perfectionism	.059	.036	.031	−.020	−.067	−.054	−.012	.144**	−.179**	−.187**
Asceticism	−.112**	−.066	−.105*	−.075	−.096*	−.156**	−.139**	.255**	−.327**	−.311**
Maturity fears	−.166***	−.210***	−.205***	−.158***	−.160***	−.187***	−.232***	.096*	−.287**	−.236*
General psych maladjustment	−.072	−.116*	−.146**	−.121**	−.159***	−.191***	−.195***	.279**	−.36**	−.34**
EDEQ restraint	−.056	−.103*	−.092*	−.137**	−.042	−.079	−.126**	.240**	−.350**	−.318**
Eating concern	−.112**	−.201***	−.157***	−.210***	−.077	−.138**	−.217***	.315**	−.429**	−.383**
Shape	−.027	−.100*	−.055	−.155*	−.066	−.115*	−.130**	.268**	−.460**	−.383**
Weight	−.063	−.101*	−.073	−.128**	−.057	−.107*	−.128**	.208**	−.413**	−.334**
Body dissatisfaction	−.046	−.113*	−.074	−.159***	−.068	−.120**	−.143**	.263**	−.464**	−.334**
Global	−.076	−.149**	−.115*	−.184***	−.069	−.123**	−.176***	.299**	−.461**	−.402**
AEBQ hunger	.069	−.016	−.034	−.026	.054	.042	.013	.173**	−.133**	−.151**
Food responsive	.059	−.053	−.025	−.018	−.044	.040	−.012	.155**	−.180**	−.201**
Emotional under eating	.016	−.014	.010	.010	−.007	.027	.001	.011	.037	.032
Emotional over eating	−.020	−.032	−.029	−.016	−.045	−.036	−.042	.100*	−.166**	−.168**
Food enjoyment	.101*	.108*	.179***	.134**	.006	.100*	.147**	−.076	.171**	.095*
Food fussy	−.186***	−.106*	−.123**	−.065	−.018	−.112*	−.131**	.017	−.113**	−.052
Slow eating	−.004	−.011	−.055	−.008	−.034	−.027	−.030	−.021	.053	.030
Satiety response	.001	−.022	−.024	.004	.004	−.016	−.022	.077*	.007	.010

Weight concern also emerged as a significant predictor for self-efficacy regarding affection and interpersonal orgasm.

Associations between sexuality variables and psychological factors characteristic of individuals with eating disorders

Zero-order correlations

Zero-order correlations between psychological factors typical of those with an eating disorder and sexuality variables are shown in Tables 2 and 3. Overall sexual function and all sexual function

Table 3. Correlations between sexual self-efficacy and all other study variables ($n = 678$).

	Affection	Body acceptance	Refusal	Interpersonal orgasm	Desire	Sensuality	Individual arousal	Communication	SSESF total
EDI-3 Drive 4 thinness	−.177**	−.454**	−.177**	−.180**	−.161**	−.137**	−.135**	−.163**	−.204**
Bulimia	−.275**	−.364**	−.251**	−.209**	−.188**	−.190**	−.120**	−.205**	−.241**
Body dissatisfaction	−.213**	−.421**	−.207**	−.245**	−.244**	−.215**	−.146**	−.232**	−.277**
ED risk total	−.20**	−.48**	−.17**	−.21**	−.20**	−.17**	−.12**	−.19**	−.23**
Low self-esteem	−.207**	−.421**	−.207**	−.245**	−.244**	−.215**	−.089*	−.225**	−.259**
Personal alienation	−.278**	−.414**	−.249**	−.278**	−.252**	−.238**	−.114**	−.269**	−.294**
Interpersonal insecurity	−.239**	−.323**	−.142**	−.292**	−.301**	−.257**	−.154**	−.297**	−.304**
Interpersonal alienation	−.308**	−.336**	−.282**	−.309**	−.299**	−.299**	−.182**	−.340**	−.342**
Interoceptive deficits	−.188**	−.299**	−.192**	−.212**	−.165**	−.134**	−.109**	−.178**	−.206**
Emotional dysregulation	−.248**	−.229**	−.244**	−.195**	−.151**	−.182**	−.140**	−.201**	−.218**
Perfectionism	.034	−.119**	−.016	−.024	.000	.026	.301	.006	.002
Asceticism	−.263**	−.323**	−.235**	−.231**	−.231**	−.202**	−.142**	−.237**	−.261**
Maturity fears	−.263**	−.315**	−.231**	−.268**	−.259**	−.245**	−.173**	−.290**	−.300**
Global psych maladjustment	−.23**	−.32**	−.20**	−.22**	−.21**	−.18**	−.09*	−.22**	−.22**
EDEQ restraint	−.070	−.310**	−.063	−.094*	−.093*	−.043	−.054	−.074	−.099*
Eating concern	−.205**	−.381**	−.195**	−.191**	−.201**	−.153**	−.110**	−.170**	−.212**
Shape	−.069	−.459**	−.035	−.103**	−.115**	−.030	.014	−.073	−.099*
Weight	−.085*	−.434**	−.049	−.095*	−.114**	−.038	−.020	−.071	−.104**
Body dissatisfaction	−.088*	−.467**	−.055	−.112**	−.128**	−.044	−.011	−.083*	−.115**
Global	−.123**	−.432**	−.106**	−.141**	−.151**	−.081	−.058	−.115**	−.151**
AEBQ hunger	.034	−.048	.043	−.005	.017	.052	.050	.009	.022
Food responsive	−.013	−.099*	−.020	.010	.018	.054	.108**	.012	.021
Emotional under eating	.094*	.078*	.081	.061	.026	.046	−.001	.069	.061
Emotional over eating	−.151**	−.193**	−.075	−.098*	−.065	−.105**	.004	−.98*	−.107**
Food enjoyment	.230**	.214**	.169**	.178**	.167**	.210**	.251**	.176**	.227**
Food fussy	−.222**	−.143**	−.133**	−.23	−.211**	−.251**	−.266**	−.243**	−.264**
Slow eating	.048	.076	.037	−.007	.025	.039	−.018	.012	.025
Satiety response	.013	−.024	−.044	−.020	−.006	−.019	−.083*	−.028	−.025

*** Correlation is significant at the .001 level (2-tailed).
** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

subscales were significantly correlated with low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation, and maturity fears. Asceticism was also significantly correlated with overall sexual function, desire, satisfaction, and pain. Sexual distress and cognitive distractions during sexual activity were significantly correlated with all psychological features measured. Sexual self-efficacy and its subscales were significantly correlated with each psychological factor save perfectionism, which was only significantly associated with sexual self-efficacy concerning body acceptance.

Regression analyses

A series of linear regression analyses were conducted to examine the association between psychological features characteristic of those with eating disorders in relation to sexual concerns. In each regression model, psychological variables were entered as the independent variables, with sexuality measures independently entered as the criterion variable. Total model statistics are shown in Table 4 and regression coefficients are shown in Table 6.

Table 4. Overall model regression statistics for disordered eating variables predicting sexuality variables and psychological variables predicting sexuality variables.

	Disordered eating variables			Psychological variables		
Dependent variable	*df*	*F*	R^2	*df*	*F*	R^2
FSFI total	457	5.07***	.07	471	8.94***	.09
Arousal	467	4.62***	.07	482	8.13***	.06
Lubrication	466	3.17**	.03	486	7.33***	.06
Orgasm	469	4.50***	.06	483	4.55**	.04
Satisfaction	–[a]	–[a]	–[a]	482	6.71***	.05
Pain	488	4.30**	.03	478	6.37***	.06
Desire	633	3.71*	.02	639	8.38***	.05
FSDS	619	13.18***	.13	619	12.88***	.13
CDDSA body	605	36.46***	.30	635	28.86***	.19
Performance	611	24.66***	.22	611	24.63***	.22
SESEF total	623	14.61***	.14	645	27.29***	.18
Affection	623	15.21***	.11	645	19.67***	.13
Body acceptance	623	41.30***	.32	656	32.09***	.20
Refusal	624	10.48***	.06	644	13.15***	.09
Interper. orgasm	621	10.05***	.10	645	22.37***	.15
Desire	622	23.76***	.16	645	23.76***	.16
Sensuality	624	8.13***	.05	644	18.36***	.13
Individual arousal	624	3.32***	.02	644	7.28***	.05
Communication	624	9.57***	.06	644	25.92***	.17

[a]Psychological subscale was not significantly correlated with sexuality variable and thus not included in regression analysis.
*** Significant at the .001 level (2-tailed).
** Significant at the .01 level (2-tailed).
* Significant at the .05 level (2-tailed).

Table 5. Regression coefficients for disordered eating variables predicting sexuality variables.

	EDI						EDEQ							
	D4T		Bulimia		Body Dis		Restraint		Eating Con		Shape		Weight	
Sex variables	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*
FSFI total	.53	.05	.98	.07	−3.45**	−.26	.18	.01	−3.56***	−.27	1.18	.14	.30	.03
Desire	.07	.00	–[a]	–[a]	−1.75	−.10	–[a]	–[a]	−1.06	−.06	–[a]	–[a]	–[a]	–[a]
Arousal	−1.25	−.11	1.28	.09	−2.64**	−.20	.77	.06	−3.53***	−.27	1.58	.18	.43	.05
Lubrication	.55	.05	−.21	−.01	−1.74	−.12	.56	.04	−1.89	−.14	–[a]	–[a]	–[a]	–[a]
Orgasm	−.34	−.03	.87	.06	−2.39*	−.18	.09	.01	−2.89**	−.22	−.50	−.06	1.69	.18
Pain	–[a]	–[a]	–[a]	–[a]	−2.64**	−.18	–[a]	–[a]	−1.66	−.10	.20	.02	.67	.07
Satisfaction	–[a]	–[a]	–[a]	–[a]		–[a]	–[a]	–[a]	–[a]	–[a]	–[a]	–[a]	–[a]	–[a]
FSDS total	−1.68	−.16	.98	.08	1.05	.07	1.05	.43	4.02***	2.44	2.61**	1.52	−2.11**	−1.19
CDDSA body	−1.12	−.08	−2.10*	−.10	−3.90***	−.22	.66	.04	−2.73**	−.16	−3.10**	−.26	1.88	.15
Perform	−.91	−.11	−2.71**	−.29	−.14*	−.19	.14	.08	−2.36*	−1.91	−2.95**	−2.27	2.28*	1.69
SESSEF total	−1.67*	−.12	−1.12**	−.06	−6.52***	−.40	1.57*	.09	−3.59***	−.22	2.90***	.26	1.95*	.17
Affection	−.32	−.02	−3.93***	−.21	−3.88***	−.23	–[a]	–[a]	−1.89	−.11	–[a]	–[a]	4.52***	.30
Body accept	−1.53	−.95	−.54	−.30	−7.68***	−.42	1.68	.09	−2.11*	−.12	−1.29	−.10	.85	.07
Refusal	.07	.01	−3.75***	−.21	−.33	−.02	–[a]	–[a]	−.95	−.05	–[a]	–[a]	–[a]	–[a]
Int. orgasm	−1.28	−.09	−.92	−.05	−5.31***	−.33	1.25	.08	−3.01**	−.19	1.68	.16	2.19*	.19
Desire	−.20	−.01	−.30	−.02	−5.88***	−.37	1.46	.09	−3.58***	−.23	1.83	.17	1.41	.13
Sensuality	1.67	.11	−2.24*	−.12	−3.44**	−.19	–[a]	–[a]	−.44	−.03	–[a]	–[a]	–[a]	–[a]
Ind. arousal	−.38	−.02	−.64	−.04	−1.65	−.09	–[a]	–[a]	−.22	−.01	–[a]	–[a]	–[a]	–[a]
Communication	1.31	.08	−2.13*	−.12	−3.52***	−.20	–[a]	–[a]	−.61	−.03	–[a]	–[a]	–[a]	–[a]

[a]Psychological subscale was not significantly correlated with sexuality variable and thus not included in regression analysis.
*** Significant at the .001 level (2-tailed).
** Significant at the.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

The overall model for all regression analyses were significant, such that psychological factors associated with eating disorders explained a significant proportion of the variance in sexual distress, sexual function, sexual self-efficacy, and cognitive distractions during sexual activity. Sexual distress was negatively predicted by affective and ineffective composites. Overall sexual function,

Table 6. Regression coefficients for psychological features characteristic of individuals with an eating disorder predicting sexuality variables.

	EDI_A		EDI_MF		EDI_ID		EDI_Interpersonal		EDI_OverControl		EDI_Affective		EDI_Ineffective	
Sex variables	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*	*t*	*b*
FSFI total	−.62	−.04	−3.10**	−.16	–[a]	–[a]	−3.17**	−.18	–[a]	–[a]	.88	.06	−.74	−.05
Desire	−1.52	−.07	−3.25**	−.14	–[a]	–[a]	−3.61***	−.18	–[a]	–[a]	–[a]	–[a]	2.30*	.13
Arousal	–[a]	–[a]	−3.65***	−.18	.87	.05	−2.45*	−.14	–[a]	–[a]	–[a]	–[a]	−.35	−.02
Lubrication	–[a]	–[a]	−3.08**	−.15	–[a]	–[a]	−1.76	−.10	–[a]	–[a]	−.14	−.01	−.67	−.04
Orgasm	–[a]	–[a]	−2.25*	−.11	−.95	−.06	−1.26	−.07	–[a]	–[a]	–[a]	–[a]	−.12	−.01
Satisfaction	.10	.00	−1.96*	−.10	–[a]	–[a]	−2.91**	−.16	–[a]	–[a]	–[a]	–[a]	−.38	−.02
Pain	−1.64	−.09	−2.40*	−.12	1.44	.09	−1.63	−.09	–[a]	–[a]	–[a]	–[a]	−1.42	−.10
FSDS	–[a]	–[a]	−1.62	−.07	–[a]	–[a]	1.47	.07	−.87	−.04	3.46**	.18	3.40**	.16
CDDSA body	–[a]	–[a]	−2.68**	−.11	–[a]	–[a]	−.38	−.02	−1.12	−.05	−2.70**	−.13	−4.44***	−.24
Perform	–[a]	–[a]	−1.37	−.06	–[a]	–[a]	−.72	−.03	−1.02	−.05	−3.26***	−.16	−3.89***	−.21
SESSEF total	−3.58***	−.17	−4.84***	.20	–[a]	–[a]	−5.90***	−.27	–[a]	–[a]	1.91	.10	.11	.01
Affection	−3.88***	−.19	−4.06***	−.17	–[a]	–[a]	−4.04***	−.19	–[a]	–[a]	1.24	.06	.09	.01
Body accept	–[a]	–[a]	−3.95***	−.16	–[a]	–[a]	−3.34***	−.15	−.29	−.01	.17	.01	−4.72***	−.24
Refusal	−2.90**	−.14	−3.47**	−.15	–[a]	–[a]	−2.33*	−.11	–[a]	–[a]	−.20	−.01	.04	.00
Int. orgasm	−2.67**	−.13	−4.15***	−.17	–[a]	–[a]	−5.61***	−.26	–[a]	–[a]	1.13	.06	.15	.00
Desire	−3.44**	−.16	−4.11***	−.17	–[a]	–[a]	−6.15***	−.28	–[a]	–[a]	2.60*	.13	.05	.00
Sensuality	−2.91**	−.14	−4.06***	−.17	–[a]	–[a]	−5.22***	−.24	–[a]	–[a]	2.39*	.12	.05	.00
Ind. arousal	−2.03*	−.10	−3.23***	−.14	–[a]	–[a]	−3.19***	−.16	–[a]	–[a]	.71	.04	1.32	.07
Communication	−3.23***	−.15	−4.93***	−.20	–[a]	–[a]	−6.25***	−.29	–[a]	–[a]	1.98*	.10	.55	.03

[a]Psychological subscale was not significantly correlated with sexuality variable and thus not included in regression analysis.
***Significant at the .001 level (2-tailed).
**Significant at the .01 level (2-tailed).
*Significant at the .05 level (2-tailed).

arousal, satisfaction, and desire were significantly predicted by maturity fears and interpersonal problems, while lubrication, orgasm, and pain were predicted by maturity fears alone. Both appearance- and performance-based distractions were predicted by affective and ineffective composites, with appearance-based distractions also being predicted by maturity fears. Asceticism, maturity fears, and interpersonal problems significantly predicted overall sexual self-efficacy, as well as sexual self-efficacy subscales for affection, refusal, desire, interpersonal orgasm, sensuality, individual arousal, and sexual communication. Sexual self-efficacy for body acceptance was significantly predicted by maturity fears, interpersonal problems, and ineffectiveness. The affective composite significantly, positively predicted sexual self-efficacy subscales for desire, sensuality, and communication, with more affective difficulties being associated with greater sexual self-efficacy.

Structural equation model of disordered eating and sexuality in relation to psychological features characteristic of people with an eating disorder

SEM were used to examine the hypothesized model shown in Figure 1. In this model, eating concern, psychological maladjustment, sexual insecurity, and sexual function were latent factors with each having at least 7 indicator items. Sexual insecurity and sexual function were also allowed to freely correlate with one another. Within an initial model, correlations among residuals were excluded; the resulting model is shown in Figure 1. The overall model had a significant chi-square, $\chi^2(450) = 4805.06$, $p < .001$, and did otherwise not show strong fit, RMSEA = .11 (95.CI[.11, .12]), CFI = .74, SRMR = .14, LSAR = .84. All values are unstandardized, except standardized loadings are shown for indicator items. Unstandardized confidence intervals were used to determine whether an indirect path was statistically significant (Preacher & Hayes, 2008).

Within this model, the total effect of eating concern predicting sexual insecurity was significant, $\beta = -.22$, $B = -1.16$ (95.CI = [−2.00, −.50]), $p = .002$. The indirect effect of eating concern predicting sexual insecurity through psychological maladjustment was significant, $\beta = -.26$,

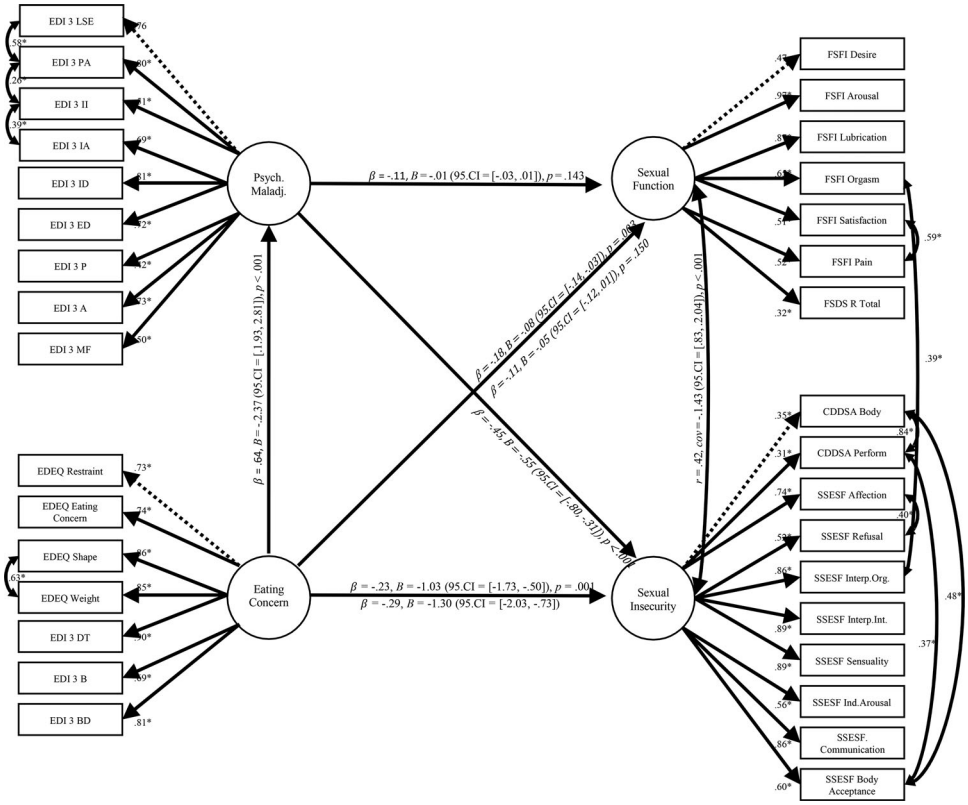

Figure 2. Modified model of Figure 1, permitting residuals to correlate.

$B = -1.36$ (95.CI = [−2.07, −.82]). After controlling for this indirect effect, eating concern was no longer predictive of sexual insecurity, $\beta = .04$, $B = .21$ (95.CI = [−.40, .79]), $p = .496$. The total effect of eating concern predicting sexual function was significant, $\beta = -.16$, $B = -.07$, (95.CI = [−.13, −.02]), $p = .003$. The indirect effect of eating concern predicting sexual function through psychological maladjustment was significant, $\beta = -.12$, $B = -.05$ (95.CI = [−.09, −.02]). After controlling for this indirect effect, eating concern was no longer predictive of sexual function, $\beta = -.04$, $B = -.02$ (95.CI = [−.08, .04]), $p = .511$. Sexual function was significantly associated with sexual insecurity, $r = .42$, $cov = -.1.44$ (95.CI = [.89, 2.10]), $p < .001$.

Having found the hypothesized mediation effect in the initial model (Figure 1), we attempted to improve model fit by allowing certain residuals to freely correlate. To determine which residuals were allowed to correlate we examined modification indices and weighed these suggestions with theoretical implications. For example, it makes theoretical sense for body dissatisfaction to correlate with appearance-related cognitive distractions during sexual activity; associations supported by theory were permitted to correlate freely in the modified model. The resulting model following this process is presented in Figure 2.

The overall model had a significant chi-square, $\chi^2(477) = 135.74$, $p < .001$, and showed mediocre fit, RMSEA = .08 (95CI[.08, .09]), CFI = .87, SRMR = .12, LSAR = .43. Sexual function was significantly associated with sexual insecurity, $r = .40$, $cov = -1.43$ (95.CI = [.83, .2.04]), $p < .001$. All values are unstandardized, except standardized loadings are shown for indicator items. The total effect of eating concern predicting sexual insecurity was significant, $\beta = -.24$, $B = -1.05$ (95.CI = [−1.74, −.53]), $p = .001$. The indirect effect of eating concern predicting sexual

insecurity through maladjustment was significant, $\beta = -.29$, $B = -1.27$ (95.CI = [−1.98, −.70]). After controlling for this indirect effect, sexual insecurity was no longer predictive of eating concern, $\beta = .05$, $B = .21$ (95.CI = [−.36, .78]), $p = .470$. The total effect of eating concern predicting sexual function was significant, $\beta = -.18$, $B = -.08$ (95.CI = [−.14, −.03]), $p = .003$. However, the indirect effect of eating concern predicting sexual function through psychological maladjustment was not significant, $\beta = -.07$, $B = -.03$ (95.CI = [−.08, .01]). After controlling for this non-significant indirect effect, eating concern was no longer predictive of sexual function, $\beta = -.11$, $B = -.05$ (95.CI = [−.12, .01]), $p = .150$.

Discussion

The current study investigated the associations between disordered eating and psychological features characteristic of eating disorders in relation to sexual function, sexual distress, and sexual insecurities among a non-clinical sample of women. As predicted, disordered eating, body dissatisfaction, and psychological features characteristic of individuals with an eating disorder, predicted greater sexual distress, more sexual function difficulties, more appearance-and performance-based cognitive distractions during sexual activity, and poor sexual self-efficacy. An initial SEM model suggested that psychological maladjustment characteristic of eating disorders mediates the relationship between eating concerns and sexual insecurity as well as sexual function. When this model was modified to attain greater overall fit, psychological maladjustment continued to mediate these relationships.

Although a growing body of research points to sexual difficulties in eating disorders, few studies have examined the association between problematic eating behaviors and sexuality in non-clinical, undergraduate samples. Undergraduate women are at high risk of developing an eating disorder and report higher levels of sub-threshold eating disorder symptoms compared to women in the general population, and thus represent an ideal focus of research for informing early interventions and prevention of eating disorders and associated sexual concerns. As such, we aimed to investigate the associations between disordered eating, sexual concerns, and shared psychological risk factors, in a vulnerable but non-clinical sample. Given the negative impact of salient Western beauty ideals on women without an eating disorder (Calogero, Boroughs, & Thompson, 2007; Forbes, Collinsworth, Jobe, Braun, & Wise, 2007), and undergraduate women in particular (Ahern, Bennett, & Hetherington, 2008), research examining the association between disordered eating and sexuality is of sociocultural importance.

Eating and body concerns in relation to sexual concerns

Regarding sexual function, body dissatisfaction and eating concerns emerged as significant predictors for overall sexual function, sexual arousal, and orgasm, while body dissatisfaction alone predicted lubrication, desire, pain, and satisfaction. Although drive for thinness was significantly associated with several areas of sexual response, this facet of disordered eating failed to explain a unique proportion of the variance beyond that explained by body dissatisfaction. Bulimia was correlated only with arousal—an association that did not persist after controlling for the variance shared by body dissatisfaction. These findings indicate that discontent with the overall shape and size of the body was the most common predictor of sexual function difficulties. This supports the large body of research documenting the association between body dissatisfaction and sexual concerns (see Woertman & Van den Brink, 2012, for a review). Sexual distress, which tends to accompany sexual function difficulties, was significantly associated with both shape and weight concerns, in addition to eating concerns, which describes a preoccupation with and guilt in relation to food and calories.

With respect to sexual insecurities, shape, weight, and eating concerns, body dissatisfaction, and bulimia emerged as significant individual predictors of appearance- and performance-based cognitive distractions during sexual activity and most domains of sexual self-efficacy (i.e., the extent to which one perceives competence in the behavioral, cognitive, and affective dimensions of sexual response; Bailes et al., 2011). Body dissatisfaction significantly predicted both appearance-and performance-based cognitive distractions during sexual activity and all domains of sexual self-efficacy except individual arousal, which was not predicted by any facet of disordered eating, and refusal, which was predicted only by bulimia. Bulimia also predicted more appearance-and performance-based cognitive distractions, as well as poorer sexual self-efficacy in terms of sexual communication, sensuality, and affection. Participants scoring highly on bulimia in this context endorsed thoughts and behaviors that are consistent with binge eating and compensatory behaviors, such as self-induced vomiting and laxative misuse. Eating concerns predicted more cognitive distractions during sexual activity and lower sexual self-efficacy for interpersonal orgasm, desire, and body acceptance. Shape concerns significantly predicted both aspects of cognitive distractions during sexual activity and overall sexual self-efficacy, while weight concerns significantly predicted performance-based cognitive distractions and low sexual self-efficacy for affection and interpersonal orgasm. These findings are consistent with previous research on body dissatisfaction and a lack of sexual self-efficacy concerning sexual function and self-efficacy to refuse sex (Yamamiya, Cash, & Thompson, 2006).

Although the restraint was significantly correlated with sexual distress, appearance- and performance-based cognitive distractions during sexual activity, restraint emerged as a significant predictor only for overall sexual self-efficacy. Restraint in this context can be defined as a tendency to avoid food, restrict food intake, and adhere to dietary rules. Restraint may be a disordered eating behavior that is simply less relevant to sexuality, or perhaps a stronger association between restraint and sexuality would emerge in a clinical sample of women with an eating disorder.

Psychological features characteristic of individuals with an eating disorder in relation to sexual concerns

Regarding psychological features characteristic of those with an eating disorder, low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation, and maturity fears were significantly correlated with each sexual function domain. All psychological features associated with eating disorders measured were significantly correlated with cognitive distractions during sexual activity and sexual distress, and all except perfectionism were correlated with sexual self-efficacy and its subscales. The overall regression models for psychological features predicting sexuality measures were similarly all significant, with psychological maladjustment generally predicting more sexual difficulties.

Interpersonal problems significantly predicted all sexuality variables except for lubrication, orgasm, pain, sexual distress, and cognitive distractions during sexual activity. People scoring highly on interpersonal problems endorsed items gauging social discomfort and disappointment, difficulty trusting others, social isolation, and insecure attachment (Garner, 2004). As prior research has found interpersonal connectedness to be an important factor involved in optimizing sexual response, it is unsurprising that interpersonal alienation and insecurity predicted poorer sexual function, more cognitive distractions during sex, and lower sexual self-efficacy. In addition, research has found insecure attachment to be more common among women with an eating disorder as well as women with sexual function conditions (Armstrong & Roth, 1989; Granot et al., 2010). These findings suggest that interpersonal problems and insecure attachment style may represent risk or maintenance factors for both disordered eating and sexual concerns.

Maturity fears, which refers to anxieties associated with psychosexual maturity and the desire to return to the security of childhood (Garner, 2004), significantly predicted all sexuality variables with the exception of sexual distress and performance-based cognitive distractions during sexual activity. Maturity fears in patients with an eating disorder are especially common among those with a history of sexual abuse (Mitchell, Wells, Mendes, & Resick, 2012), and a history of sexual abuse is a known epidemiological factor in the development of sexual concerns (Harlow & Stewart, 2005; Laurent & Simons, 2009; Najman, Dunne, Purdie, Boyle, & Coxeter, 2005).

Although asceticism did not significantly predict sexual function or cognitive distractions during sexual activity (despite strong correlations with the latter), it predicted all aspects of sexual self-efficacy, with higher levels of asceticism being associated with poorer sexual self-efficacy. Asceticism refers to the tendency to seek virtue through the pursuit of ideals involving self-discipline, self-restraint, and control of bodily urges, as well as placing positive connotations on achieving virtue through guilt and shame surrounding the experience of pleasure (Garner, 2004). Given that the term asceticism is commonly understood as a form of sexual morality within various religions (e.g., Runkel, 1998), its association with poor sexual self-efficacy is expected. The natural development and intentional cultivation of sexual self-efficacy is inherently at odds with ascetic values.

The ineffective composite predicted sexual distress, cognitive distractions during sexual activity, and sexual self-efficacy relating to body acceptance. The ineffective composite reflects low self-esteem and personal alienation (Garner, 2004). These findings are in line with previous research showing that individuals with low self-esteem, especially concerning body image, are prone to more appearance-and performance-based cognitive distractions during sexual activity (Dove et al., 2000; Pascoal, Narciso, & Pereira, 2012), which in turn is associated with greater sexual distress (Dunkley, Gorzalka, et al., 2020; Pascoal, Rosa, & Coelho, 2019; Schick, Calabrese, Rima, & Zucker, 2010).

Affective problems, which refer to mood instability and difficulties with identifying, understanding, and expressing emotions (Garner, 2004), were also associated with higher levels of sexual distress and more appearance- and performance-based cognitive distractions during sexual activity. Emotional dysregulation has also been tied to sexual problems among women with a history of sexual abuse (Rellini, Vujanovic, & Zvolensky, 2010)—a known risk factor for the development of both sexual dysfunctions and eating disorders. Contrary to expectations, affective problems also predicted greater sexual self-efficacy with respect to desire, sensuality, and communication. This was unexpected, especially considering that emotional dysregulation and interoceptive awareness were negatively correlated with these variables, such that higher levels of emotional dysregulation and interoceptive awareness were associated with poorer sexual self-efficacy. The most likely explanation is a suppressor effect, wherein a portion of the unique variance explained by affective problems, after partialling out the variance accounted for by the other psychological features included in the model, is associated with higher levels of sexual self-efficacy for desire, sensuality, and communication.

The role of psychological maladjustment on the relationship between disordered eating and sexual concerns

Consistent with our SEM predictions, disordered eating symptoms predicted sexual function concerns and sexual insecurities, and within the initial and modified models these associations were mediated through psychological maladjustment. Given that the modified model was created through, in part, a data-driven approach and still only approximated adequate fit, future research can elaborate on model construction and evaluation concerning these relationships. These findings are consistent with the HiTOP classification framework, which groups eating disorders,

sexual dysfunctions, and disorders of fear (anxiety) and distress (mood), under a spectrum of internalizing psychopathology. As psychological maladjustment accounted for much of the relationship between disordered eating and sexual concerns, these psychological features may increase vulnerability to both disordered eating and sexual difficulties. Psychological maladjustment may underlie sexual dysfunctions and eating disorders as separate conditions, creating a vulnerability to the development of both classes of internalizing disorders. The same might be said for symptoms of internalizing disorders, as sexual difficulties and disordered eating symptoms falling below the threshold of a formal, categorical diagnosis also represent relevant problems. Alternatively, perhaps psychological maladjustment results from or perpetuates eating disorder symptoms and sexual problems. Eating disorder symptoms may increase the risk for developing sexual difficulties through psychological maladjustment, or, because directionality cannot be ensured, it is also possible that sexual difficulties increase the risk for developing disordered eating behaviors through psychological maladjustment. Although interpretation of these results is limited by the cross-sectional and correlational nature of the research design, such findings provide preliminary rational for investigating an etiological link between sexual difficulties and disordered eating.

Regardless, these findings are consistent with the idea that stable psychological characteristics serve as risk factors for the development and maintenance of internalizing psychopathology (i.e., eating disorders, sexual dysfunctions, anxiety disorders, and mood disorders). Perhaps treatments designed to target psychological maladjustment consistent with internalizing psychopathology would benefit women struggling with comorbid internalizing disorders and symptoms. Mindfulness-based Cognitive Therapy and Cognitive Behavioral Therapy, for example, have shown efficacy in treating eating disorders, sexual concerns, anxiety disorders, and mood disorders. Given the comorbidity between these conditions, a transdiagnostic treatment focusing on psychological features that represent risk or maintenance factors for all of these conditions may provide symptom improvement across diagnoses.

Longitudinal research examining the associations between disordered eating and sexuality is needed to expand on the findings of this study. Future research of this nature involving clinical samples of women with sexual function conditions would also inform understanding of the relationship between eating pathology and sexual concerns. Further research should consider extrapolating from these SEM models to replicate the identified indirect effects, as well as to ideally embed them within models that meet and surpass common indices of strong model fit. Hence, while we provide initial support and architecture, the hypothesized associations warrant being further fleshed out and established in future work.

Limitations

Several study limitations should be taken into account. The data was correlational, thus no causal inferences can be drawn. As the directionality of the regressions and SEM model was based on limited research and theory, it is possible that causal pathways run in the opposite direction. The generalizability of findings are also limited by the relatively homogenous nature of the sample, which predominantly consisted of young, Euro-Caucasian and East Asian undergraduates. This study is also subject to the limitations of self-report; however, research suggests that web-based questionnaires provide a high level of anonymity and are therefore robust to a variety of response biases (Booth-Kewley, Larson, & Miyoshi, 2007). As with all human sexuality research, it is possible that more sexually liberal individuals elected to participate in this study; however, research has found that this is more of an issue for in-laboratory sex research, and less so for online questionnaire-based sex research (Dawson et al., 2019).

Conclusion

The current research provides evidence for an association between sexual concerns and disordered eating in a sample of undergraduate women. Overall, effect sizes indicated a stronger association between sexual insecurities, sexual distress, and disordered eating than between disordered eating and sexual function. Perhaps sexual insecurity reflects a general cognitive inclination toward insecurity and poor self-esteem, which is common among women with an eating disorder (Williams et al., 1993). Extant research on sexuality in the eating disorders is primarily concerned with sexual function, making this study one of the first to examine sexual insecurities in relation to disordered eating. Further research on sexual insecurities, such as sexual self-efficacy and cognitive distractions during sexual activity, may improve understanding of the complex relationship between sexuality, body dissatisfaction, and disordered eating. Of the facets of disordered eating studied, body dissatisfaction emerged as the most frequent and prominent predictor of sexual concerns, above and beyond that of the other aspects of disordered eating measured. Effect sizes similarly indicated that sexual problems were more strongly associated with body dissatisfaction than other eating disorder symptoms. This finding suggests that, among undergraduate women, body dissatisfaction is likely of particular importance in addressing sexual issues.

Sexuality variables were consistently predicted by psychological features characteristic of people with an eating disorder, and these psychological features were found to mediate the association between sexuality and disordered eating. These patterns suggest that certain psychological characteristics may serve as risk factors for the development and maintenance of both disordered eating and sexual problems, which has implications for transdiagnostic treatment research targeting internalizing disorder symptoms. Further research on the association between sexuality and disordered eating as internalizing psychopathology is needed among both clinical and non-clinical samples. Longitudinal research may provide insight into the directionality of the complex relationship between psychological maladjustment, disordered eating, and sexuality. Given the paucity of research in this area, further self-report research would be useful for generating hypotheses to examine these variables through a longitudinal lens and through treatment outcome research.

In sum, study findings are largely consistent with existing research on sexual difficulties in women with an eating disorder, adding to the small but growing body of literature on this subject. Sexual difficulties are rarely considered in the treatment of eating disorders unless a history of sexual abuse is present, and disordered eating is not typically assessed in women presenting with sexual function difficulties. The results of this study emphasize the importance of clinically addressing sexual concerns among women struggling with disordered eating. In addition, there may be clinical utility in considering disordered eating (in addition to body image, which is typically addressed) in the treatment of sexual dysfunctions. Of particular value, this research suggests that sexual concerns are associated with disordered eating and body dissatisfaction among non-clinical samples of undergraduate women. Given the high prevalence of eating disorders among undergraduate women (Eisenberg et al., 2011; Hoerr et al., 2002), and that the traditional undergraduate years coincide with the median age of onset for eating disorders (Hudson, Hiripi, Pope, & Kessler, 2007), research of this nature is well-suited to informing early intervention and prevention efforts.

Disclosure statement

The authors declare that they have no conflict of interest.

References

Ahern, A. L., Bennett, K. M., & Hetherington, M. M. (2008). Internalization of the ultra-thin ideal: Positive implicit associations with underweight fashion models are associated with drive for thinness in young women. *Eating Disorders*, *16*(1), 294–307. doi:10.1177/1359105310367690

Andrews, G. (2018). Internalizing disorders: The whole is greater than the sum of the parts. *World Psychiatry*, *17*(3), 302–303. https://dx.doi.org/10.1002%2Fwps.20564 doi:10.1002/wps.20564

Armstrong, J. G., & Roth, D. M. (1989). Attachment and separation difficulties in eating disorders: A preliminary investigation. *International Journal of Eating Disorders*, *8*(2), 141–155. doi:10.1002/1098-108X(198903)8:2%3C141::AID-EAT2260080203%3E3.0.CO;2-E

Bailes, S., Creti, L., Fichten, C., Libman, E., Bender, W., & Amsel, R. (2011). Sexual self-efficacy scale for female functioning. In Handbook of sexuality-related measures, Routledge, New York, p. 551–554.

Booth-Kewley, S., Larson, G. E., & Miyoshi, D. K. (2007). Social desirability effects on computerized and paper-and-pencil questionnaires. *Computers in Human Behavior*, *23*(1), 463–477. doi:10.1016/j.chb.2004.10.020

Calogero, R. M., Boroughs, M., & Thompson, J. K. (2007). The impact of Western beauty ideals on the lives of women: A sociocultural perspective. In *The body beautiful* (pp. 259–298). London: Palgrave Macmillan.

Castellini, G., Lelli, L., Cassioli, E., & Ricca, V. (2019). Relationships between eating disorder psychopathology, sexual hormones and sexual behaviours. *Molecular and Cellular Endocrinology*, *497*, 110429. doi:10.1016/j.mce.2019.04.009

Castellini, G., Lelli, L., Corsi, E., Campone, B., Ciampi, E., Fisher, A. D., … Vignozzi, L. (2017). Role of sexuality in the outcome of anorexia nervosa and bulimia nervosa: A 3-year follow-up study. *Psychotherapy and Psychosomatics*, *86*(6), 376–378. doi:10.1159/000477176

Clausen, L., Rosenvinge, J. H., Friborg, O., & Rokkedal, K. (2011). Validating the Eating Disorder Inventory-3 (EDI-3): A comparison between 561 female eating disorders patients and 878 females from the general population. *Journal of Psychopathology and Behavioral Assessment*, *33*, 101–110. doi:10.1007/s10862-010-9207-4

Creti, L., Bailes, S., Fichten, C., Libman, E., Amsel, R., Liederman, G., & Brender, W. (1989). *Validation of the sexual self efficacy scale for females*. Poster presented at the annual convention of the APA, New Orleans, LA.

Cumella, E. J. (2006). Review of the Eating Disorder Inventory-3 [Review of the book *Eating disorder inventory-3: Professional manual,* by D. M. Garner]. *Journal of Personality Assessment*, *87*(1), 116–117. doi:10.1207/s15327752jpa8701_11

Dawson, S. J., Huberman, J. S., Bouchard, K. N., McInnis, M. K., Pukall, C. F., & Chivers, M. L. (2019). Effects of individual difference variables, gender, and exclusivity of sexual attraction on volunteer bias in sexuality research. *Archives of Sexual Behavior*, *48*(8), 2403–2417. doi:10.1007/s10508-019-1451-4

Derogatis, L. R., Rosen, R., Leiblum, S., Burnett, A., & Heiman, J. (2002). The Female Sexual Distress Scale (FSDS): Initial validation of a standardized scale for assessment of sexually related personal distress in women. *Journal of Sex & Marital Therapy*, *28*(4), 317–330. doi:10.1080/00926230290001448

Desrochers, G., Bergeron, S., Landry, T., & Jodoin, M. (2008). Do psychosexual factors play a role in the etiology of provoked vestibulodynia? A critical review. *Journal of Sex & Marital Therapy*, *34*(3), 198–226. doi:10.1080/00926230701866083

Dove, L., Michael W., Wiederman, N. (2000). Cognitive distraction and women's sexual functioning. *Journal of Sex & Marital Therapy*, *26*(1), 67–78. doi:10.1080/009262300278650

Dunkley, C. R., Gorzalka, B. B., & Brotto, L. A. (2016). Disordered eating and sexual insecurities in young women. *The Canadian Journal of Human Sexuality*, *25*(2), 138–147. doi:10.3138/cjhs.252-A6

Dunkley, C. R., Gorzalka, B. B., & Brotto, L. A. (2020). Associations between sexual function and disordered eating among undergraduate women: An emphasis on sexual pain and distress. *Journal of Sex & Marital Therapy*, *46*(1), 18–34. doi:10.1080/0092623X.2019.1626307

Dunkley, C. R., Svatko, Y., & Brotto, L. A. (2020). Eating disorders and sexual function reviewed: A trans-diagnostic, dimensional perspective. *Current Sexual Health Reports*, 1–14. doi:10.1007/s11930-020-00236-w

Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. *Journal of American College Health*, *59*(8), 700–707. doi:10.1080/07448481.2010.546461

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire?. *International Journal of Rating Disorders*, *16*(4), 363–370. doi:10.1002/1098-108X(199412)16:4%3C363::AID-EAT2260160405%3E3.0.CO;2-%23

Fairburn, C. G., Cooper, Z., & O'Connor, M. (1993). The eating disorder examination. *International Journal of Eating Disorders*, *6*, 1–8.

Feise, R. J. (2002). Do multiple outcome measures require p-value adjustment?. *BMC Medical Research Methodology*, *2*(1), 8. doi:10.1186/1471-2288-2-8

Forbes, G. B., Collinsworth, L. L., Jobe, R. L., Braun, K. D., & Wise, L. M. (2007). Sexism, hostility toward women, and endorsement of beauty ideals and practices: Are beauty ideals associated with oppressive beliefs?. *Sex Roles*, *56*(5–6), 265–273. doi:10.1007/s11199-006-9161-5

Garner, D. M. (2004). *EDI-3, eating disorder inventory-3: Professional manual*. Psychological Assessment Resources, Incorporated.

Granot, M., Zisman-Ilani, Y., Ram, E., Goldstick, O., & Yovell, Y. (2010). Characteristics of attachment style in women with dyspareunia. *Journal of Sex & Marital Therapy*, *37*(1), 1–16. doi:10.1080/0092623X.2011.533563

Harlow, B. L., & Stewart, E. G. (2005). Adult-onset vulvodynia in relation to childhood violence victimization. *American Journal of Epidemiology*, *161*(9), 871–880. doi:10.1093/aje/kwi108

Hoerr, S. L., Bokram, R., Lugo, B., Bivins, T., & Keast, D. R. (2002). Risk for disordered eating relates to both gender and ethnicity for college students. *Journal of the American College of Nutrition*, *21*(4), 307–314. doi:10.1080/07315724.2002.10719228

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, *3*(4), 424–453. https://psycnet.apa.org/doi/10.1037/1082-989X.3.4.424 doi:10.1037/1082-989X.3.4.424

Hudson, J. I., Hiripi, E., Pope, Jr., H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, *61*(3), 348–358. doi:10.1016/j.biopsych.2006.03.040

Kotov, R., Krueger, R. F., Watson, D., Achenbach, T. M., Althoff, R. R., Bagby, R. M., … & Eaton, N. R. (2017). The Hierarchical Taxonomy of Psychopathology (HiTOP): A dimensional alternative to traditional nosologies. *Journal of abnormal Psychology*, *126*(4), 454–477. https://psycnet.apa.org/doi/10.1037/abn0000258 doi:10.1037/abn0000258

Laurent, S. M., & Simons, A. D. (2009). Sexual dysfunction in depression and anxiety: Conceptualizing sexual dysfunction as part of an internalizing dimension. *Clinical Psychology Review*, *29*(7), 573–585. doi:10.1016/j.cpr.2009.06.007

Lipson, S. K., & Sonneville, K. R. (2017). Eating disorder symptoms among undergraduate and graduate students at 12 US colleges and universities. *Eating Behaviors*, *24*(81), 81–88. doi:10.1016/j.eatbeh.2016.12.003

Mitchell, K. S., Wells, S. Y., Mendes, A., & Resick, P. A. (2012). Treatment improves symptoms shared by PTSD and disordered eating. *Journal of Traumatic Stress*, *25*(5), 535–542. doi:10.1002/jts.21737

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy*, *42*(5), 551–567. doi:10.1016/S0005-7967(03)00161-X

Najman, J. M., Dunne, M. P., Purdie, D. M., Boyle, F. M., & Coxeter, P. D. (2005). Sexual abuse in childhood and sexual dysfunction in adulthood: An Australian population-based study. *Archives of Sexual Behavior*, *34*, 517–526. doi:10.1007/s10508-005-6277-6

O'Keefe, D. J. (2003). Colloquy: Should familywise alpha be adjusted? *Human Communication Research*, *29*(3), 431–477. https://psycnet.apa.org/doi/10.1093/hcr/29.3.431

O'Reilly, I. (2018). Social Media and its associations with body satisfaction, exercise and eating habits in undergraduate students. https://esource.dbs.ie/handle/10788/3466

Pascoal, P., Narciso, I., & Pereira, N. M. (2012). Predictors of body appearance cognitive distraction during sexual activity in men and women. *The Journal of Sexual Medicine*, *9*(11), 2849–2860. doi:10.1111/j.1743-6109.2012.02893.x

Pascoal, P. M., Rosa, P. J., & Coelho, S. (2019). Does pregnancy play a role? Association of body dissatisfaction, body appearance cognitive distraction, and sexual distress. *The Journal of Sexual Medicine*, *16*(4), 551–558. doi:10.1016/j.jsxm.2019.01.317

Pollice, C., Kaye, W. H., Greeno, C. G., & Weltzin, T. E. (1997). Relationship of depression, anxiety, and obsessionality to state of illness in anorexia nervosa. *International Journal of Eating Disorders*, *21*(4), 367–376. doi:10.1002/(SICI)1098-108X(1997)21:4%3C367::AID-EAT10%3E3.0.CO;2-W

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. doi:10.3758/brm.40.3.879

Rellini, A. H., Vujanovic, A. A., & Zvolensky, M. J. (2010). Emotional dysregulation: Concurrent relation to sexual problems among trauma-exposed adult cigarette smokers. *Journal of Sex & Marital Therapy*, *36*(2), 137–153. doi:10.1080/00926230903554545

Rosen, C., Brown, J., Heiman, S., Leiblum, C., Meston, R., Shabsigh, D., Ferguson, R., & D'Agostino, R. (2000). The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *Journal of Sex & Marital Therapy*, *26*(2), 191–208. doi:10.1080/009262300278597

Rosen, R., Shifren, J. L., Monz, B. U., Odom, D. M., Russo, R. P., & Johannes, C. B. (2009). Correlates of sexually related personal distress in women with low sexual desire. *Journal of Sexual Medicine*, *6*(6), 1549–1560. doi:10.1111/j.1743-6109.2009.01252.x

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of Statistical Software*, *48*(2), 1–36.

Runkel, G. (1998). Sexual morality of Christianity. *Journal of Sex & Marital Therapy*, *24*(2), 103–122. doi:10.1080/00926239808404924

Schick, V. R., Calabrese, S. K., Rima, B. N., & Zucker, A. N. (2010). Genital appearance dissatisfaction: Implications for women's genital image self-consciousness, sexual esteem, sexual satisfaction, and sexual risk. *Psychology of Women Quarterly*, *34*(3), 394–404. https://doi.org/10.1111/j.1471-6402.2010.01584.x

Tutzauer, F. (2003). On the sensible application of familywise alpha adjustment. *Human Communication Research*, *29*(3), 455–463. doi:10.1111/j.1468-2958.2003.tb00848.x

Van Lankveld, J. J. D. M., Granot, M., Weijmar Schultz, W. C. M., Binik, Y. M., Wesselmann, U., Pukall, C. F., Bohm-Starke, N., Achtrari, C. (2010). Women's sexual pain disorders. *The Journal of Sexual Medicine*, *7*(1 Pt 2), 615–31. doi:10.1111/j.1743-6109.2009.01631.x

Waller, G. (1992). Sexual abuse and the severity of bulimic symptoms. *British Journal of Psychiatry*, *161*(1), 90–93. doi:10.1192/bjp.161.1.90

Wiegel, M., Meston, C., & Rosen, R. (2005). The female sexual function index (FSFI): Cross-validation and development of clinical cutoff scores. *Journal of Sex & Marital Therapy*, *31*(1), 1–20. doi:10.1080/00926230590475206

Williams, C. J., Power, K. G., Millar, H. R., Freeman, C. P., Yellowlees, A., Dowds, T., Walker M., Campsie, L., Macpherson, F., & Jackson, M. A. (1993). Comparison of eating disorders and other dietary/weight groups on measures of perceived control, assertiveness, self-esteem, and self-directed hostility. *International Journal of Eating Disorders*, *14*(1), 27–32. doi:10.1002/1098-108X(199307)14:1%3C27::AID-EAT2260140104%3E3.0.CO;2-F

Woertman, L., & Van den Brink, F. (2012). Body image and female sexual functioning and behavior: A review. *Journal of Sex Research*, *49*(2–3), 184–211. doi:10.1080/00224499.2012.658586

Yamamiya, Y., Cash, T. F., & Thompson, J. K. (2006). Sexual experiences among college women: The differential effects of general versus contextual body images on sexuality. *Sex Roles*, *55*(5–6), 421–427. doi:10.1007/s11199-006-9096-x