

Life Satisfaction among a Clinical Eating Disorder Population

Elizabeth Claydon (✉ elizabeth.claydon@hsc.wvu.edu)

West Virginia University School of Public Health <https://orcid.org/0000-0002-8153-5132>

Caterina DeFazio

West Virginia University School of Public Health

Christa L. Lilly

West Virginia University School of Public Health

Keith J. Zullig

West Virginia University School of Public Health

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Abstract

Background

The primary objective was to understand life satisfaction (LS) of patients with eating disorder (ED) diagnoses in relation to eating pathology severity, personal/familial ED history, and key demographic and anthropometric variables. *Methods:* Participants (N = 60) completed the Satisfaction with Life Scale (SWLS), the Eating Pathology Severity Index (EPSI), and demographic questionnaires. Bivariate associations via correlations and multiple linear regression models were used to explore these relationships.

Results

The average SWLS score was 3.7 out of 7, suggesting below average LS. LS was statistically significantly associated with private insurance, past ED, EPSI muscle building, EPSI restricted eating, and EPSI negative attitudes. When included in multiple linear regression, the model explained 33% of the variability of LS [F (7, 56) = 3.4, p = 0.0054, R² = 0.33]. EPSI muscle building remained the strongest predictor ($\beta = 0.13$, p = 0.04).

Conclusions

Based on the data, individuals who have/have had EDs on average score lower on the SWLS than the general population. Individuals scoring within this range typically experience significant issues in several areas of life or a substantial issue in one area. Findings suggest a need for interventions that focus on improving LS in hopes of simultaneously reducing ED symptoms.

Plain Language Summary

The goal of this study was to assess life satisfaction of individuals with eating disorder diagnoses. We also looked at the connection of their life satisfaction with the severity of their symptoms, family history of eating disorders, and other personal characteristics. For this study, we collected questionnaires from 60 participants who had a clinical diagnosis of an eating disorder. Our analyses showed that life satisfaction was below average and was significantly associated with private insurance, a past eating disorder, and some specific eating disorder symptoms. These findings can help inform interventions that focus on both improving life satisfaction and eating disorder symptoms.

1. Background

Promoting healthy development, healthy behaviors, and well-being across all life stages is a primary overarching Healthy People 2030 goal from the United States (US) Department of Health and Human

Services. Therefore, methods for improving quality of life (QOL) remain a priority for reaching 2030 goals. QOL can be measured objectively through income level, access to health care, etc. (Campbell, 1976). However, life satisfaction (LS) is frequently used as an indicator of QOL by asking individuals to provide long-term positive and negative evaluation (Diener, 1984; Diener et al., 1999; Shin & Johnson, 1978; Siahpush, Spittal & Singh, 2008). Diener (1984) defines LS as the cognitive assessment an individual makes regarding their feelings and attitudes relative to their life at the time.

LS research is receiving increased interest owing to associations with numerous health conditions such as asthma, diabetes, obesity, arthritis, and heart disease (Strine et al., 2008). Positive LS has been shown to be significantly related to successful life adaptation while negative LS has been related to anxiety and depression (Magallares et al., 2014). It is not atypical for individuals with an eating disorder (ED) to also have a diagnosis of depression (Hughes, 2012) or anxiety (Swinebourne, 2012). However, LS among individuals with EDs remains relatively underexplored, which may be a barrier in providing effective care and preventing relapse (Kitsantas, Gilligan & Kamta, 2003). This is surprising given research suggesting improved QOL is related to better ED treatment outcomes, including motivation to change one-year post treatment (Muñoz et al., 2012), and reductions in ED psychopathology, depression, and anxiety 6-months post treatment (Leung, Joyce & Russell, 2013).

EDs carry high mortality risks (Smink, Van Hoeken & Hoek, 2012) and are more frequently diagnosed in young women than men (Qian et al., 2013). The three most common EDs are anorexia nervosa (AN), bulimia nervosa (BN) and Other Specified Feeding or Eating Disorders (OSFED) (Hudson et al., 2007). According to the DSM-5 (American Psychological Association, 2013), AN is characterized by an irrational fear of gaining weight, distorted body image, excessive food restriction, amenorrhea, and weight issues (< 85% of clinically standard weight). BN is characterized by bingeing and purging and typically measured by those who may engage in excessive exercise, vomiting, laxatives, and/or diuretics use. Finally, OSFED is a category reserved for those EDs which do not meet the criterion for AN or BN.

To our knowledge, there is little literature exploring the association between LS and EDs in a clinical population. In a Spanish study by Magallares et al. (2014), the relationship between anorexia nervosa (AN), bulimia nervosa (BN), Other Specified Feeding and Eating Disorders (OSFED), and Subjective Well-Being (SWB; includes positive and negative affect as well as LS) was explored. This study found women with EDs reported lower SWB than those in the control group. Kitstankas et al. (2003) found college students diagnosed with EDs reported significantly lower levels of LS as well as higher levels of negative affect than those at-risk (do not meet ED criteria without more in-depth clinical evaluation) for EDs or at normal weight. Other research indicates individuals who have fully recovered from AN have similar LS scores to healthy controls, while those who have poor outcomes at the end of treatment have significantly lower LS (Halvorsen & Heyerdahl, 2006) and QOL.

The current study seeks to improve the extant literature by utilizing the well-validated and widely used Satisfaction with Life Scale (SWLS; Diener et al., 1985) and draws from a clinical population in four different US states allowing geographic diversity. The primary study aim was to understand LS in a

clinical population of patients with ED diagnoses. Based on the results by Magallares et al. (2014), we hypothesized that individuals in this population would report lower LS than population-based norms without an ED diagnosis also using the SWLS. Exploratory study aims were to examine subgroup analyses to understand the association between LS and other demographic characteristics such as ED history, insurance coverage, BMI, and income level for the first time. Such analyses are expected to provide treatment providers and researchers descriptive data to help improve treatment outcomes for those with EDs.

2. Methods

2.1 Measures

The *Eating Pathology Symptom Inventory (EPSI)* was provided to assess ED symptoms (Forbush et al., 2013). This inventory contains a total of 45 Likert scale items (ranging from *Never* to *Very Often*) with eight separate subscales: Body Dissatisfaction, Binge Eating, Cognitive Restraint, Purging, Restricting, Excessive Exercise, Negative Attitudes towards Obesity, and Muscle Building. The EPSI displays excellent estimates of validity, internal consistency ($\alpha = 0.84\text{--}0.89$) and test-retest reliability (Pearson $r = 0.73$; Forbush et al., 2013). Within our sample, we found high internal reliability ($\alpha = 0.93$).

Satisfaction with Life Scale (SWLS) (Diener et al., 1985 & 2006): This scale consists of five items measuring a participant's satisfaction with life using a Likert (1–7) scale. A global score is calculated by summing the scores from the five items or an average can be taken from that global score. The internal reliability of the SWLS in our sample was high, ($\alpha = 0.92$).

2.2 Data Collection

Participants were recruited through four distinct ED treatment sites (methods described in previous publication; Claydon et al., 2019). The survey was also advertised with permission through an ED Network in a mid-Atlantic US state.

2.3 Participants

A total of 65 participants were recruited between January and March of 2017; participants were included in the analysis if they provided demographic information, completed the SWLS, and completed the EPSI, reducing the total sample to 60.

2.4 Human Subjects

This study was filed with the referent university's Institutional Review Board and exempt status was acknowledged (IRB#: 1609282716). A copy of the complete survey was published previously (Claydon et al., 2019). Qualtrics software was used to host and distribute the survey and no protected health information (PHI) was obtained.

2.5 Data Analysis

Data were described using frequencies and valid percentages for categorical variables, and means and standard deviations for continuous variables. To answer the primary research question, bivariate Pearson correlations were run to understand the relationship between variables. Then multivariable ordinary least square linear regressions using stepwise selection were run with predictors of average LS. An initial model for average LS was run with covariates and then a second model was run with covariates as well as bivariate associations with p-values smaller than 0.1. Regression assumptions were checked prior to analyses. All data analyses were conducted using SAS JMP® 14.0.

3. Results

3.1 Descriptive statistics

Most participants were white (96.7%) and female (93.3%). The average was 31.8 (SD = 9.9) years and the majority reported a college education or higher (78.3%) and a past ED diagnosis (73.3%). Other sample demographic characteristics are located in Table I. The average SWLS score was 3.7 (SD = 1.6) out of 7, suggesting below average LS (Diener, 2006).

3.2 Bivariate and inferential statistics

LS was statistically significantly associated with two demographics: private insurance ($r = 0.36$, $p = 0.008$) and past ED ($r = 0.36$, $p = 0.008$). No other demographic variables were significantly associated with LS. LS was significantly correlated with the following EPSI subscales: EPSI muscle building ($r = 0.28$, $p = 0.044$), EPSI restricted eating ($r = -0.28$, $p = 0.044$), and EPSI negative attitudes ($r = -0.27$, $p = 0.054$). EPSI body dissatisfaction ($r = -0.25$, $p = 0.067$) and EPSI purging ($r = -0.23$, $p = 0.091$) were also included in the model as the bivariate associations were below the a-priori determined alpha of 0.10.

When all variables with bivariate statistical significance below the a-priori alpha were included in a multiple linear regression, the model (Model 2 in Table II) explained 33% of the variability in LS [$F(7, 56) = 3.4$, $p = 0.0054$, $R^2 = 0.33$]. EPSI muscle building remained the strongest and only statistically significant predictor ($\beta = 0.13$, $p = 0.04$). While demographic and sample characteristics of past ED and private insurance explained 24% of the variability in LS, the EPSI subscale explained an additional 9% variability in LS.

4. Discussion

Preliminary results support our hypothesis that individuals with EDs would have lower LS than those in the general public. Pavot and Diener (2008) state that a sum score of 20 ($M = 4.00$) is considered neutral. Magallares et al. (2014) found women with EDs had lower SWB ($M = 3.39-3.97$) scores than the control group ($M = 5.08$). According to Maltby and Day (2004), English adults reported an average SWLS sum score of 23.0 ($M = 4.6$) for men and 23.7 ($M = 4.74$) for women. The average SWLS score in our study

sample was 3.7. Therefore, our results are consistent with Magallares et al.'s (2014) finding. These results are not necessarily unexpected given that negative attitudes, body dissatisfaction, restricted eating, and purging were expected to have a negative correlation with LS. However, novel findings from the exploratory analysis suggest that past EDs and having private insurance are positively correlated to LS. Although somewhat speculative, a possible explanation for this finding with past ED could be that these individuals have moved beyond initial resistance to treatment because they recognize the severity of their ED and no longer hide their symptoms from others. Thus, this self-awareness may make these individuals less refractory toward seeking professional help when symptoms of the ED recur (Williamson et al., 1999). From a resources theory viewpoint (Diener & Fujita, 1995), individuals with a greater number of assets (economic, social, and personal) are better able to meet their needs compared to those with fewer assets. Thus, combined with potentially greater personal self-awareness assets perhaps resulting from a previous ED diagnosis and associated increased family social support, the positive finding with private insurance could be that having private insurance (i.e. economic resources) also provided these individuals better treatment options thus improving their LS.

An unexpected finding was that muscle building was the strongest positive predictor of LS even after accounting for multiple covariates and other ED correlates. Sample questions from the EPSI muscle building subscale include "I used muscle building supplements," "I thought my muscles were too small," and "I thought about taking steroids as a way to get more muscular." One could interpret this through the lens that muscle building is sometimes viewed positively in the ED culture. For example, fads in popular media such as "strong is the new beautiful" (Vonn & Toland, 2016) idolize the idea that muscle building is good and not pathological. Nevertheless, this preliminary finding would need to be substantiated in other clinical ED samples.

4.1 Limitations

4.1.1 This study is subject to limitations. First, the results from our cross-sectional study design cannot be considered causal. A longitudinal study would assist in clarifying the associations found. Second, the small, clinical sample and convenience sampling limits generalizability, however, this is a traditionally difficult population to access. There were a greater number of females (N=56) than males (N=4) and based on the significance found between the SWLS and the EPSI muscle building scores, future research could benefit from collecting data from an equal proportion of males and females to gain a deeper understanding of this association and how it could possibly relate to sex.

4.2 Strengths

4.2.1 The data was collected from a clinical population which, apart from Magallares and colleagues (2014), has not been researched in relation to LS and EDs. Thus, our study helps to fill a previous gap in the literature. This data can assist in providing information that has the potential to be an asset to clinical work. Another strength is that the SWLS and EPSI are widely used, validated scales that can be used in future replication studies with this population.

4. Conclusion

Results from this study suggest that clinical ED populations experience lower LS than those in the general population. Additionally, those who reported a previous ED diagnosis and private insurance coverage were likely to have higher LS, suggesting important personal, social and economic resources may impact LS. Results also suggest future research should explore the positive association with LS and EPSI muscle building to gain a more comprehensive understanding of how this measure is being interpreted by participants. Overall, additional research is needed about clinical ED populations' LS. However, this study has potential implications for care and suggests that attending to one's LS may be a consideration in ED treatment along with traditional treatments focused on symptom reduction because even small changes could result in increased LS. For example, strategies to increase positive affect (and thus LS) like self-acceptance and personal development/relationships with others, may work synergistically by reducing depression and anxiety (Al Nima & Garcia, 2015).

Abbreviations

AN – anorexia

BMI – body mass index

BN – bulimia

DSM-5 – Diagnostic and Statistical Manual of Mental Disorders - 5

ED(s) – Eating Disorder(s)

EPSI – Eating Pathology Severity Index

LS – Life Satisfaction

PHI - protected health information

OSFED – Other Specified Feeding or Eating Disorders

QOL – quality of life

SWB – subjective well-being

SWLS – Satisfaction with Life Scale

Declarations

Funding

No funding to report/Not applicable

Consent for Publication

Not applicable

Conflicts of Interest/Competing interests

No conflicts of interest to report.

Ethics Statement

This study was filed with West Virginia University's Institutional Review Board and exempt status has been acknowledged (IRB: 1609282716).

Availability of data and material

The datasets used and analyzed as well as code used during the current study are available from the corresponding author on reasonable request.

Authors' contributions

Elizabeth A. Claydon – Developed the original project, assisted with participant recruitment and data collection, analyzed data, contributed to manuscript writing and editing.

Caterina DeFazio – Contributed to literature review, data analysis/interpretation, conclusions, discussions, and review.

Christa L. Lilly – Assisted with data analysis, provided statistical consultation, contributed to manuscript development and editing.

Keith J. Zullig – Provided oversight to original study, recruitment, and data collection. Contributed to manuscript development and editing.

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Tables

Table I. Demographic Characteristics (N = 60)

Characteristic	N (%)	M (SD)
Life Satisfaction (avg.)		3.7 (1.6)
Age		31.8 (9.9)
Gender		
Male	4 (6.7)	
Female	56 (93.3)	
Race/ethnicity*		
White	58 (96.7)	
Other	2 (3.3)	
College Education or Higher		
Yes	47 (78.3)	
No	13 (21.7)	
Annual Family Income		
< \$46,000	14 (23.3)	
\$46,000 - \$100,000	21 (35.0)	
>\$100,000	18 (30.0)	
Prefer not to answer	7 (11.1)	
Parent		
Yes	13 (21.3)	
No	47 (78.7)	
Private Insurance		
Yes	45 (75.0)	
No Medicare	15 (25.0)	
Any Past Eating Disorder Diagnosis		
Yes	44 (73.3)	
No	16 (26.7)	
Any Current Eating Disorder Diagnosis		
Yes	34 (56.7)	

No	26 (43.3)
BMI^c	22 (6.8)
Underweight	13 (22.4)
Healthy Weight	36 (62.1)
Overweight	3 (5.2)
Obese	6 (10.3)
EPSI - Body Dissatisfaction	25.3 (6.5)
EPSI - Restricted Eating	15.7 (6.0)
EPSI - Cognitive Restraint	10.1 (3.4)
EPSI - Purging	10.4 (6.6)
EPSI - Excess Exercise	13.0 (6.5)
EPSI - Negative Attitudes	11.9 (6.6)
EPSI - Muscle Building	7.6 (3.5)
EPSI - Binge Eating	17.9 (8.6)

^a Missing information for 2 participants

^b Missing information for 6 participants

^c Using CDC BMI categories

Table II. Multivariable linear regression using stepwise regression with predictors of average life satisfaction. The second model includes covariates and bivariate associations. (N=56)

	Model 1				Model 2			
	Covariates				Covariates + Bivariate Associations > .1			
Overall Model	F	df	p	R ²	F	df	p	R ²
	8.9	2	.0004*	0.24	3.4	7	.0054*	0.33
Predictors of Avg. Life Satisfaction Score	$\beta \pm SE$		p			$\beta \pm SE$		p
Intercept	1.93 \pm 0.45		<.0001**			2.81 \pm 1.16		0.0191
Any Past ED	1.17 \pm 0.41		0.006*			0.83 \pm 0.45		0.072
Private Insurance	0.19 \pm 0.36		.0059*			0.92 \pm 0.50		0.074
EPSI Body Dissatisfaction						-0.04 \pm 0.03		0.2738
EPSI Restricted Eating						-0.0005 \pm 0.04		0.9898
EPSI Negative Attitudes						-0.01 \pm 0.04		0.7302
EPSI Muscle Building						0.13 \pm 0.06		0.0419*
EPSI Purging						-0.02 \pm 0.04		0.5486

* p < .05

** p < .0001