

Eating disorder features and quality of life: Does gender matter?

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Abstract

Purpose This study examined whether gender moderates the associations between eating disorder features and quality-of-life impairment and whether eating disorder features can explain gender differences in quality of life in a sample of undergraduate students.

Methods The SF-12 Physical and Mental Component Summary Scales were used to measure health-related quality of life (HRQoL), and the Eating Disorders Examination Questionnaire (EDE-Q) was used to quantify eating disorder behaviors and cognitions. These self-report forms were completed by undergraduate men and women ($n = 709$).

Results Gender was a significant predictor of mental HRQoL, such that women in this sample reported poorer mental HRQoL than men. Eating disorder cognitions were the strongest predictor of undergraduate students' mental and physical HRQoL, while binge eating negatively predicted their physical HRQoL only. Gender was not found to moderate the associations between eating disorder features and HRQoL, and eating disorder cognitions were found to mediate the association between gender and mental HRQoL such that a proportion of the difference between undergraduate men and women's mental HRQoL was attributable to eating disorder cognitions.

Conclusion This study provided further evidence of the significant impact of eating disorder features, particularly eating disorder cognitions, on HRQoL. The finding that gender did not moderate the relationships between eating

disorder features and HRQoL indicates the importance of investigating these features in both men and women in future research.

Keywords Eating disorders · Quality of life · Eating disorder behaviors · Eating disorder cognitions

Introduction

It is well established that eating disorders have a significant negative impact on sufferers' health-related quality of life (HRQoL) [1, 2]. This impairment has been found to be on par with that seen in individuals with schizophrenia [3]. Evidence is also accumulating that the occurrence of sub-clinical eating disorder features is associated with poorer HRQoL [2]. Given that impairment in functioning is associated with help-seeking, an understanding of the nature of the associations between eating disorder features and HRQoL would likely have clinical implications [4].

Many studies have attempted to determine which eating disorder features affect HRQoL, as these could serve as targets in prevention and early intervention programs [5]. Overvaluation of weight or shape, which many experts believe is a core feature of all eating disorders, has been found to be associated with marked impairment in adolescent and adult women's mental and physical HRQoL, independent of the occurrence of other eating disorder features [6, 7]. There is also good evidence that objective and subjective binges, self-induced vomiting, laxative use, and extreme dietary restriction and, to a lesser extent, excessive exercise, are associated with impaired HRQoL in young women and increasing evidence of similar impairment in men [6, 8].

As the prevalence and adverse impact of eating disorder features increase in both men and women [9],

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understanding whether and to what extent gender is a factor in the associations between eating disorder features and HRQoL is increasingly important [10]. Evidence for gender's impact on the association between eating disorder features and HRQoL is mixed, but the available evidence does suggest that the associations between certain features and HRQoL may be *moderated* by gender. In both earlier and more recent studies, impairment in HRQoL associated with overvaluation of weight or shape has been found to be more substantial for women than for men [11, 12]. In one recent, general population study, objective binge eating had a greater impact on men's mental health and psycho-social functioning than women's [11, 12]. Gender differences in the associations between HRQoL and other eating disorder features have been studied less extensively but tend to indicate that these features affect men and women's HRQoL equally [4]. Alternatively, or in addition, eating disorder features may *mediate* the association between gender and QoL. For example, women may tend to report poorer QoL than men partly because of the presence of eating disorder features, such as binge eating and extreme dietary restriction. It has been shown that discrepancies between men and women's HRQoL in primary care samples were accounted for by differences in the presence of mental health problems, including binge eating disorder [13], suggesting that the presence of certain eating disorder features may mediate the association between gender and HRQoL.

The goal of the present study was to further elucidate gender differences in the associations between eating disorder features and HRQoL. Given previous research, it was predicted that the overvaluation of weight/shape would negatively impact mental and physical HRQoL. It was also hypothesized that this association would be moderated by gender such that the adverse impact of shape and weight concern on mental and physical HRQoL would be greater for women. Extreme dietary restriction, objective and subjective bingeing, purging, excessive exercise, and eating disorder cognitions were expected to be negatively associated with mental HRQoL. The existing evidence did not, however, permit specific hypotheses regarding gender differences in these associations. Additionally, it was expected that the presence of eating disorder features would mediate the relationship between gender and HRQoL. Existing evidence did not allow for hypotheses regarding which features would mediate this relationship.

Methods

Participants and procedures

Participants were recruited through the undergraduate psychology program at the University of Hawai'i at

Mānoa. Undergraduates enrolled in psychology courses were offered class credit or extra credit for participation in research studies during the semester. As such, the possibility of participating was open to all undergraduate students in psychology classes, but it was not possible to collect data on the number of students who chose not to participate in the research. A total of 50 students registered for the electronic recruitment database and did not complete these questionnaires. All students using this system provided informed consent and completed the surveys electronically. In total, 709 participants were included in the analysis (228 males, 481 females). Of the participants, 52.3 % identified themselves as Asian or Pacific Islander ($n = 371$), 19.3 % as Caucasian ($n = 137$), 15.9 % as biracial or multiracial ($n = 113$), 5.1 % as Native Hawaiian, Native American, or American Indian ($n = 36$), 3.2 % as Hispanic ($n = 23$), 1 % as African American ($n = 7$), 2.1 % as other ($n = 15$), and 1 % declined to answer ($n = 7$).

Measures

Eating Disorder Examination Questionnaire (EDE-Q)

The EDE-Q was developed to provide a self-report alternative to the Eating Disorder Examination interview (EDE) [14] and is currently one of the most widely used self-report measures of eating disorder symptomatology. It assesses the occurrence and frequency of key eating disorder behaviors within the past 28 days (objective binge eating, subjective binge eating, vomiting to control weight or shape, laxative use to control weight or shape, excessive exercise to control weight or shape, and extreme dietary restriction to control weight or shape). In the present study, objective binge episodes were defined as episodes in which a loss of control over eating was experienced and an amount of food that others would regard as unusually large was consumed. Subjective binge eating was defined as episodes in which a loss of control over eating was experienced without a very large amount of food being consumed. Based on the remaining 22 items of the EDE-Q, which assess key cognitive aspects of eating disorder pathology (concerns about dietary intake, concerns about eating, concerns about weight, concerns about shape), a global EDE-Q score indicating overall levels of eating pathology may be calculated. Although subscale scores may also be computed, only the global score was utilized in the current study because the four-factor structure of the EDE-Q subscales has not been consistently supported [15, 16]. Global scores range from 0 to 6 with higher scores indicating greater eating pathology. Previous studies have shown the EDE-Q provides generally similar results to the EDE, although the occurrence and frequency of binge

eating episodes tend to be higher when using the EDE-Q [14, 17]. High internal consistency and test–retest reliability have also been established [18]. In the current sample, the EDE-Q had adequate internal consistency ($\alpha = .90$).

Short Form-12 Health Status Questionnaire (SF-12)

The SF-12 was used as the measure of HRQoL. Although the longer, 36-item version would have been preferable, the SF-12 has been used in a range of previous studies of QoL impairment among individuals with eating pathology and has the advantage of reducing participant burden [2, 19]. The SF-12 is a measure of the impact of physical and psychological health on quality of life. The items comprising this scale were selected from the original, longer measure (SF-36) based on their psychometric properties. The scale has 12 items and two weighted subscales: Physical Component Summary (PCS) and Mental Component Summary (MCS) [20]. PCS and MCS summary scores were created following the RAND scoring method [21], with each summary score created to have a mean of 50 and standard deviation of 10. The PCS score is a continuous variable indicating the extent to which individuals' physical health problems limits their activities and functioning, whereas the MCS score is a continuous variable indicating the impact of emotional health problems on activities and functioning. For both subscales, higher scores indicate lower levels of impairment. Good reliability and convergent validity have previously been established in various study populations [20]. In the current sample, Cronbach's alpha was equal to .60 for the PCS summary scores and .74 for the MCS summary scores. Previous studies utilizing the SF-12 in college student samples have documented Cronbach's alpha between .70 and .87 [22, 23].

Statistical analyses

Dichotomous variables were created to indicate the presence of objective binge eating, subjective binge eating, purging, excessive exercise, overvaluation of weight/shape, and the presence of extreme dietary restriction. Objective and subjective binge eating were deemed to be present if these behaviors occurred, on average, at least weekly during the past 4 weeks. Any presence of vomiting or laxative use was coded to indicate that purging was present. Excessive exercise was considered present if participants indicated 20 or more episodes of compulsive exercise in the past 4 weeks, whereas fasting for 6 or more days during the past four weeks was used to indicate the presence of extreme dietary restriction [7, 24]. If participants endorsed items on the EDE-Q indicating the importance of weight and/or shape in judgments of self (scores greater

than or equal to 5), they were coded as having weight/shape overvaluation [25]. With the exception of the items assessing overvaluation, the items assessing the occurrence and frequency of eating disorder features do not contribute to the EDE-Q global score, which is used as a continuous variable indicating overall levels of the cognitive aspects of eating pathology. The items assessing overvaluation were removed when calculating the EDE-Q global score in the current study. Standard EDE-Q cut points [24] were applied to determine the percentage of the participants likely to have clinically significant eating pathology based on a combination of attitudinal and behavioral items. Specifically, participants were categorized as "probable eating disorder cases" if they had overvaluation of weight and shape in conjunction with the occurrence of one or more eating disorder features as defined above. This operational definition has been found to identify individuals with high levels of eating disorder psychopathology in previous, population-based studies [24]. However, in the absence of interview assessment, such individuals should be considered probable eating disorder cases rather than individuals with eating disorders.

Independent samples *t* tests were used to determine whether the undergraduate men and women differed with respect to mental or physical HRQoL outcomes. Correlational analysis was followed by multiple linear regression analyses, run separately for men and women, to determine which variables were most strongly associated with HRQoL. Age and BMI were included as covariates in all multivariate analyses. Moderation analyses were conducted by running a series of regressions testing the moderation of the eating disorder features by gender in separately predicting mental component and physical component scores. In all analyses, dummy coded gender and the eating disorder feature were entered in step 1 of a hierarchical regression. The product of the eating symptom score and dummy coded gender was then entered in step 2. To control for multi-collinearity, continuous variables were centered before conducting moderation analyses. Mediation analysis was conducted using the Hayes Process Model [26] for SPSS v2.13 to determine whether eating disorder features might account for gender differences in HRQoL. Eating disorder features were considered to be a mediator if: (1) gender predicted the feature, (2) gender predicted HRQoL, and (3) the feature predicted HRQoL and resulted in gender having a significantly reduced association with HRQoL [27]. All analyses were conducted using SPSS version 22, and the alpha level was set to .05 for all analyses.

Missing data

A portion of participants failed to answer every question in each questionnaire, resulting in missing data for some scales. BMI had approximately 12 % missing data, while

purging had 9 % missing data, overvaluation of weight/shape had 2 % missing data, the EDE-Q global score had 4 % missing data, and PCS and MCS had approximately 6 % missing data in each. PCS and MCS scores for the SF-12 were created only for participants who answered all questions that would comprise the relevant component score, whereas the EDE-Q Global score was calculated when more than half of the relevant items had been answered [28]. For behavior-related items (e.g., objective binge eating, subjective binge eating, etc.), failure to answer a question was scored as non-endorsement of that behavior [28]. A categorical variable was created for each dependent variable to reflect the lowest 25 %, middle 50 %, and highest 75 % of respondents. Missing data flags were then created for each independent variable with missing data, and crosstabs analysis was used to determine whether missing data in any independent variable exceeded expected values across levels of the dependent variables. No independent variable had a significantly greater missing data count than that which was expected across levels of the dependent variables, indicating that the missing data are likely missing at random [29]. As a result, the Markov Chain Monte Carlo (MCMC) multiple imputation technique was used in SPSS to handle missing data for both the dependent and independent variables in the analyses. MCMC imputation involves using regression equations to insert plausible values for missing data based on observed values in all variables, creating 10 imputed data sets. The resulting analyses utilize the imputed data sets separately and subsequently pool the estimates according to Rubin's (1987) procedures to provide one set of parameter estimates [30]. The means, variances, skewness, and kurtosis statistics were reasonably similar for the original and imputed data sets. Further, final results were comparable when using listwise deletion.

Results

Gender and HRQoL

In total, 4.8 % of the male and 15.6 % of the female participants were classified as having clinically significant

Table 2 Proportion % of male ($n = 228$) and female ($n = 481$) participants reporting the occurrence of each eating disorder feature

	Men (%)	Women (%)
Objective binge eating	9.21	13.93
Subjective binge eating	4.39	15.59
Purging	3.07	6.03
Excessive exercise	8.33	5.82
Overvaluation of weight/shape	7.02	17.67
Extreme dietary restriction	5.26	6.03

eating pathology. Gender was a significant predictor of mental HRQoL such that women had poorer mental HRQoL ($B = -2.52$, $SE = .73$, $p = .001$), but was not a significant predictor of physical HRQoL ($B = -.89$, $SE = .50$, $p = .074$). The means, standard deviations, and t-tests for participants' mental and physical HRQoL are presented in Table 1. Table 2 presents the number of male and female participants coded as having each aforementioned eating disorder feature.

Bivariate correlations

The bivariate correlations between variables are presented in Table 3. In both undergraduate men and women, the EDE-Q global score had small to medium negative correlations with MCS and PCS scores. In women, binge eating, purging, and overvaluation of weight/shape had small negative correlations with MCS and PCS scores. Excessive exercise was not significantly associated with either MCS or PCS scores, whereas extreme dietary restriction was negatively associated with MCS scores only. In men, objective binge eating and overvaluation of weight/shape were negatively associated with MCS scores, while subjective binge eating, purging, and overvaluation of weight/shape were negatively associated with PCS scores. Extreme dietary restriction was not associated with PCS or MCS scores in men.

Multivariate analyses

Results of the multiple linear regression analyses indicated that EDE-Q Global scores were strongly associated with

Table 1 Descriptive statistics for male and female participants for all continuous measures

	Men Mean (SD)	Women Mean (SD)	$t(df)$	p	η^2
MCS	48.45 (8.65)	45.72 (8.82)	3.75 (665)	<.001	.02
PCS	51.74 (5.37)	50.77 (6.34)	1.93 (666)	.054	.01
EDE-Q global	1.00 (1.06)	1.90 (1.40)	-9.29 (532.82)	<.001	.14

EDE-Q Global indicates Eating Disorder Examination Questionnaire Global score, *HRQoL* Health-Related Quality of Life, *MCS* Mental Component Score, *PCS* Physical Component Score

Table 3 Correlations between eating disorder features, EDE-Q global scores, and HRQoL scores, separated by gender

	OBE	SBE	P	EE	EDR	W/S	E-G	MCS	PCS	BMI	Age
OBE		.45**	.22**	.12	-.01	.27**	.31**	-.17*	-.12	.09	-.02
SBE	.32**		.09	.09	-.05	.11	.19**	-.08	-.17*	.08	-.03
P	.13**	.18**		.24**	-.02	.28**	.10	-.11	-.16*	.08	-.01
EE	.21**	.16**	.12**		-.07	.16*	.25**	-.05	-.06	.13	.08
EDR	.15**	.23**	.28**	.09		.16*	.36**	-.08	-.11	.15	.06
W/S	.28**	.33**	.27**	.21**	.23**		.41**	-.21**	-.20**	.14	.04
E-G	.36**	.42**	.29**	.22**	.42**	.62**		-.20**	-.27**	.38**	.17*
MCS	-.18**	-.20**	-.22**	-.04	-.14**	-.21**	-.32**		.42**	.05	.003
PCS	-.18**	-.15**	-.18**	-.02	-.09	-.18**	-.27**	.44**		-.12	.03
BMI	.11*	.07	<.001	-.02	.09	.29**	.32**	-.01	-.18**		.12
Age	.09	.03	-.12**	.04	.05	.17**	.09	-.06	-.11*	.29**	

Correlations between variables in male participants ($n = 228$) are above the diagonal, and correlations between variables in female participants ($n = 481$) are below the diagonal

EDE-Q Eating Disorder Examination Questionnaire, *HRQoL* Health-Related Quality of Life, *OBE* Objective Binges, *SBE* Subjective Binges, *P* Purging, *EE* Excessive Exercise, *EDR* Extreme Dietary Restriction, *W/S* Overvaluation of Weight/Shape, *E-G* EDE-Q Global Score, *MCS* Mental Component Score, *PCS* Physical Component Score

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

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

Table 4 Results of multiple regression analyses with mental health-related quality of life as measured by the SF-12 MCS and physical health-related quality of life as measured by the SF-12 PCS regressed on eating disorder features, eating disorder cognitions as measured by the Eating Disorder Examination Questionnaire (EDE-Q) global score, age, and BMI

Independent Variables	MCS		PCS	
	Male B (SE)	Female B (SE)	Male B (SE)	Female B (SE)
Objective binge eating	-2.49 (2.38)	-1.65 (1.25)	.31 (1.48)	-1.64* (.91)
Subjective binge eating	1.82 (3.36)	-1.30 (1.22)	-3.98* (1.91)	-.43 (.92)
Purging	.47 (4.56)	-4.45* (1.89)	.55 (3.23)	-3.43* (1.37)
Excessive exercise	.32 (2.28)	2.57 (1.76)	.34 (1.38)	1.45 (1.29)
Overvaluation of weight/shape	-4.05 (2.60)	-.19 (1.35)	-1.98 (1.68)	.48 (.98)
Extreme dietary restriction	-1.17 (3.03)	.96 (1.84)	-.95 (1.81)	1.37 (1.37)
EDE-Q global score	-1.48* (.72)	-1.82*** (.44)	-1.10** (.43)	-.90** (.32)
Age	.02 (.15)	-.12 (.12)	.09 (.09)	-.09 (.09)
BMI	.25 (.15)	.19 (.12)	-.05 (.10)	-.15 (.09)

Variance Inflation Factor (VIF) values across all regression models ranged from 1.05 to 2.37

EDE-Q Eating Disorder Examination Questionnaire, *MCS* Mental Component Score, *PCS* Physical Component Score

* Indicates significance at $p < .05$

** Indicates significance at $p < .01$

*** Indicates significance at $p < .001$

greater impairment in participants' PCS and MCS. Subjective binge eating was associated with poorer PCS in men and objective binge eating was significantly associated with lower PCS scores in women (see Table 4). For women, purging was also associated with worse PCS and MCS.

The regression models were significant in predicting women's mental HRQoL ($R^2 = .14$, $F(9, 452) = 7.64$,

$p < .001$) and physical HRQoL ($R^2 = .11$, $F(9, 452) = 6.32$, $p < .001$). The regression models were also significant in predicting men's mental HRQoL ($R^2 = .08$, $F(9, 201) = 2.51$, $p = .01$) and physical HRQoL ($R^2 = .13$, $F(9, 201) = 3.84$, $p = .001$). When taking other variables into account, the EDE-Q global score accounted for the largest proportion of variance in undergraduate students' mental HRQoL (men: partial

Table 5 Results of the multiple regression analyses showing the interaction between gender and eating disorder features, with continuous variables centered to reduce multi-collinearity

	MCS				PCS			
	B	SE	<i>t</i>	<i>p</i>	B	SE	<i>t</i>	<i>p</i>
OBEs	.38	2.33	.16	.87	−1.03	1.66	−.62	.54
SBEs	−1.52	3.17	−.47	.63	1.92	2.10	.92	.36
Purging	−2.54	4.22	−.60	.55	.38	2.87	.13	.90
Excessive Exercise	.06	2.89	.02	.99	.66	2.04	.32	.75
Overvaluation of weight/shape	2.11	2.69	.78	.43	1.23	1.78	.69	.49
Extreme dietary restriction	−2.12	3.31	−.64	.52	.34	2.26	.15	.88
EDE-Q Global	−.40	.62	−.65	.52	.18	.43	.42	.67

Given the current sample size and using a $p < .05$ standard of significance, the models had 80 % power to detect a minimum $f^2 = .011$. Given the current sample size and using a Bonferroni adjustment for 14 analyses ($p < .0035$), the models had 80 % power to detect a minimum $f^2 = .019$, $f^2 = .1$ is considered a small effect size

EDE-Q Eating Disorder Examination Questionnaire, *MCS* Mental Component Score, *PCS* Physical Component Score, *HRQoL* Health-Related Quality of Life, *OBE* Objective Binge Eating, *SBE* Subjective Binge Eating

correlation = $-.15$, women: partial correlation = $-.20$) and in their physical HRQoL (men: partial correlation = $-.18$, women: partial correlation = $-.14$).

Results of the moderation analysis indicated that while there was a stronger association between the EDE-Q global scores and MCS scores in undergraduate women than in undergraduate men, the moderating effect of gender was not statistically significant. Similarly, gender did not moderate the relationships between any of the eating disorder symptoms and PCS or MCS scores. Table 5 reports the significance of the interaction terms.

Only the associations among EDE-Q Global, gender, and mental HRQoL fulfilled the criteria to conduct a mediation analysis [27]. Results of the mediation analysis indicated that the EDE-Q Global score mediated the association between gender and mental HRQoL ($\beta = -1.80$, $SE = .34$, Asymmetric Confidence Interval: -2.56 , -1.23). Given that gender was not significantly associated with physical HRQoL, mediation analyses were not conducted with these variables [27].

Discussion

This study provided further evidence of the significant impact of eating disorder features, and particularly eating disorder cognitions, on HRQoL. The finding that the EDE-Q global score was the strongest predictor of undergraduate students' mental and physical HRQoL suggests that, for individuals with eating pathology and significant impairment in HRQoL, addressing eating disorder cognitions may be particularly important. The fact that the impact of these features on HRQoL did not differ between undergraduate men and women underscores the importance of including

men in future research of this kind rather than focusing treatment and prevention efforts on women. The finding that eating disorder cognitions accounted, in part, for the poorer HRQoL observed in undergraduate women than in men suggests that the role of eating disorder pathology needs to be taken into account when considering the gap between men and women's HRQoL.

Findings indicating that binge eating and restriction are not significant predictors of men or women's mental HRQoL differ from previous studies indicating that these variables do impact mental HRQoL [7, 12, 13]. The finding that eating disorder cognitions have a stronger relationship with participants' mental HRQoL than do eating disorder behaviors, should it prove replicable, has clinical implications, namely, that targeting eating disorder cognitions during treatment may be particularly important in improving patients' quality of life. Previous studies documenting strong associations between eating disorder behaviors and QoL may not have assessed eating disorder cognitions or included this variable in analysis [12]. This may account for differences between the present findings and previous studies. Such discrepancies also likely reflect, in part, the characteristics of the different study populations sampled across studies [6, 7].

Consistent with findings from previous studies, objective binge eating, subjective binge eating, and purging were negatively associated with physical HRQoL in the current research [7, 12]. Objective binge eating was a predictor of physical HRQoL impairment in women, while subjective binge eating was a predictor of physical HRQoL impairment in men. This latter difference could be related to previously mentioned inconsistencies in capturing binge eating using the EDE-Q [14, 17]. Both binge eating and purging are associated with physical health complications,

including stomach pain, constipation, esophageal irritation, and, in some cases, impairment in cardiac functioning. The observed associations may reflect the impact of these conditions on health status. Purging was also associated with decreased mental HRQoL in women, consistent with previous literature examining the impact of laxative use on HRQoL [7].

Of particular interest is the finding that the impact of eating disorder features on HRQoL did not vary by gender. This finding, which is consistent with findings from recent, population-based studies [4, 12], highlights the importance of devoting both research and clinical attention to eating disorder features in men rather than directing research and treatment efforts toward women only. Many eating disorder features are occurring with more frequency in men [12], making the need for prevention and early intervention programs that include men more pressing. The current findings also confirm the importance of including men in future community-based studies of HRQoL impairment associated with eating pathology.

In the current study, eating disorder cognitions were found to mediate the association between gender and HRQoL. This finding is notable in that it might account, at least in part, for the observation in previous population-based research that women tend to report poorer HRQoL [11, 31, 32]. Although the current analyses indicate a full mediation, there are likely other variables contributing to differences between undergraduate men and women's HRQoL that were not included in this study; this should be interpreted to mean that only a portion of the effect of gender on mental HRQoL can be attributed to eating disorder symptomatology. Again, this finding highlights the importance of clinicians' attunement to these cognitions. If we hope to improve women's overall QoL such that gender differences no longer exist, then reducing the occurrence of eating disorder cognitions may be particularly important.

Although this study adds new information to extant literature addressing the associations between eating disorder pathology, gender, and HRQoL, methodological limitations need to be considered. First, the use of a college student sample may limit generalizability to the broader population. On the other hand, eating pathology is particularly common in college students [33], making the use of a college student sample relevant. Second, self-report assessment of certain eating disorder behaviors, binge eating in particular, is known to be less reliable than interview assessment [14, 34]. This may account for some of the discrepancies seen between the current and previous studies' findings regarding the associations between specific eating disorder behaviors and HRQoL. Further, the findings relating to men were likely affected by the relatively smaller number of male participants and the low prevalence of certain features in males. Larger samples of

men and/or samples selected for high levels of eating pathology will be needed to address this challenge in future research [12]. Third, caution is needed when interpreting the results of the correlational and multivariable analyses in the current study because some potentially important covariates (e.g., SES, marital status) were not assessed. Further, any conclusions concerning the direction of the observed associations are necessarily tentative, given the use of a cross-sectional study design. Findings from one recent study suggest that the associations between eating disorder features and QoL impairment are indeed bi-directional [35]. Additionally, the SF-36 is better studied than the SF-12, and the comparatively low reliabilities for the PCS and MCS scales in this study limit the conclusions that can be drawn. Finally, the use of a generic quality-of-life measure may have limited our ability to measure unique features of QoL impairment in those participants with high levels of eating pathology. For example, physical HRQoL, as measured by the SF-12 PCS, may reflect, in part, the high levels of weight/shape-driven physical activity frequently observed among individuals with eating disorders. Ideally, both generic and eating disorder-specific QoL measures would be used in future research of this kind [2, 13, 36].

Future studies could potentially use an eating disorder-specific QoL assessment, such as the Eating Disorder Quality of Life instrument [37] or the Clinical Impairment Assessment [38], rather than a general HRQoL scale. This may add valuable information to our current understanding of the relationships between gender, eating disorder symptomatology, and HRQoL in that these scales are designed specifically to assess the impact of eating disorder symptomatology on HRQoL.

Despite its limitations, the findings from this study add to a body of literature emphasizing the importance of addressing eating disorder features in health promotion, prevention, and early intervention programs for both men and women, given the adverse impact of these features on quality of life. A focus on eating disorder cognitions may be particularly important for achieving improved HRQoL.

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