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ABSTRACT

The limited body of research on sexuality in eating disorders supports the occurrence of considerable sexual concerns. The aim of the present study was to examine eating disorder symptoms in relation to sexual function, and sexual pain in particular. Female undergraduate students completed a series of online questionnaires. All domains of sexual function were predicted by aspects of disordered eating, with disordered eating generally being associated with more sexual difficulties. Psychological characteristics common to those with eating pathology were also associated with sexuality variables, such that psychological maladjustment was associated with poorer sexual function. Psychological maladjustment was found to mediate the association between eating disorder risk and sexual function. The results of this study suggest that sexual function should be addressed during eating disorder care.

Although clinicians have long noted that impairment in sexual function is common in women with eating disorders, few studies have examined the association between disordered eating and sexual difficulties. The limited body of research on sexual functioning and disordered eating supports the occurrence of considerable sexual concerns. The sexual problems seen in women with eating disorders are thought to reflect both the negative psychological characteristics of eating disorders and the physiological consequences of extreme caloric restriction (Pinherio et al., 2010). A myriad of appearance-related cognitive distortions common to women with eating disorders compromise healthy sexual function (Eddy, Novotny, & Westen, 2004). Biological factors may also represent a link between eating disorders and sexual dysfunction. For example, hormonal fluctuations tied to extreme caloric restriction likely influence sexual difficulties among women with eating disorders, and endocrine changes associated with disordered eating may contribute to reduced vaginal lubrication and pain with penetration. Although eating disorder symptoms likely impact most domains of women's sexual function, there is some evidence to suggest that they may be especially relevant to painful vaginal penetration, otherwise known as dyspareunia (Castellini et al., 2012; Gonidakis, Kravvariti, & Varsou, 2015). The aim of this study was to expand on the limited body of research exploring the relationship between eating behavior and sexual function in a sample of undergraduate women, particularly that of sexual pain and sexual distress.

Problems in sexual function among women with eating disorders have long been recognized by clinicians. Reports written several decades ago of women with anorexia nervosa (AN) referring to

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sexual function difficulties and decreased sexual desire (e.g., Garfinkel & Garner, 1982). Waller, Kaufman, and Deutsch (1940) noted that some women with AN present to sexual dysfunction clinics with symptoms of vaginismus—a condition defined by involuntary tightness of the pelvic floor muscles. Indeed, amenorrhea, loss of lubrication, and dyspareunia are commonly reported by women with AN (Andersen, 1985; Treasure et al., 1995). Silvia and Todd (1998) postulated that clinical presentations of vaginismus in women with AN could be associated with sexual anxiety and decreased desire or sexual interest, and that dyspareunia may arise from penetration attempts in the absence of physiological responsiveness, the latter of which is necessary for painless vaginal penetration. To the best of our knowledge, there is no empirical research testing Silvia and Todd's theory, and thus the etiology of sexual pain in women with AN remains unknown.

Castellini et al. (2012) observed that women with clinical diagnoses of AN ($n = 44$) and (BN; $n = 44$) showed lower levels of sexual arousal, lubrication, orgasm, and satisfaction, as well as higher sexual pain scores compared to healthy controls ($n = 72$), as measured by the Female Sexual Function Index (FSFI; Rosen et al., 2000). Further, women with AN scored more highly on sexual pain and other facets of sexual function compared to those with BN. Another study found that women suffering from AN score lower on several domains of sexual function and genital pain compared to controls (Gonidakis et al., 2015). Within the group of women with AN, those with lower body mass index endorsed higher rates of sexual dysfunction across subscales assessing desire, arousal, lubrication, orgasm, and pain. This finding expands on the results of Pinherio et al. (2010), who also found low body mass index to be associated with sexual functioning problems, by demonstrating a link between low body mass index and heightened sexual pain. Results further indicated that women with BN who reported more depressive symptoms also reported significantly poorer sexual function, including lower desire and arousal, difficulties with lubrication, and greater sexual pain).

Certain psychological variables that are highly associated with eating disorders are also strongly associated with genital pain conditions. The clinical profiles of women with eating disorders and women with provoked vestibulodynia (PVD)—the most common form of genital pain affecting up to 20% of reproductive-aged women (Harlow et al., 2009; Landry & Bergeron, 2011)—are remarkably similar. Women suffering from PVD, as well as women with an eating disorder, exhibit similar comorbid pathology, such as significantly higher levels of anxiety and depression than controls (Desrochers, Bergeron, Landry, & Jodoin, 2008; Pollice et al., 1997). Stress is also thought to play a role in the development and maintenance of PVD (Basson, 2012) and eating disorders (Schmidt, Tiller, Andrews, Blanchard, & Treasure, 1997; Soukup, Beiler, & Terrell, 1990). Shared personality characteristics commonly associated with PVD and eating disorders may provide a rationale for an etiological link between these conditions, with perfectionism, shame, insecure attachment, poor self-esteem, and low self-efficacy being chief among them (Armstrong & Roth, 1989; Granot et al., 2010; van Lankveld et al., 2010). Women with PVD, AN, and BN also share certain developmental risk factors, such as a greater likelihood of a childhood history of physical or sexual abuse (Harlow & Stewart, 2005; Waller, 1993). These commonalities may represent risk factors for developing and maintaining both eating disorders and PVD.

Despite the clinical rationale, empirical research investigating the link between disordered eating and sexual function is sparse. The limited body of research investigating this link suggests that genital pain may be an especially prominent sexual concern for women who struggle with disordered eating. The current study aimed to shed light on the association between disordered eating and sexual functioning, with an emphasis on sexual pain and distress in a sample of undergraduate women. It was hypothesized that: (1) disordered eating will be associated with poor sexual function, (2) the psychological characteristics common to those with eating pathology will be associated with poor sexual function, and (3) the psychological factors associated with eating disorders will mediate the associations between eating disorder risk and sexual function. To the best of our knowledge, this study is the first to examine sexual distress—a variable highly

associated with sexual dysfunction and sexual pain in particular—in relation to disordered eating. In addition, this research is the first to examine the association between disordered eating and sexual function difficulties in a non-clinical sample of undergraduate women.

Method

Participants

A total of 854 female undergraduates 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. Sixty-five participants were omitted from this study because of incomplete data. Only participants who endorsed having engaged in sexual activity within 4 weeks prior to participation were included in analyses ($n = 581$).

Procedure

Women were recruited by advertisements posted on the university human subject pool system. Participation involved completing a series of online questionnaires in exchange for one course credit. The university behavioral research ethics board approved all procedures.

Measures

Sexual Function Measures

Female Sexual Function Index (FSFI)
The FSFI-R is a 19-item self-report scale, designed to measure several key dimensions of sexual function in women over the previous 4 weeks. A total score and scores on six subdomains of female sexuality are produced: Sexual Desire, Arousal, Lubrication, Orgasm, Satisfaction, and Pain. Total scores range from 2 to 36 and subscale scores range from 0 to 5 or 1 to 5, with higher scores indicating better sexual functioning. The FSFI has high test-retest reliability across all domains of sexual function, as well as good construct validity (Rosen et al., 2000). The Cronbach's alpha for the FSFI in this sample was good at 0.83.

Female Sexual Distress Scale–Revised (FSDS-R)
The FSDS-R is a validated 13-item questionnaire that measures personal distress associated with sexual dysfunction in women. Scores range from 0 to 48, with higher scores indicating more sexual distress. (Derogatis, Rosen, Leiblum, Burnett, & Heiman, 2002). The FSDS-R has shown strong psychometric properties (Derogatis et al., 2002; Rosen et al., 2009). Cronbach's alpha of the FSDS-R on the current sample was excellent at 0.93.

The McGill Pain Questionnaire (MPQ)
The MPQ is a 29-item, three-part questionnaire designed to assess multiple dimensions of pain (Melzack, 1975). The scale includes the Pain Rating Index (PRI), a checklist composed of 78 adjectives assessing pain quality and intensity. Participants are instructed to select words best describing their pain experiences. Each adjective corresponds with a score of 1–6, increasing with pain severity, for a PRI total score ranging from 0 to 78. Participants who endorsed experiencing genital pain were instructed to answer questions based on their experiences with genital pain.

The MPQ has demonstrated good psychometric properties (Melzack & Katz, 2001). A Cronbach's alpha cannot be calculated for the MPQ.

Additional Vulvar Pain Questions

Participants were asked a genital pain qualifier question, which inquired as to whether they have experienced any genital pain, either during sexual intercourse or other day-to-day activities, within four weeks prior to participation. Women who endorsed this question were then asked to complete the MPQ. To gauge the sensory and affective dimensions of pain, participants were also asked to rate genital pain intensity ($0 = no\ pain\ at\ all,\ 10 = worst\ pain\ ever$) and genital pain unpleasantness ($0 = not\ at\ all\ unpleasant,\ 10 = most\ unpleasant\ ever$) during intercourse on two separate 0–10 Likert scales (Pukall et al., 2007). This subset of women was also asked if they have consistently experienced genital pain during sexual activity for a period of six months or more.

Disordered Eating measures

Eating Disorders Inventory-3 (EDI-3)

The EDI-3 is a 91-item self-report questionnaire designed to measure attitudes, personality features, and eating disorder symptom severity associated with AN and BN (Garner, 2004). The EDI-3 yields 12 non-overlapping subscales, three of which assess Eating-Disorder Risk (Drive for Thinness, Bulimia, and Body Dissatisfaction), which combine to create an Eating Disorder Risk composite score. Nine of of the subscales assess psychological variables associated with eating disorders, including: (1) Maturity Fears, (2) Low Self-Esteem, (3) Personal Alienation, (4) Interpersonal Insecurity, (5) Interpersonal Alienation, (6) Interoceptive Deficits, (7) Emotional Dysregulation, (8) Perfectionism, and (9) Asceticism. These psychological subscales can be divided into four composite scores, including Ineffectiveness (2 and 3), Interpersonal Problems (4 and 5), Affective Problems (6 and 7), and Over Control (8 and 9), which combine to produce a Global Psychological Maladjustment score. Lower scores indicate less eating pathology. The EDI-3 has shown excellent internal consistency and test-retest reliability, as well as acceptable convergent validity and discriminant validity (Cumella, 2006). The Cronbach's alpha for women in the current sample was excellent at 0.92.

Revised Rigid Restraint Scale (RRRS)

The 12 item RRRS assesses individuals' tendency to avoid and feel guilty about eating foods perceived as forbidden or unhealthy. The scale assesses two components of restrained eating: Restrictive Eating (desire and effort to avoid eating unhealthy, "forbidden" foods) and Eating Guilt (tendency to feel guilty when eating foods perceived as forbidden). Higher scores are indicative of more disordered eating tendencies. The RRRS has shown adequate reliability (Ruderman, 1983). The Cronbach's alpha for the RRRS in the current sample was excellent at 0.92.

Data analysis

Zero-order correlations examining sexuality variables in relation to disordered eating variables and associated psychological characteristics were computed. A series of linear regression models were conducted to examine the association between disordered eating and sexual function. In each regression model, EDI-3 Bulimia, Drive for Thinness, and Body Dissatisfaction subscales, as well as RRRS Restraint and Eating Guilt subscales, were entered as the independent variables. Sexuality measures were independently entered into regression models as the dependent variables. A second series of linear regression models were conducted to examine the association between psychological

features characteristic of those with eating disorders in relation to sexual function. In each regression model, personality composite scores and the Maturity Fears subscale (the only EDI psychological subscale not contained within a composite score) were entered as the independent variables. Sexuality measures were independently entered into regression models as the dependent variables.

Two series of bootstrap mediation analyses examining the influence of psychological maladjustment on the association between Eating Disorder Risk and sexuality variables of interest were carried out. As the directionality of the associations between eating disorder risk and sexuality variables cannot be determined, the mediation models were examined with Eating Disorder Risk and sexuality variables serving as both the independent and dependent variables. In the first set, Eating Disorder Risk (the composite score for EDI subscales Drive for Thinness, Bulimia, and Body Dissatisfaction) was entered as the independent variable, and FSFI Total, FSFI Pain, FSDS Total, MPQ Pain Score, and Vulvar Pain Unpleasantness were individually entered as the dependent variables. In the second set, the aforementioned sexuality variables were independently entered as the independent variable, and Eating Disorder Risk was entered as the dependent variable. Global Psychological Maladjustment was entered as the mediating variable in each model.

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 (see, e.g., Feise, 2002; O'Keefe, 2003; Tutzauer, 2003). The reader may wish to interpret analyses with statistical significance at the alpha level of $p < .05$ as having only marginal significance, given the number of variables examined, and view analyses with a $p < .01$ as having statistical significance. With this in mind, the discussion is focused mainly on effect sizes rather than significance testing.

Results

Sample and subsample characteristics

The mean age for the entire sample was 20.63 years ($SD = 2.93$; range $= 18–51$). With respect to ethnicity, 37.2% reported being East Asian, 37.2% Euro-Caucasian, and 24.6% belonging to other ethno-cultural groups. A total of 66.5% identified as heterosexual, 18.3% heteroflexible, 10.2% bisexual, and 5.3% lesbian. Fifty-two percent of women were in a monogamous relationship, 1.1% were in an open relationship, 10.4% were in a mostly sexual relationship, and 36.1% were not in a relationship. Of those currently in a relationship, the average length was 1 year and 3 months. Eight percent of women reported a history of child or adult sexual abuse. The means and standard deviations of study variables for the total sample are displayed in Table 1.

Association between disordered eating and sexual function

Correlations between disordered eating and sexuality variables

See Table 2 for correlations between disordered eating and sexual function variables. The FSDS and MPQ pain score were significantly associated with all disordered eating and body esteem measures. FSFI Satisfaction and FSFI Pain were significantly associated with all disordered eating and body esteem measures, with the exception of Drive for Thinness and Restrictive Eating. FSFI Total and FSFI Arousal were significantly associated with Eating Disorder Risk, Bulimia, and Body Dissatisfaction. FSFI Desire was significantly correlated with Body Dissatisfaction. FSFI Lubrication was associated with Bulimia. FSFI Orgasm was significantly associated with Eating Disorder Risk and Bulimia. Pain Unpleasantness was significantly associated with all disordered eating and body esteem measures but Restrictive Eating, while pain intensity ratings were not significantly associated with any eating disorder or body esteem variable. Point-bacterial correlations were also analyzed for Eating Disorder Risk and sexuality variables in relation to sexual abuse

Table 1. Means and standard deviations of study variables among total sample.

Variable	M	SD
EDI Risk	142.47	32.88
Drive for Thinness	10.70	7.99
Bulimia	6.74	6.66
Body Dissatisfaction	15.47	9.42
BSQ Total	93.76	40.51
RRRS Eating Guilt	19.30	4.54
Restrictive Eating	14.95	4.88
FSDS Sexual Distress	10.79	9.72
FSFI Total	25.52	6.52
FSFI Desire	4.11	1.09
FSFI Arousal	4.52	1.37
FSFI Lubrication	4.90	1.45
FSFI Orgasm	3.90	1.63
FSFI Satisfaction	4.15	1.56
FSFI Pain	3.74	1.84
MPQ Pain Quality	25.05	20.30
Pain Intensity Rating	1.15	0.36
Pain Unpleasantness Rating	3.08	1.96

history. The correlation between Eating Disorder Risk and a presence or absence of sexual abuse was significant ($r = .11$, $p < .01$). A history of sexual abuse was also associated with the MPQ Pain score ($r = .20$, $p < .000$), but no other sexuality variable.

Multiple regression analyses of disordered eating predicting sexuality variables

The overall model for the FSDS was significant ($F(5, 578) = 16.297$, $p < .000$)), such that disordered eating explained a significant proportion of the variance ($R^2 = .12$). The FSDS was significantly predicted by Bulimia ($p = .000$, $\beta = .19$) and Eating Guilt ($p = .000$, $\beta = .25$), with higher levels of Bulimia and Eating Guilt being associated with greater sexual distress. Although Drive for Thinness appeared to correlate with the FSDS, it did not emerge as a significant predictor in the regression model ($p = .109$, $\beta = -.12$).

The overall model for the FSFI Total was significant ($F(5,549) = 5.75$, $p < .000$), with disordered eating accounting for a significant proportion of the variance ($R^2 = .05$). FSFI total was significantly predicted by Drive for Thinness ($p = .002$, $\beta = .26$), Bulimia ($p < .000$, $\beta = -.21$) and Body Dissatisfaction ($p = .006$, $\beta = -.18$).

Of the FSFI subscales, disordered eating accounted for a significant proportion of the variance in Pain, ($F(5, 577) = 7.71$, $p < .000$, $R^2 = .06$); Desire, ($F(5, 578) = 4.87$, $p < .01$, $R^2 = .04$); Arousal, ($F(5, 570) = 4.86$, $p < .001$, $R^2 = .04$); Lubrication, ($F(5, 572) = 2.20$, $p < .05$, $R^2 = .11$); Orgasm, ($F(5, 575) = 2.90$, $p < .01$, $R^2 = .03$); and Satisfaction, ($F(5, 573) = 3.87$, $p < .01$, $R^2 = .03$). Drive for Thinness positively predicted Arousal ($p = .007$, $\beta = -.22$), Desire ($p = .000$, $\beta = .30$), Satisfaction ($p = .010$, $\beta = .20$), Lubrication ($p = .033$, $\beta = .16$), Orgasm ($p = .037$, $\beta = .12$), and Pain ($p = .000$, $\beta = .32$). Bulimia negatively predicted Lubrication ($p = .011$, $\beta = -.14$), Arousal ($p = .001$, $\beta = -.18$), Pain ($p = .000$, $\beta = -.25$), and Satisfaction ($p = .013$, $\beta = -.14$). Body Dissatisfaction negatively predicted Desire ($p < .001$, $\beta = -.22$), Arousal ($p = .016$, $\beta = -.15$), Satisfaction ($p = .024$, $\beta = -.14$), and Pain ($p = .005$, $\beta = -.18$). For Bulimia and Body Dissatisfaction, disordered eating was associated with poorer sexual function. Drive for Thinness was associated with better sexual function for all significantly predicted FSFI domains.

Based on the peculiarity of the Drive for Thinness findings, a series of stepwise regressions were conducted post hoc as exploratory analyses (Tables 3 and 4). Drive for Thinness was entered in the first step, followed individually by Bulimia, Body Dissatisfaction, Restrictive Eating, and Eating Guilt in subsequent steps. Drive for Thinness was not a significant predictor for any FSFI domain in the first step. Drive for Thinness became a significant positive predictor for FSFI Total and FSFI Pain in the

Table 2. Zero-order correlations between disordered eating and psychological factors typical of those with eating disorders in relation to sexuality variables.

Variable	FSDS	FSFI	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Pain Unpleasant	MPQ
EDI Risk	.180***	-.122**	-.027	-.079*	-.043	-.100*	-.079*	-.102**	.010	.142**
Drive for Thinness	.202***	-.053	.065	-.053	.000	-.067	-.059	-.032	.059	.206**
Bulimia	.245***	-.159***	.015	-.143***	-.085*	-.112**	-.123**	-.159***	.126	.124*
Body Dissatisfaction	.168***	-.135***	-.096**	-.129***	-.050	-.078	-.116**	-.124**	-.010	.110*
Body Concerns	.295***	-.139***	.019	-.143***	-.062	-.070	-.140***	-.121**	.055	.164***
Eating Guilt	.265***	-.073	.017	-.076	-.039	-.018	-.091*	-.090*	-.025	.148***
Restrictive Eating	.182***	-.003	.079*	-.022	.011	.050	-.049	-.016	.003	.094
Maturity Fears	.16***	-.21***	-.18***	-.26***	-.14***	-.10*	-.18***	-.19***	.12*	.12*
Low Self-Esteem	.28***	-.21***	-.10***	-.20***	-.12**	-.15***	-.21***	-.14***	.17**	.10*
Personal Alienation	.32***	-.24***	-.11**	-.24***	-.16***	-.15***	-.25***	-.18***	.12*	.15**
Interpersonal Insecurity	.16***	-.24***	-.18***	-.24***	-.17***	-.13**	-.22***	-.17***	-.04	.06
Interpersonal Alienation	.28***	-.23***	-.10**	-.25***	-.16***	-.18***	-.23***	-.14***	.04	.17**
Interoceptive Deficits	.30***	-.17***	.04	-.13**	-.12***	-.15***	-.15***	-.17***	.10	.20***
Emotional Dysregulation	.28***	-.14**	.05	-.14***	-.18***	-.13**	-.10*	-.10*	.10	.22***
Perfectionism	.15***	-.03	.10**	-.04	-.04	-.03	.02	-.10*	.13**	.04
Asceticism	.30***	-.16***	.04	-.14***	-.13**	-.13**	-.11***	-.17***	.13**	.22***
Global Psych. Maladjustment	.32***	-.16***	-.01	-.17***	-.12**	-.15***	-.20***	-.82***	.10*	.16**

***Correlation is significant at the 0.001 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Table 3 & 4. Stepwise regressions of sexuality variables with Drive for Thinness entered into the first step and remaining disordered eating measures entered into subsequent steps.

		FSFI Subscales										
		Desire			Arousal			Satisfaction			Pain		
Step	Predictor	b	SE	t	b	SE	t	b	SE	t	b	SE	t
1	EDI DT	.06	.01	.51	−.05	.01	−1.26	−.06	.01	−1.53	−.02	.01	−0.60
2	EDI DT	.09	.01	1.86	.08	.01	1.48	.04	.01	0.76	.16	.01	2.90**
	EDI B	−.05	−.01	−1.10	−.20	.01	−3.72***	−.16	.01	−2.94**	−.28	.02	−5.15***
3	EDI DT	.27	.01	4.60***	.17	01	2.52*	.13	.01	1.97*	.26	.02	3.97***
	EDI B	−.01	.01	−0.23	−.18	.01	−3.26**	−.14	.01	−2.53*	−.25	.02	−4.58***
	EDI BD	−.28	.01	−5.29***	−.14	.01	−2.22*	−.14	.01	−2.26*	−.17	.01	−2.73**
4	EDI DT	.32	.01	4.82***	.21	.01	2.73**	.20	.01	2.57*	.32	.02	4.20***
	EDI B	−.01	.01	−0.14	−.18	.01	−3.21**	−.14	.01	−2.48*	−.24	.02	−4.53***
	EDI BD	−.28	.01	−5.30***	−.14	.01	−2.22*	−.14	.01	−2.26*	−.17	.01	−2.72**
	RRRS EG	−.08	.01	−1.63	−.06	.02	−1.09	−.10	.02	−1.74	−.08	.02	−1.51
5	EDI DT	.30	.01	4.40***	.20	.01	2.60**	.20	.02	2.57**	.32	.02	4.11***
	EDI B	.00	.01	0.05	−.18	.01	−3.15**	−.14	.01	−2.50*	−.26	.02	−4.50***
	EDI BD	−.28	.01	−5.18***	−.14	.01	−2.18*	−.14	.01	−2.27*	−.17	.01	−2.70**
	RRRS EG	−.13	.02	−2.29*	−.07	.02	−1.11	−.09	.02	−1.34	−.08	.03	−1.31
	RRRS RE	.09	.01	1.74	.02	.02	0.35	−.02	.02	−0.27	.00	.02	0.01

		FSFI Subscales						FSFI Total			FSDS Total		
		Lubrication			Orgasm			Overall Sexual Function			Sexual Distress		
Step	Predictor	b	SE	t	b	SE	t	b	SE	t	b	SE	t
1	EDI DT	−.01	.01	−0.14	−.05	.01	−1.29	−.05	.03	−1.08	.20	.04	5.64***
2	EDI DT	.09	.01	1.67	−.02	.01	0.46	.11	.04	1.99*	.07	.06	1.54
	EDI B	−.15	.01	−2.74**	−.12	.01	−2.20*	−.24	.06	−4.27***	.20	.07	4.24***
3	EDI DT	.14	.01	2.05*	−.06	.01	0.83	.23	.06	3.28**	.06	.07	1.09
	EDI B	−.14	.01	2.51*	−.11	.01	−2.02*	−.21	.06	−3.78***	.20	.07	4.13***
	EDI BD	−.07	.01	−1.17	−.05	.01	−0.77	−.18	.04	−2.81**	.02	.05	0.30
4	EDI DT	.17	.01	2.14*	.00	.02	0.04	.26	.06	3.34**	−.07	.08	−1.04
	EDI B	−.14	.01	−2.47*	−.12	.01	−2.08*	−.21	.06	−3.76***	.19	.07	3.94***
	EDI BD	−.07	.01	−1.16	−.05	.01	−0.78	−.18	.04	−2.81**	.02	.05	0.31
	RRRS EG	−.04	.02	−0.72	.08	.02	1.42	−.06	.08	−0.98	.20	.10	4.16***
5	EDI DT	.16	.01	2.02*	−.03	.02	−0.39	.26	.07	3.18**	−.07	.08	−1.08
	EDI B	−.14	.01	−2.41*	−.10	.01	−1.83	−.21	.06	−3.67***	.19	.07	3.95***
	EDI BD	−.07	.01	−1.12	−.04	.01	−0.60	−.18	.04	−2.76**	.02	.05	0.33
	RRRS EG	−.06	.02	−0.85	.01	.02	0.12	−.08	.10	−1.12	.19	.12	3.41**
	RRRS RE	.03	.02	0.45	.12	.02	2.15*	.03	.08	0.51	.02	.10	0.35

second step (after Bulimia was entered into the model), and a significant positive predictor for FSFI Desire, Arousal, Satisfaction, and Lubrication in the third step (after Body Dissatisfaction was entered into the model). These findings suggest that the unique variance in Drive for Thinness that is not accounted for by Bulimia and Body Dissatisfaction is associated with superior sexual function.

Disordered eating accounted for a significant proportion of the variance in MPQ Pain Score, ($F(5, 324) = 5.30$, $p < .000$, $R^2 = .08$), with Bulimia as the only significant predictor variable ($p = .001$, $\beta = .25$). Disordered eating significantly predicted the level of vulvar pain unpleasantness during sexual activity, ($F(5, 322) = 3.24$, $p < .01$, $R^2 = .05$), with Drive for Thinness driving this association ($p = .040$, $\beta = .22$). Disordered eating predicted level of vulvar pain intensity during sexual activity with moderate significance, ($F(5, 143) = 2.12$, $p < .000$, $R^2 = .08$), with Drive for Thinness ($p = .020$, $\beta = .38$) and Body Dissatisfaction ($p = .040$, $\beta = .26$) as significant predictors. In all cases, disordered eating was associated with more pain.

Associations between sexual function and personality factors characteristic of individuals with eating disorders

Correlation analyses of sexuality variables with psychological factors

See Table 2 for correlations between psychological factors typical of those with eating disorders and sexual function variables. FSFI Pain and FSDS Total were significantly correlated with all psychological features characteristic of those with eating disorders. FSFI Total, Lubrication, Orgasm, Satisfaction, and Arousal were significantly negatively correlated with all psychological features except for Perfectionism, with greater psychological maladjustment associated with poorer sexual function. FSFI Desire was significantly negatively correlated with Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Personal Alienation, and Maturity Fears, and significantly positively correlated with Perfectionism. MPQ Total was significantly positively correlated with Personal Alienation, Interpersonal Alienation, Interoceptive Deficits, Emotional Dysregulation, Ascetism, and Maturity Fears, with higher pain scores assocaited with greater psychological maladjustment. Vulvar Pain Unpleasantness was significantly positively correlated with Low Self-Esteem, Personal Alienation, Perfectionism, Ascetism, and Maturity Fears, while Vulvar Pain Intensity was not significantly associated with any psychological features. The Global Psychological Maladjustment score was significantly associated with all sexuality variables except for of Vulvar Pain Intensity and FSFI Desire, with greater psychological maladjustment was associated with poorer sexual function.

Multiple regression analyses of psychological characteristics predicting sexuality variables

The overall model for the FSDS was significant, ($F(4, 578) = 20.45$, $p < .000$), such that psychological factors associated with disordered eating explained a significant proportion of the variance ($R^2 = .12$). The FSDS was significantly positively predicted by the Over Control ($p = .000$, $\beta = .16$), Affective ($p = .002$, $\beta = .11$), and Ineffective composite scores ($p = .009$, $\beta = .11$), with higher levels of maladjustment being associated with greater sexual distress. The Interpersonal composite approached statistical significance as a predictor ($p = .051$, $\beta = .08$), while Maturity Fears did not significantly predict sexual distress.

The overall models for FSFI Total, ($F(4, 549) = 9.90$, $p < .000$, $R^2 = .08$), and each FSFI subscale were significant: Arousal, ($F(4, 570) = 9.70$, $p < .000$, $R^2 = .07$); Satisfaction, ($F(4, 573) = 10.18$, $p < .000$, $R^2 = .08$); Orgasm, ($F(4, 578) = 4.23$, $p < .001$, $R^2 = .03$); Lubrication, ($F(4, 572) = 4.11$, $p < .001$, $R^2 = .03$); Desire, ($F(4, 578) = 13.75$, $p < .000$, $R^2 = .08$); and Pain, ($F(4, 577) = 7.39$, $p < .000$, $R^2 = .06$). The Interpersonal composite score significantly negatively predicted the FSFI Total ($p = .000$, $\beta = -.17$) and all FSFI subscales except for Desire: Arousal ($p = .012$, $\beta = -.12$), Satisfaction ($p = .010$, $\beta = -.12$), Orgasm ($p = .0314$, $\beta = -.10$), Lubrication ($p = .037$, $\beta = -.10$), Pain ($p = .019$, $\beta = -.11$). The Ineffective composite score significantly negatively predicted the FSFI Total ($p = .012$, $\beta = -.13$), and FSFI Desire ($p = .003$, $\beta = -.14$), Arousal ($p = .036$, $\beta = -.11$), and Satisfaction ($p = .000$, $\beta = -.18$) subscales. Maturity Fears significantly negatively predicted FSFI Total ($p = .012$, $\beta = -.13$), as well as Pain ($p = .009$, $\beta = -.12$), Desire ($p = .000$, $\beta = -.18$), and Arousal ($p = .003$, $\beta = -.13$) subscales. In each case, psychological features common to individuals with eating disorders were associated with poorer sexual function. Desire was significantly positively predicted by the Over Control composite ($p = .005$, $\beta = .11$), as well as the Affective composite ($p = .000$, $\beta = .20$), indicating that these psychological dimensions were associated with greater desire.

Psychological composites accounted for a significant proportion of the variance in MPQ Pain Score, ($F(4, 393) = 3.26$, $p < .01$, $R^2 = .04$), with the Affective composite as the only significant predictor variable ($p = .040$, $\beta = .13$), where greater affective difficulties predicted more vulvar pain. The model for psychological composites predicting Vulvar Pain Unpleasantness was

significant, ($F(5, 322) = 3.10$, $p < .01$, $R^2 = .04$), with the Interpersonal ($p = .016$, $\beta = -.15$) and Ineffective ($p = .023$, $\beta = -.16$) composites predicting greater vulvar pain unpleasantness. The model for vulvar pain intensity was not significant, ($F(4, 176) = .40$, $p > .05$, $R^2 = .01$).

Bootstrap mediation analyses examining the impact of psychological maladjustment on the associations between Eating Disorder Risk and sexuality variables

The overall mediation models for Eating Disorder Risk predicting FSFI Total, ($F(2, 549) = 15.80$, $p < .000$, $R^2 = .05$); FSFI Pain, ($F(2, 577) = 13.00$, $p < .000$, $R^2 = .04$); FSDS Total, ($F(2, 578) = 46.31$, $p < .000$, $R^2 = .10$); MPQ Pain Score, ($F(2, 393) = 7.75$, $p < .000$, $R^2 = .04$); and Vulvar Pain Unpleasantness, ($F(2, 322) = 4.55$, $p < .05$, $R^2 = .02$), were significant. The overall mediation models for sexuality variables predicting Eating Disorder Risk were also significant: FSFI Total, ($F(2, 549) = 95.82$, $p < .000$, $R^2 = .23$); FSFI Pain, ($F(2, 577) = 113.21$, $p < .000$, $R^2 = .25$); FSDS Total, ($F(2, 578) = 125.12$, $p < .000$, $R^2 = .23$); MPQ Pain Score, ($F(2, 393) = 51.33$, $p < .000$, $R^2 = .20$); and Vulvar Pain Unpleasantness, ($F(2, 322) = 50.06$, $p < .05$, $R^2 = .20$). In both the first and second set of mediation analyses, Global Psychological Maladjustment partially mediated the associations for Eating Disorder Risk in relation to MPQ Pain Score and Vulvar Pain Unpleasantness, and totally mediated the associations for Eating Disorder Risk in relation to FSFI Total, FSFI Pain, and FSDS Total. The effect size (R^2 values) for models in the second set, with sexuality variables predicting Eating Disorder Risk, were markedly larger than those in the first set, indicating that the direction of this association favors sexuality variables as the independent variable and Eating Disorder Risk as the dependent variable.

Discussion

Although complaints of sexual pain are common among women suffering from an eating disorder, this study is one of the first to empirically examine the association between sexual pain and disordered eating. Another aim of this study was to examine eating disorder risk in relation to sexual distress, a common correlate of sexual pain, as well as other facets of sexual function. Given the similarities in the clinical profiles of women with eating disorders and women with PVD, psychological features characteristic of people with an eating disorder diagnosis were examined in relation to sexuality variables. In addition, the influence of psychological maladjustment associated with eating pathology on the relation between eating disorder risk and sexuality variables was examined. To the authors' knowledge, this is the first study to investigate the mediating effects of psychological factors on the relation between disordered eating and sexual function.

Disordered eating variables were predicted to be associated with greater sexual function difficulties. Consistent with this hypothesis, all domains of sexual function were predicted by aspects of disordered eating. Although an association between sexual pain and disordered eating emerged, sexual pain did not appear to represent a more significant sexual concern than the other domains of sexual function measured. Disordered eating did, however, appear to account for a larger proportion of the variance explained in sexual distress ($R^2 = .12$) compared to most other areas of sexual function.

Contrary to expectation, Drive for Thinness was associated with superior sexual function. Drive for Thinness was not significantly correlated with any FSFI domain, but emerged as a significant positive predictor for several FSFI subscales. To examine this surprising finding further, a series of stepwise regression analyses were performed. With the exception of Vulvar Pain Unpleasantness, in which Drive for Thinness was a significant predictor in the first step, Drive for Thinness only became a significant predictor once subsequent facets of disordered eating were entered into the model. This suggests that once variance in Drive for Thinness shared by Bulimia, Body Dissatisfaction, and Eating Guilt, was partialed out of the analysis, the unique

variance left over in Drive for Thinness was associated with superior sexual function. A suppression effect thus explains why Drive for Thinness was a significant predictor but not a significant correlate of these sexual function variables. That Drive for Thinness arose as a positive predictor of sexual function variables was unexpected. Perhaps the pathological aspect of Drive for Thinness was captured by the variance shared with the other facets of disordered eating, and the remaining unique variance that emerged as a positive predictor of sexual function explains some healthy aspect of Drive for Thinness. As Drive for Thinness was positively correlated with sexual distress, but did not emerge as a significant predictor in the regression analysis, a stepwise regression analysis was performed here as well. Drive for Thinness emerged as a significant positive predictor of sexual distress in the first step, indicating that Drive for Thinness was associated with greater sexual distress, but this association disappeared in the second step of the analysis. This finding suggests that the aspect of Drive for Thinness associated with sexual distress is explained by the shared variance between Drive for Thinness and Bulimia.

Drive for thinness represents a central feature associated with the development and maintenance of eating disorder symptoms in clinical samples, especially women with AN. Women scoring highly on this variable are characterized by a preoccupation with restrictive dieting and intense fears about weight gain. That Drive for Thinness was found to predict the FSFI subscales suggests that women who endorsed a preoccupation with the desire to be thinner and a tendency to spend an inordinate amount of time thinking about dieting also reported greater desire for sexual activity and sexual satisfaction, less sexual pain, and less difficulty with lubrication. Although Drive for Thinness predicted less sexual pain, it also predicted greater vulvar pain unpleasantness. It is unclear why such a conflicting finding emerged. Perhaps Drive for Thinness was generally associated with less sexual pain, but was associated with greater unpleasantness of sexual pain among those that reported sexual pain.

Bulimia and Body Dissatisfaction were significantly associated with a number of sexual function domains in the expected direction. Bulimia predicted difficulties with sexual arousal, satisfaction, lubrication, and pain, while Body Dissatisfaction predicted lower sexual desire and greater sexual distress in addition to difficulties with arousal, satisfaction, and pain. Women scoring highly on Bulimia in this context endorsed thoughts and behaviors that are consistent with binge eating and compensatory behaviors. Body Dissatisfaction describes discontentment with overall shape and with the size of those regions of the body of extraordinary concern to those with eating disorders. Prior research has linked body dissatisfaction to body-oriented cognitive distractions during sexual activity (Dunkley, Gorzalka, & Brotto, 2016), which in turn are associated with poorer sexual function (Dove & Wiederman, 2000). Eating guilt, or the tendency to feel bad about food consumption, often accompanies restrictive eating and was associated with sexual distress and diminished sexual desire. These findings compliment the notion that restrictive eaters experience more sexual difficulties and are more distressed by those sexual difficulties.

These results suggest that, with the exception of Drive for Thinness, disordered eating is associated with sexual pain and distress, as well as difficulties with other areas of sexual function. One possible explanation for this finding is that extreme caloric restriction results in endocrine changes that reduce vaginal lubrication, which in turn may lead to pain upon penetration attempts, and corresponding distress, due to vaginal dryness (De Silva & Todd, 1998). Another possibility is that eating disorder cognitions, such as feeling poorly about one's body shape and appearance, have a negative impact on sexuality. Perceiving oneself as lacking sexual desirability may in turn reduce desire and sexual enjoyment, both of which have been linked to sexual pain (Berman, Berman, Miles, Pollets, & Powel, 2003). A third variable may also underlie the connection between disordered eating, sexual pain, and distress, such as negative affect or maladaptive psychological features, which tend to be more prevalent in women with eating disorders and women with sexual dysfunction. Examination of the associations between psychological features

characteristic of individuals with eating disorders in relation to sexuality variables indicate that this may be the case.

Sexual pain and sexual distress were significantly associated with all psychological features characteristic of those with eating disorders, while the remaining measured facets of sexual function were also associated with several psychological features. Interpersonal problems, which reflects social discomfort and disappointment, difficulty trusting others, social isolation, and insecure attachment, was predictive of sexual distress, pain, orgasm, lubrication, satisfaction, and arousal. In the EDI, the Interpersonal Problems composite is comprised of Interpersonal Insecurity—the tendency to self-isolate, feel social apprehension, experience difficulty expressing thoughts and feelings to others—as well as interpersonal alienation—the tendency to feel trapped in relationships, have difficulty experiencing love from others, and impaired attachment in relationships (Garner, 2004). Given the role of interpersonal connectedness in positive sexual outcomes (Brotto et al., 2016), it is unsurprising that greater interpersonal insecurities and interpersonal alienation predicted poorer sexual function. That the interpersonal problems characteristic of those with eating disorders also predicts an array of sexual difficulties is preliminary evidence to suggest that interpersonal issues may contribute to the development and/or maintenance of both eating disorders and sexual function.

Ineffectiveness, which reflects low self-esteem, emotional emptiness, and deficits in personal identity (Garner, 2004), predicted more sexual difficulties overall, as well as lower desire, satisfaction, arousal difficulties, and sexual distress. Low self-esteem in this context describes feelings of personal insecurity, inadequacy, worthlessness, and ineffectiveness, while personal alienation, the other facet of ineffectiveness, describes feelings pertaining to a pervasive sense of emotional emptiness and aloneness, as well as a poor sense of self-understanding and a desire to be someone else. These findings are consistent with past research that has demonstrated the association between low self-esteem and sexuality (e.g., Hartmann et al., 2002), and that which has shown low self-esteem to play a major role in the development and maintenance of eating disorders (Garner, 2004). Research has also found insecure attachment to be associated with sexual function difficulties (Dunkley, Dang, Chang, & Gorzalka, 2016). These findings suggest that low self-esteem and personal alienation may make individuals more vulnerable to developing an eating disorder and sexual difficulties, or that both eating disorders and sexual difficulties give rise to low self-esteem and personal alienation.

Though low self-esteem, personal alienation, and their ineffectiveness composite, were correlated with sexual pain, ineffectiveness did not emerge as a significant predictor of sexual pain as measured by the FSFI or MPQ. This was unexpected, as research has shown women with PVD to have lower levels of self-esteem (Sutton, Pukall, & Chamberlain, 2009) and higher levels of avoidant attachment, which is characterized by the avoidance of intimacy and close relationships (Granot et al., 2010). Ineffectiveness did emerge as a significant predictor of vulvar pain unpleasantness during sexual activity however, suggesting the associations between vulvar pain in relation to low self-esteem and personal alienation may have been stronger among the subsample of women who endorsed experiencing vulvar pain. Perhaps an association between personal ineffectiveness and sexual pain would be more observable in a clinical sample of women with sexual pain.

Maturity fears, which indicates the desire to return to the security of childhood and fears associated with psychosexual maturity (Garner, 2004), was associated with poorer overall sexual function, more sexual distress and pain, and lower desire and arousal. Complementary to these findings, Leon et al. (1985) found that women with AN believed they would appear more attractive to the opposite sex at a higher weight yet continued to pursue weight loss, suggesting that women with AN may use weight loss as a means of avoiding sexual contact. Prior research has also found women with a lower body weight and a history of AN to be related to more childlike and chaste sexual attitudes and behavior (Eddy et al. 2004). Maturity fears in women with an

eating disorder are common among those with a history of sexual abuse (Mitchell, Wells, Mendes, & Resick, 2012) and the likelihood of having a history of sexual abuse is higher among women with PVD (Harlow & Stewart, 2005). Women who endorsed a history of sexual abuse in the current sample also reported greater eating disorder risk in the total sample, and greater sexual pain in the subsample of women who endorsed experiencing recurrent vulvar pain. These findings support the idea that sexual abuse serves as a risk factor for the development of eating disorders and of PVD.

Over control, which positively predicted sexual desire, is comprised of perfectionism—the tendency to place a premium on achieving a high standard of personal achievement—and asceticism—the belief that the experience of pleasure is shameful and engaging in self-denial, restraint, sacrifice is virtuous (Garner, 2004). Perfectionism, but not asceticism, was associated with sexual desire, indicating that perfectionism drove the association between over control and sexual desire. Though surprising, these findings complement those which emerged from analyses examining desire in relation to drive for thinness. Perfectionism is highly associated with drive for thinness in the eating disorder literature (Garner, 2004), which was also a positive predictor of sexual desire after controlling for the variance accounted for by other facets of disordered eating. Perhaps some interplay between perfectionism and drive for thinness is responsible for their associations with sexual desire. Over control also predicted greater sexual distress, with correlations suggesting that both perfectionism and asceticism contributed to this association.

Affective problems, which encompasses Emotional Dysregulation—the tendency toward mood instability, impulsivity, recklessness, and anger—and Interoceptive Deficits—confusion related to accurately recognizing and responding to emotional states (Garner, 2004)—also unexpectedly predicted sexual desire such that more affective problems were associated with greater desire. Neither Interoceptive Deficits nor Emotional Dysregulation were significantly correlated with sexual desire, yet the affective-problems composite of these variables served as a significant positive predictor of sexual desire. A suppressor effect could be behind this association, wherein the unique variance accounted for by affective problems, not captured by other areas of psychological maladjustment, is somehow associated with greater sexual desire.

Affective problems also predicted sexual pain in the expected direction, as measured by the MPQ, but not FSFI Pain. Emotional Dysregulation and Interoceptive Deficits were correlated with the MPQ and FSFI Pain, indicating that both subscales drove the association between affective problems and sexual pain. Anxiety and depression have etiological similarities and they frequently occur as comorbid conditions with eating disorders and PVD. Women with eating disorders have a higher prevalence of anxiety disorders compared to controls (Pollice et al., 1997), and major depression is the most common psychiatric comorbidity in women with AN and BN, occurring both prior to illness onset and often persisting after recovery (Eckert et al., 1982). Similarly, a history of anxiety and depression is eleven and four times more prevalent in women with PVD compared to nonaffiliated women (Khandker et al., 2011), and there is evidence that these psychological symptoms predated the onset of PVD. Although women with PVD and women with eating disorders display a higher prevalence of psychological maladjustment, research bridging the gap between genital pain and disordered eating is sparse. Given that psychological maladjustment is thought to contribute to the development and maintenance of both eating disorders and PVD, mediational analyses were conducted to examine its influence on the association between eating disorder risk and sexual function.

Global psychological maladjustment totally mediated the associations for eating disorder risk in relation to sexual distress, overall sexual function, and sexual pain as measured by the FSFI. The effect sizes for models with sexuality variables predicting eating disorder risk were notably larger, indicating that sexual pain, sexual distress, and poor overall sexual function may increase eating disorder risk through psychological maladjustment. Though the effect was smaller, models with eating disorder risk predicting sexual variables were also significant, indicating that eating

disorder symptoms may increase the risk for developing sexual difficulties through psychological maladjustment.

Psychological maladjustment was also found to partially mediate the associations for eating disorder risk in relation to sexual pain as measured by the MPQ and vulvar pain unpleasantness. Again, the models with sexual pain predicting eating disorder risk yielded superior effect sizes. Thus, although sexual pain may contribute to eating disorder risk among undergraduate women who endorsed experiencing vulvar pain through psychological maladjustment, there may be something specific about the experience of reoccurring vulvar pain that worsens eating disorder symptoms. As the models with eating disorder risk predicting sexual pain were also significant, the reverse may also be true. Alternatively, other variables not measured in this study may more fully account for the association between eating disorder risk and sexual pain.

Although interpretation of these results is limited by the cross-sectional and correlational nature of the research design, such findings provide preliminary rationale for further study of an etiological link between sexual pain and eating pathology. Global psychological maladjustment may underlie PVD and eating disorders as separate conditions, with personality and mood variables acting as risk factors. Likewise, psychological maladjustment may also result from or maintain eating disorder and genital pain symptoms, or, possibly account for an association between eating disorders and PVD. Future longitudinal research on clinical samples of women with an eating disorder and women with PVD is needed. Though only a starting step, this study contributes to the limited literature linking personality to sexuality in the eating disorders.

One can speculate about how these findings might apply to women with the clinical diagnosis of PVD and to women with an eating disorder diagnosis. Sexual pain and sexual distress, both aspects of PVD, were associated with greater disordered eating and psychological characteristics common to those with eating pathology. These findings are in line with the separate bodies of literature indicating that women with PVD share many of the psychological features which are also commonly observed in women with an eating disorder (e.g. Desrochers et al., 2008; Eddy et al., 2004). The relation between sexual pain and disordered eating found here, and the similarities in the clinical profiles of women with PVD and women with eating disorders, hint at a potential link between these important women's health conditions.

Limitations

Several limitations of this study must be taken into account. The data were correlational, so no causal inferences can be drawn. As the participants in this study were a relatively homogenous group, predominantly consisting of young, Euro-Caucasian and East Asian undergraduate students, generalizability is limited. It is also likely that other unmeasured factors, such as various personality, mood, and psychosexual characteristics, influence the association between sexual pain and disordered eating. Another limitation relates to the way in which genital pain was assessed and the fact that a diagnosis of PVD in the clinical setting requires taking a comprehensive clinical history and conducting a physical examination (Binik, 2010). FSFI Pain assesses only the experience and degree of pain during and following vaginal penetration. Although research has found FSFI Pain to strongly discriminate between women with and without vaginismus (Wiegel, Meston, & Rosen, 2005), FSFI Pain should not be used to diagnose the presence or absence of dyspareunia. We predict that these relationships would be even stronger in a clinical sample.

Conclusion

This research adds to the small but growing body of literature investigating sexual problems in relation to eating disorders. Within the limits of this study, findings provide further empirical support for sexual function difficulties in the eating disorders, substantiating past research and

clinical writings connecting sexuality to eating pathology. Sexual concerns are rarely addressed in the context of eating disorder care unless a history of sexual abuse is present. The results of this study suggest that even in a nonclinical sample, there is a link between sexual difficulties and disordered eating, emphasizing the importance of considering sexuality in the context of eating disorders. The occurrence of sexual difficulties in women with eating disorders might represent a potential target for psychological treatments. Perhaps the assessment and treatment of sexual difficulties could be incorporated into efforts to improve eating disorders and their effects. Eating disorder risk may also be worth assessing in women with sexual function difficulties. Mindfulness-based cognitive behavioral therapy has showed efficacy in treating PVD, sexual interest and desire disorder (Brotto, Basson, Carlson, & Zhu, 2013), and eating disorders (Wanden-Berghe, Sanz-Valero, & Wanden-Berghe, 2010). A mindfulness intervention could be designed for women presenting with both sexual difficulties and eating disorder concerns.

Future research examining the association between disordered eating and sexuality will assist with developing approaches to treatment for addressing sexual concerns in women with an eating disorder. These variables should be investigated in clinical samples of women with PVD and women with an eating disorder diagnosis. Future treatment research on women with eating disorders may benefit from including measures of sexual function as outcome variables, along with personality and mood features related to altered sexuality that are common to those with disordered eating habits. Research measuring the presence and severity of psychological factors associated with sexual pain and disordered eating could help lay the conceptual framework for a theory of shared etiology linking AN and BN with dyspareunia, and more specifically PVD. Such knowledge may encourage longitudinal work examining these psychological factors as shared antecedents and/or consequences connecting PVD and eating disorders. Empirical research supporting the similarities between eating disorders and PVD that have been observed clinically may facilitate the creation of therapeutic interventions and advancements in clinical assessment tools for both conditions.

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