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## Impact of obsessive-compulsive disorder on quality of life

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### Abstract

**Background**—Although obsessive-compulsive disorder (OCD) has been found to be the 10th leading cause of disability of all medical conditions in the industrialized world, comparatively little is known about psychosocial functioning and quality of life (QOL) in OCD, particularly with regard to their relationship with symptom severity.

**Method**—Quality of life and psychosocial function of 197 adults were assessed as part of a larger intake interview for a 5-year prospective study of OCD course. Two self-report measures (the Quality of Life Enjoyment and the Medical Outcomes Survey 36-Item Short-Form Health Survey) and 2 clinician-rated measures (the Range of Impaired Functioning Tool and the Social and Occupational Functioning Assessment Scale), each with established reliability and validity, were administered. Symptom severity was assessed with the Yale-Brown Obsessive-Compulsive Scale (YBOCS).

**Results**—Quality of life was significantly impaired compared with published community norms with large effect sizes found for all domains assessed. The correlations ( $r$ ) between all QOL measures and the YBOCS total score were significant, ranging from 0.40 to 0.77. Correlations between the YBOCS obsessions subscore and QOL measures were higher than those found between the YBOCS compulsions subscore and QOL. Insight as measured by the Brown Assessment of Beliefs Scale was significantly correlated with 5 of the 7 measures, although more modestly than the YBOCS correlations ( $r = 0.22$  to 0.37). Subjects with a YBOCS score of 20 or higher had significant decline in QOL compared with those subjects with YBOCS scores lower than 20. Severity of obsessions and depressive symptoms, as well as marital status, were significant predictors of impairment in QOL.

**Conclusions**—These findings indicate that all aspects of QOL are markedly affected in individuals with OCD and are associated with OCD severity (particularly obsessional severity) and depression severity. Exploratory results suggest that QOL and psychosocial functioning begins to be more significantly affected at YBOCS scores higher than 20. This score might be considered as a threshold criterion for OCD for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.

### 1. Introduction

Given that obsessive-compulsive disorder (OCD) is the 10th leading cause of disability of all medical conditions in the industrialized world [1], comparatively little is known about psychosocial functioning and quality of life (QOL) in OCD, particularly with regard to their relationship with symptom severity. Although there have been several previous studies of QOL in OCD, they have, in general, been limited by small sample size, lack of standardized or objective clinical ratings, and sample biases due to exclusion criteria limiting Axis I and Axis II comorbidity.

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Several studies have investigated impairment found in individuals with OCD using self-report measures sent to members of national organizations involved in OCD [2-4]. Two studies evaluated the relationship between severity of OCD symptoms and QOL [5,6], whereas other studies assessed the role of treatment in improving QOL [7-10]. All these studies reported substantial impairment in QOL in OCD.

This is the first study, to our knowledge, to assess multiple aspects of QOL in individuals with OCD using both rater-administered and self-report standard measures in a large sample of affected individuals seeking treatment for OCD, with no exclusions based on comorbid Axis I or II disorders. We hypothesized that all aspects of QOL would be affected, and that severity of OCD symptoms and depressive symptoms would be associated with impairment in QOL.

## 2. Methods

### 2.1. Subjects

Participants were 197 consecutive adult individuals recruited to be part of a 5-year prospective naturalistic study of course of illness in OCD. Inclusion criteria were 18 years or older, primary OCD (defined as the disorder participants considered their biggest problem overall), and treatment seeking. Recruitment was from a large OCD clinic, group psychiatric practices, psychologists' offices, and mental health clinics in Rhode Island and Massachusetts. The only exclusion criterion was having an organic mental disorder so that the person was unable to understand the nature of the study. After signing written informed consent, participants were interviewed for the baseline interview by a research assistant trained in the use of the instruments described below. Interviewers went through a rigorous training process consisting of a training period, followed by a series of observed and taped interviews. Each case was presented at a weekly conference to review diagnoses and psychosocial impairment to ensure ongoing consistency in ratings.

Of the 197 subjects participating in this study, 112 (56.9%) were women. Minorities accounted for 4% of the participants (3 subjects were Hispanic, 2 subjects were Asian, and 3 subjects were African American). The mean age of the sample was 40.6 years ( $SD = 12.9$ ). Seventy (35.5%) subjects were single, 86 (43.6%) subjects were married, and 31 (15.7%) subjects were separated or divorced. Eighty-four (42.6%) of the subjects had graduated from college.

### 2.2. Assessments

**2.2.1. Yale-Brown Obsessive-Compulsive Scale**—This rater-administered 10-item scale with specific probes and anchors assesses severity of 5 domains for obsessions and compulsions. These domains include time, distress, interference, resistance, and control. This scale, which has established reliability and validity, is widely accepted as the major outcome measure for OCD [11]. The symptom checklist, which is included in the Yale-Brown Obsessive-Compulsive Scale (YBOCS), lists 53 obsessions and compulsions. The patient is asked to endorse which specific obsessions and compulsions apply to him/her.

**2.2.2. Brown Assessment of Beliefs Scale**—This 7-item semistructured interview assesses degree and presence of delusional thinking. It has acceptable reliability and validity and is sensitive to medication-induced changes in insight [12]. Brown Assessment of Beliefs Scale (BABS) items are scored on a 5-point scale and assess the following dimensions of delusional thinking during the past week: conviction, perception of others' views, explanation of differing views, fixity, attempt to disprove beliefs, insight, and ideas/delusions of reference. Higher scores indicate poorer insight.

**2.2.3. Modified Hamilton Rating Scale for Depression**—The Modified Hamilton Rating Scale for Depression (MHRSD) is a modified version of the Hamilton Rating Scale for Depression, a widely accepted measure of depression symptoms and severity. The MHRSD has specific probes and anchors. The validity of the MHRSD has been established by comparing it to the original Hamilton Rating scale for Depression [13]. We used the 25-item scoring method.

**2.2.4. Quality of Life Enjoyment and Satisfaction Questionnaire**—This self-report instrument with demonstrated reliability and validity consists of 91 items grouped into 8 summary scales: general activities, physical health, emotional well-being, household duties, leisure time activities, social relations, work, and school [14]. For each Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) summary scale, raw scores for each subject were transformed into a score from 0 to 100. Lower scores indicate more impaired functioning and QOL. The Q-LES-Q short form consists of 14 items from the general activities subscale and may be used to rate overall QOL. Q-LES-Q scores were compared with a nonclinical community sample (n = 89) (J Endicott, personal communication).

**2.2.5. Social and Occupational Functioning Assessment Scale**—The Social and Occupational Functioning Assessment Scale (SOFAS) assesses social and occupational functioning on a continuum of 0 to 100, with lower scores indicating poorer functioning. Unlike the Global Assessment of Functioning (GAF), the individual's psychologic and psychiatric symptoms do not influence this rating [15].

**2.2.6. Medical Outcomes Survey 36-Item Short-Form Health Survey**—This widely used instrument measures mental and physical aspects of health and health-related QOL [16, 17]. The mental health subscales are mental health (psychologic distress and well-being), role limitations due to emotional problems, and social functioning. The physical health subscales are physical functioning, role limitations due to physical health problems, and bodily pain. Two additional subscales are vitality (energy vs fatigue) and general health. Subscale scores range from 0 to 100; lower scores indicate poorer QOL.

**2.2.7. Range of Impaired Functioning Tool**—Psychosocial functioning is rated using the Range of Impaired Functioning Tool (LIFE-RIFT), a reliable and valid rater-administered instrument that assesses the following domains: work, household duties, student work, interpersonal relationships with family and friends, recreation, satisfaction (subject rated), and global social adjustment [18]. Scores for each domain range from 1 to 5 with the higher number representing more impairment. All scores above 2 indicate some degree of impairment. The total score is the sum of work (represented by the highest score reported for work, household functioning, or student work), recreation, relationships with family, and satisfaction, using the highest (worse) rating on each domain.

### 2.3. Statistical analyses

Mean scores for all scales were calculated. Pearson product moment correlation coefficients were conducted to assess the relationship between clinical features of OCD (such as severity of illness and insight) and QOL. Effect sizes were calculated to estimate differences between the OCD and the community sample, with a small effect size being 0.2, medium effect size being 0.5, and large effect size being 0.8 (Cohen's categories) [19].

A Loess nonparametric curve fitting procedure [20] was used to explore for possible nonlinearities in the relationship between severity of OCD symptoms and impairment in QOL. Specifically, we expected that there might be a severity threshold above which QOL might deteriorate rapidly. For these analyses, we selected 2 dependent measures, a self-report

measure, the Q-LES-Q, and the rater-administered SOFAS. These 2 measures were used as they are scored on a continuum. After the Loess analyses, we conducted a linear regression to test for a change in the slope of the regression of each QOL measure on the YBOCS. For the linear regression, the dependent measure was the Q-LES-Q or the SOFAS. The predictor variables were (1) the YBOCS total score and (2) a score constructed to have the value 0 if the YBOCS score was less than the point of slope change generated by the Loess procedure and the value of the point of slope change if the YBOCS score was greater than the point of slope change generated by Loess procedure. The second variable would have a statistically significant effect in the regression only if the slope of the YBOCS regression significantly changed at or near the YBOCS score of the point of slope change generated by the Loess procedure.

Simultaneous linear regressions were conducted to determine whether a number of predictors, including age, education attained, marital status, duration of illness, YBOCS obsessions subscore, YBOCS compulsion subscore, BABS, and MHRSD, were associated with impairment in QOL. We conducted 2 regressions using the SOFAS, a rater-administered instrument, as the dependent variable for the first, and the Q-LES-Q, a self-report measure, as the dependent variable for the second. Subsequent hierarchical linear regressions were then conducted to determine the relative contribution of each predictor to impairment in QOL. The order of the variables entered was guided by a previous study, which reported the large contributions of both obsessional severity and depressive symptoms [5]. Statistical analyses were conducted using SAS version 8.0 (1999, SAS Institute Inc, Cary, NC).

### 3. Results

Table 1 shows the Q-LES-Q scores for OCD subjects compared with community norms. Mean Q-LES-Q scores for the OCD subjects on all the summary scales were significantly lower (more impaired) than the means from a community sample. Although the validity of these community norms is not well established, large effect sizes were found for all domains (0.81-1.99). Table 2 lists the Medical Outcomes Survey 36-Item Short-Form Health Survey (SF-36) scores for our sample compared with community norms. Large effect sizes were found for the dimensions of mental health, role limitations due to emotional problems, and vitality (0.80-1.18). Table 3 lists the mean LIFE-RIFT scores including the total score and subscores for work, school and household impairment, recreation, relationships with family and friends, overall satisfaction, and global social adjustment. All mean subscores are higher than 2, indicating impairment. Sixty-seven (34%) subjects were unable to work because of psychopathology; 9 (5%) were unable to perform any household tasks; and 28 (14.2%) were receiving disability because of OCD. The SOFAS and GAF mean scores also indicate substantial impairment in functioning. The mean YBOCS total score was 21.41 (SD = 7.8; median = 23.0; range, 1-37) for the sample, the mean BABS score was 7.23 (SD = 4.9; median = 6.0; range, 0-21), and the mean MHRSD score was 11.44 (SD = 8.7). Most (n = 165, 84%) subjects reported receiving selective serotonin reuptake inhibitors at the time of intake.

#### 3.1. Correlations between study measures

The YBOCS total score was significantly correlated with all the measures of QOL (Table 4). The BABS was significantly correlated with 5 of the 7 measures, although more modestly. It was not correlated with the SF-36 Mental Health or the SF-36 role limitations/emotional items. High correlations were found between the self-report measures (the Q-LES-Q and the SF-36) and the rater-administered measures (the SOFAS and the LIFE-RIFT).

We also examined the association between the 2 components of the YBOCS total score, obsessions and compulsions subscores, and domains of QOL (Table 5). Slightly higher correlations were found between the YBOCS obsessions subscore and almost all domains of

QOL than between the YBOCS compulsions subscore and QOL domains. An exception to this was work functioning subscale of the LIFE-RIFT; compulsion severity in that case was more tightly correlated with work functioning than obsessions severity.

### 3.2. Impact of severity of obsessive-compulsive disorder symptoms on quality of life

The Loess curve fitting procedures with the YBOCS on the x-axis and the Q-LES-Q on the y-axis are shown in Fig. 1. The regression of Q-LES-Q on YBOCS shows a significant change in slope at a YBOCS total score of 20, indicating a significant decline in QOL at YBOCS score 20 or higher. No significant change in the slope of the regression was found using the SOFAS.

### 3.3. Predictors of quality of life

In the first set of linear regressions, all predictor measures (age, marital status, education attained, duration of illness, YBOCS obsessions subscore, YBOCS compulsion subscore, BABS, and MHRSD) were entered simultaneously. Together, these variables were predictive of impairment as measured both by the SOFAS and the Q-LES-Q (for the SOFAS,  $R^2 = 0.54$ ,  $F_{5,168} = 39.69$ ,  $P < .001$ ; for the Q-LES-Q,  $R^2 = 0.42$ ,  $F_{5,172} = 22.13$ ,  $P < .001$ ). In the hierarchical regression using the SOFAS as the dependent variable, the marital status, the YBOCS obsessions subscore, and the MHRSD were significantly associated with the SOFAS scores and accounted for 53% of the variance (Table 6). These 3 variables were also significantly associated with the Q-LES-Q, accounting for 42% of the variance. Age, education attained, duration of illness, YBOCS compulsions subscale, and BABS were not significant predictors of either the SOFAS or the Q-LES-Q.

## 4. Discussion

This study demonstrates substantial impairment in QOL and psychosocial function in the largest representative clinical sample of individuals with OCD studied to date using both self-reports and rater-administered measures of global QOL. A third of the sample was unable to work because of psychopathology. Our findings support previous studies with smaller sample sizes and methodological limitations that also demonstrated impairment. Marked impairment was found in all specific domains of QOL that were measured, including the ability to work and perform household duties, subjective sense of wellbeing, social relationships, and ability to enjoy leisure activities compared with community norms.

In contrast to an earlier study [6], we found significant associations between OCD severity and all domains of QOL. This difference may be due to larger sample in this study, increasing the power to find significant associations. The results from the regression analyses indicate that marital status and symptom severity of both obsessions and depression contribute meaningfully to the magnitude of impairment in QOL. Age, education attained, insight, and duration of illness did not have an impact on QOL.

The fact that obsessions but not compulsions were associated with the Q-LES-Q is of note and is in keeping with findings from a smaller study examining QOL [5]. Obsessional severity was more tightly correlated than compulsion severity with overall ratings of QOL as well as almost all specific domains. This difference was seen most notably with the Q-LES-Q. Only one domain, work functioning, was more tightly correlated with compulsion severity. These data support our clinical experience, that many individuals with OCD report that they find their obsessions more debilitating than their compulsions in terms of their emotional well-being and ability to enjoy recreational activities. These findings also suggest that a self-report measure may be more sensitive in discerning meaningful differences between the impact of obsessions vs compulsions on QOL in this disorder. Further investigation as to the differing impact that obsessions and compulsions have on QOL may be important clinically. Targeting areas of

functioning differentially affected by obsessions and compulsions may be helpful in constructing treatment goals and developing techniques through cognitive behavior therapy to achieve those goals.

We found that a YBOCS score of 20 appeared to be an inflection point where QOL becomes significantly more impaired, suggesting that functioning and QOL may be preserved in individuals with OCD until a threshold of severity is crossed. Because OCD is present in subthreshold forms in a significant percentage of the general population, it is important to attempt to clarify the threshold for making the diagnosis using data-based objective measures. The fact that this result was not found using the SOFAS suggests that the Q-LES-Q is a more specific measure of QOL compared with the SOFAS. Another possibility is that a self-report measure may be more sensitive than a rater-administered scale such as the SOFAS in identifying changes in QOL relative to OCD.

There are several limitations in this study. Participants were treatment seeking, and therefore, our findings may not apply to those individuals with OCD who do not seek treatment. In addition, subjects were evaluated at only one time point. The relationship between changes in OCD symptoms and changes in specific domains of QOL can best be assessed over time. Continued observation of the study participants will allow us to more fully understand the interaction between severity of OCD and its impact on QOL over time. Another limitation of this study is that there are no direct comparison with community norms or individuals with other psychiatric disorders.

Finally, the role of treatment in improving QOL in OCD warrants further investigation. Only a few studies have examined change in QOL with treatment, generally finding improvement after pharmacologic intervention. Additional research is needed to assess which aspects of QOL and psychosocial functioning are helped by pharmacologic and cognitive behavioral therapy so that specific treatments can be targeted to specific psychosocial functioning deficits.

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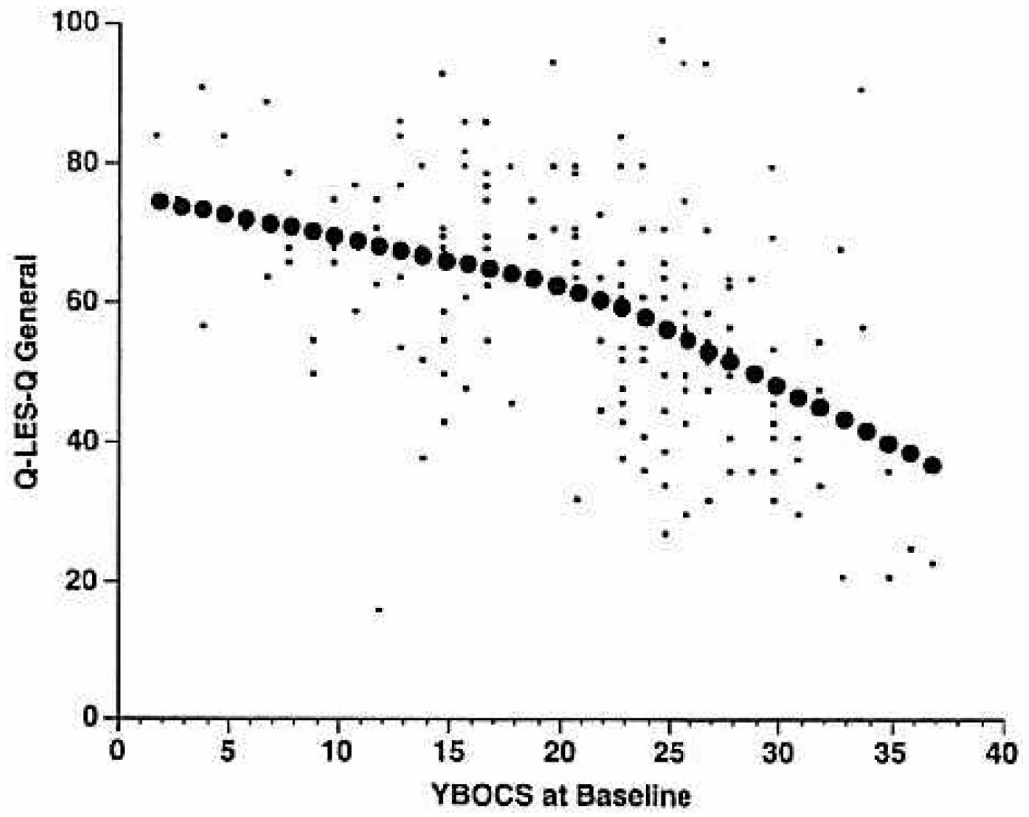


Fig. 1.  
Relationship between Q-LES-Q and severity of OCD.



**Table 1**  
Q-LES-Q scores for OCD compared with a community sample

QOL dimension	OCD (n = 197)	Community (n = 89)	<i>d</i>
	Mean (SD)	Mean (SD)	
General (short form)	59.9 (17.4)	78.1 (13.7)	1.12*
Physical health	55.8 (19.7)	78.3 (14.9)	1.23*
Emotional well-being	57.6 (19.2)	83.2 (11.9)	1.49*
Household	60.4 (23.5)	77.9 (17.8)	0.81*
Leisure	60.4 (17.8)	78.6 (14.3)	1.09*
Social	61.5 (19.5)	75.9 (14.2)	0.81*
Work	52.5 (35.2)	80.7 (14.1)	0.96*
School <sup>a</sup>	32.2 (36.4)	80.9 (14.4)	1.99*

Effect size (*d*) calculations are made comparing OCD scores with each sample.

<sup>a</sup> n = 52.

\*  $P < .0001$ .

**Table 2**  
SF-36 scores for OCD compared with published norms

QOL subscale	OCD (n = 185)	US population (n = 2,474)	<i>d</i>
	Mean (SD)	Mean (SD)	
Mental health	50.5 (22.7)	74.7 (18.1)	1.18 <sup>***</sup>
Role limitations/emotional	49.6 (41.8)	81.3 (33.0)	0.84 <sup>***</sup>
Social functioning	62.4 (29.7)	83.3 (22.7)	0.79 <sup>***</sup>
Vitality	43.6 (22.6)	60.9 (20.9)	0.80 <sup>***</sup>
Physical functioning	82.3 (22.7)	84.2 (23.3)	0.09
Role limitations/physical	72.7 (38.4)	80.9 (34.0)	0.23 <sup>**</sup>
Bodily pain	70.8 (23.0)	75.2 (23.7)	0.19 <sup>*</sup>
General health	60.3 (22.9)	71.9 (20.3)	0.38 <sup>***</sup>

Effect size (*d*) calculations compare OCD scores with each sample. Role limitations/emotional indicates role limitations due to emotional problems; role limitations/physical, role limitations due to physical problems.

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .0001$ .

**Table 3**  
 Psychosocial functioning scores of 197 subjects with OCD

Measure	Mean (SD)
LIFE-RIFT	
Total score	12.4 (3.4)
Work impairment	2.9 (1.0)
School impairment	3.1 (1.2)
Household impairment	3.3 (1.1)
Recreation	2.7 (1.4)
Relationships—family	3.0 (1.1)
Relationships—friends	2.5 (1.2)
Satisfaction	2.9 (0.9)
Global social adjustment	3.6 (1.2)
SOFAS	53.9 (13.5)
GAF	51.4 (11.2)
Work	
Work severely impaired	4% (n = 7)
Unable to work because of psychopathology	34% (n = 67)
Household work	
Household work severely impaired	13% (n = 25)
Unable to work because of psychopathology	5% (n = 9)

**Table 4**  
Correlations between study measures for subjects with OCD

Study measures	YBOCS	BABS	SF-36 mental health	SF-36 role 1 limitations/emotional	SF-36 social functioning	Q-LES-Q short form	SOFAS	LIFE-RIFT
YBOCS	-	0.44 <sup>****</sup>	-0.40 <sup>****</sup>	-0.28 <sup>****</sup>	-0.41 <sup>****</sup>	-0.49 <sup>****</sup>	-0.70 <sup>****</sup>	0.60 <sup>****</sup>
BABS	-	-	-0.12	-0.10	-0.29 <sup>**</sup>	-0.22 <sup>*</sup>	-0.33 <sup>****</sup>	0.35 <sup>****</sup>
SF-36 mental health	-	-	-	0.55 <sup>****</sup>	0.63 <sup>****</sup>	0.71 <sup>****</sup>	0.50 <sup>****</sup>	-0.54 <sup>****</sup>
SF-36 role limitations/emotional	-	-	-	-	0.50 <sup>****</sup>	0.55 <sup>****</sup>	-0.41 <sup>****</sup>	-0.45 <sup>****</sup>
SF-36 social functioning	-	-	-	-	-	0.64 <sup>****</sup>	0.47 <sup>****</sup>	-0.56 <sup>****</sup>
Q-LES-Q short form	-	-	-	-	-	-	0.58 <sup>****</sup>	-0.68 <sup>****</sup>
SOFAS	-	-	-	-	-	-	-	-0.74 <sup>****</sup>
LIFE-RIFT	-	-	-	-	-	-	-	-

Role limitations/emotional indicates role limitations due to emotional problems.

\*  $P < .01$ .

\*\*  $P < .001$ .

\*\*\*  $P < .0001$ .

**Table 5**

Correlations among the YBOCS obsessions subscale, the YBOCS compulsions subscale, and QOL measures

Study measure	YBOCS obsessions	YBOCS compulsions
SOFAS	-0.69 <sup>***</sup>	-0.63 <sup>***</sup>
LIFE-RIFT	0.62 <sup>***</sup>	0.53 <sup>***</sup>
Work impairment	0.58 <sup>***</sup>	0.62 <sup>***</sup>
School impairment	0.84 <sup>***</sup>	0.69 <sup>***</sup>
Household impairment	0.54 <sup>***</sup>	0.52 <sup>***</sup>
Recreation	0.45 <sup>***</sup>	0.32 <sup>***</sup>
Satisfaction	0.58 <sup>***</sup>	0.32 <sup>***</sup>
Q-LES-Q general (short form)	-0.51 <sup>***</sup>	-0.39 <sup>***</sup>
Q-LES-Q physical health	-0.31 <sup>***</sup>	-0.25 <sup>**</sup>
Q-LES-Q emotional well-being	-0.44 <sup>***</sup>	-0.39 <sup>***</sup>
Q-LES-Q household	-0.24 <sup>*</sup>	-0.19
Q-LES-Q leisure	-0.33 <sup>***</sup>	-0.28 <sup>***</sup>
Q-LES-Q social	-0.37 <sup>***</sup>	-0.30 <sup>***</sup>
Q-LES-Q work	-0.54 <sup>***</sup>	-0.46 <sup>***</sup>

\*  $P < .01$ .\*\*  $P < .001$ .\*\*\*  $P < .0001$ .

**Table 6**  
Hierarchical regression analysis predicting QOL with clinical characteristic predictor variables

Step	Predictor variable $R^2$	SOFAS		Q-LES-Q total score	
		Adjusted total $R^2$	Incremental $R^2$	Adjusted total $R^2$	Incremental $R^2$
1	Age	0.00	0.00	0.00	0.00
2	Marital status	0.04	0.04 <sup>***</sup>	0.04	0.04 <sup>*</sup>
3	Education attained	0.04	0.00	0.04	0.00
4	Duration of illness	0.04	0.00	0.05	0.01
5	YBOCS obsessions	0.47	0.43 <sup>**</sup>	0.23	0.18 <sup>**</sup>
6	YBOCS compulsions	0.49	0.02 <sup>*</sup>	0.23	0.00
7	BABS	0.49	0.00	0.22	-0.01
8	MHRSD	0.53	0.04 <sup>***</sup>	0.42	0.20 <sup>**</sup>

\*  $P < .05$ .

\*\*  $P < .001$ .

\*\*\*  $P < .0001$ .