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REVIEW

Quality of life in obsessive compulsive disorder

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Obsessive-compulsive disorder (OCD) has a profound impact with a high disease burden. In order to truly understand the scope of the effect OCD has on the patient population, one must take into account not only the relentless symptoms beleaguering the patients but also examine their overall ability to enjoy their life. Quality of life (QOL) assessments/improvements are becoming an increasingly important component of healthcare, especially in the mental health field. This review examines QOL in OCD, as well as the influence of comorbidities, and the impact that OCD treatment has on QOL. We searched MEDLINE/PUBMED and PsycINFO databases from 1980–2011 using keywords "obsessive compulsive disorder" OR "OCD" AND "quality of life" OR "QOL." Fifty-eight studies meeting specific selection criteria were ultimately included in this review. The results show that QOL in OCD is significantly impaired when compared to QOL in the general population and in patients with other psychiatric and medical disorders. Likewise, QOL in OCD also appears to be largely affected by comorbid conditions, which should be taken into account when developing a treatment plan. Furthermore, QOL in OCD has been shown to improve with medications and with both individual and group psychotherapy, albeit not to the levels enjoyed by community norms. QOL assessment in both clinical and research settings is important to examine the disease burden, to monitor treatment effectiveness, and to determine full recovery from OCD. Treatment providers should strive to not only reach symptom abatement, but also to assure that patients have regained satisfaction and functioning in their daily lives.

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FOCUS POINTS

- QOL is gravely impaired in patients with OCD especially in the presence of comorbid conditions.
- Individual and group psychotherapy and medications are all successful in improving QOL in OCD, although not to community norm levels.
- QOL needs to be included as an essential measure of treatment outcome in addition to symptom severity and functioning.

Introduction

Obsessive-compulsive disorder (OCD) is an anxiety disorder characterized by recurrent obsessions and/or compulsions that cause high levels of distress, consume considerable amounts of time, and significantly impair important aspects of functioning.[1] As it is currently the fourth most prevalent psychiatric diagnosis,[2] OCD has been recognized for its chronic and disabling course. Indeed, it ranks as the 10th leading cause of disability worldwide.[3] According to an Epidemiologic Catchment Area (ECA) program study, the lifetime prevalence of OCD is 1.7% in the United States,[2] with prevalence rates of 3.1% and 3.5% in Canadian and Swiss studies, respectively.[4,5] Extensive research has been conducted on OCD, but only in recent years, however, has quality of life (QOL) grown to become an increasingly important aspect of patient assessment and treatment in mental health care,[6] both in general, and specifically in OCD.

The World Health Organization (WHO) defines quality of life (QOL) as the "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns."[7] Quality of life is further identified as one's satisfaction with health, and with occupational, social, and other activities according to self-report.[6] The operational definition of QOL has been translated into the most frequently cited QOL measures in the literature, which

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include the Medical Outcomes Study Short Form-36 (SF-36)[8,9]; the World Health Organization Quality of Life Assessment (WHOQOL-100),[10] and its brief form, the World Health Organization Quality of Life Assessment–Abbreviated Version (WHOQOL-BREF)[11]; and the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q).[12] Detailed information regarding these measures can be obtained from our review on QOL and depression that was published in an earlier issue of this journal.[6] As argued in that review, QOL can be considered the ultimate indicator that treatments have succeeded. Thus, as we have examined for depression, it is equally important to further investigate the relationship between QOL and OCD.

Accordingly, this article provides an in-depth review of QOL in OCD and addresses three main questions: (1) What is the impact of OCD on QOL, especially when compared to other disorders? (2) How do comorbid conditions affect QOL in OCD? (3) How does the treatment of OCD symptoms impact QOL?

Methods of Literature Search

Data sources

A systematic literature search was conducted using the MEDLINE, PUBMED, and PsycINFO databases from 1980 to 2011. We used the following keywords: "obsessive compulsive disorder" OR "OCD" AND "quality of life" OR "QOL." The initial search yielded 188 articles. The reference list of identified papers and previous reviews was manually reviewed for additional studies.

Study selection criteria

Three of the authors in this article reviewed the 188 studies independently using the following inclusion criteria: (1) Articles in English or with an available published English translation; (2) publication in a peer-reviewed journal; (3) studies evaluating adult humans; (4) studies, of any design, which focused on OCD; and (5) studies that used at least one QOL measure. These measures included those most frequently cited, as listed above: SF-36,[8,13] WHOQOL,[9,14,15] and the Q-LES-Q.[11] Exclusion criteria consisted of review articles and research articles that did not employ QOL measurement, and those from animal models. The reviewers conducted a focused review using the full-text articles of studies that met the above criteria. Additional articles were then selected using references from these articles. The reviewers then reached a consensus on the studies to include in this review.

Data Extraction and Yield

The study selection process yielded 58 articles meeting the aforementioned selection criteria. Research methodology and key findings were derived from the full text and tables within the selected studies.

The search process and results are outlined in Figure 1.

Results

What is the impact of OCD on QOL?

The impact of OCD on QOL has been investigated through numerous studies, as depicted in Table 1, which shows that patients suffering from OCD experience grave impairments in QOL.

The literature reveals that when compared with community norms and with other psychiatric and medical disorders, QOL in OCD patients is significantly impaired. In fact, QOL impairment in OCD was shown to be higher than QOL impairment in panic disorder,[16] social phobia,[16] heroin dependence,[17] and in patients on hemodialysis[17] and kidney transplant recipients.[17] With regard to disorders that are known to severely impair QOL such as schizophrenia and depressive disorders, QOL impairment in OCD was comparable.[16,18]

Of note, OCD patients exhibit variations in the QOL domains that are affected. The studies we reviewed suggest that QOL deficits in OCD are more pronounced on the social, emotional, and mental domains of QOL measures, whereas the physical domain, although impaired, is typically less affected. For instance, Bobes *et al*.[17] compared QOL of outpatients with OCD to the population norms using the SF-36. The QOL domains most significantly impaired were first social functioning, then role limitations due to emotional impairment (role–emotional), mental health, general health, and vitality. However, physical functioning, role limitations due to physical impairments (role–physical), and bodily pain were not significantly different, nor were the physical health summary measures. A similar investigation by Moritz *et al*.[19] compared QOL of OCD patients to QOL in a healthy sample of the population. The authors found that *z*-scores for QOL in OCD patients were 2–4 standard deviations lower than the *z*-scores for the healthy subsample. Again, the domains most affected in OCD participants were social functioning, mental health, vitality, and role limitations due to emotional problems (scores were below the 25th percentile of the normative sample).

Although research supports the notion that QOL deficits largely encompass social and emotional domains, studies also show that QOL impairments due to OCD can also extend to include the somatic domain.[19] In Moritz *et al*.,[19] OCD patients had lower SF-36 scores on physical functioning, role–physical, and bodily pain. Impairment in physical subscales

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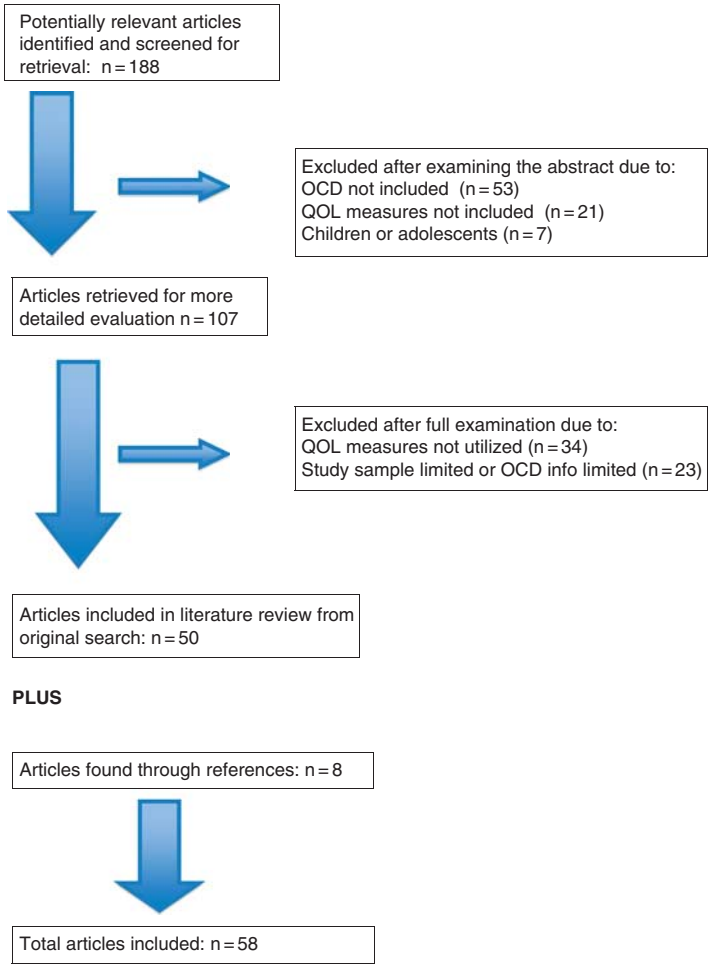


Figure 1. Search process for quality of life studies in OCD.

was also noted to be more obvious in those patients with compulsions and those patients with long illness duration.[19] Further research is needed to examine the extent of physical impairments in chronic OCD patients and those who experience compulsions.

In order to fully understand how OCD impairs QOL, it is important to examine the impact of symptom severity and/or the predominance of obsessions or compulsions. Namely, is there a differential effect between obsessions and compulsions on QOL? While symptom severity has been shown to be associated with poor QOL in OCD, the evidence has been mixed as to whether compulsions or obsessions differed regarding their effects on QOL. Stengler-Wenze *et al.*[20] showed that Yale Brown Obsessive Compulsive Scale (YBOCS) compulsion severity was associated with QOL impairment on WHOQOL-BREF on three subscales, whereas obsession severity did not show this same association with QOL impairment. Similarly, Moritz *et al.*[19] showed that though the severity and the number of both obsessions and compulsions were significantly related to several SF-36 QOL subscales, there was a stronger association with compulsions. In contrast, Gururaj *et al.*[21] showed that YBOCS total symptom severity and obsession severity were significantly associated with QOL impairment, whereas compulsion severity did not show this association. Likewise, Eisen *et al.*[22] showed that OCD obsessional and compulsive symptom severity were each significantly correlated with QOL, but there were stronger associations with regard to obsessions in seven Q-LES-Q categories. Because of the lack of consensus among researchers, additional studies are needed in order to better understand the differential effects of obsessions and compulsions on QOL, as these might influence the management of OCD symptoms.

Overall, evidence shows that QOL is greatly impaired in OCD, especially when compared with community norms or with other psychiatric and medical disorders. Other factors may influence QOL, however, and since QOL is the ultimate measure of treatment success, it is important to examine their effects. A key factor influencing QOL is comorbidity.

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Table 1. *The impact of OCD on quality of life*

Reference	Measures	N	Mean age (SD)	% Females	Summary of findings
16. Rapaport *et al.*, 2005	Q-LES-Q	521	38.6 (SD11.8)	49%	In patients with mood and anxiety disorders including OCD, only a small part of the variance in QOL scores was accounted for by illness-specific symptoms; therefore, QOL should be considered as part of patient assessment.
17. Bobes *et al.*, 2001	MOS SF-36, Y-BOCS, WHO-DAS	36 OCD	34.08	44.4%	-QOL was worse in the OCD sample than in depressed and heroin-dependent patients and Spanish population norms. -Mental health QOL in OCD is comparable to that in schizophrenia and worse than patients on hemodialysis or renal transplant recipients.
18. Quilty *et al.*, 2003	MOS/SF-36, SCID, STAI, BDI, SAS-SR, Liebowitz Disability Scale	360 total 65 OCD	33.9 (SD = 10.4) of total	64.4%	Individuals with OCD appear similar to the general population in physical health domains but are impaired in mental health domains, including social functioning.
19. Moritz *et al.*, 2005	SF-36-German, MINI, Y-BOCS, HOCI, BDI	111 79 OCD 32 control		50% OCD 66% control	QOL is significantly impaired in OCD patients in both physical and mental health domains compared to a healthy subsample of the German population. QOL deficits were not restricted to emotional and social aspects of QOL but extended to somatic domains.
20. Stengler-Wenze *et al.*, 2007	WHOQOL-BREF, Y-BOCS, BDI	71	38.49 (SD = 12.9)	56.34%	Compulsions reduced patients' QOL in the WHOQOL-BREF domains "physical well-being," "psychological well-being," and "environment," whereas obsessions did not have any impact on QOL ratings. Depressive symptoms were a strong predictor of poor QOL in OCD patients. Therefore, in order to judge the QOL of OCD patients, obsessions and compulsions have to be considered differently. Diagnosing and treating depressive symptoms is important for improving the QOL in OCD.
21. Gururaj *et al.*, 2008	WHO-QOL-BREF, Y-BOCS, GAF, WHO-DAS-II, FBS, Schedule for Tourette and Behavioral Syndromes, FAS, PANSS	70 (35 OCD, 35 schizophrenia)	OCD 27.29 (SD = 8.4), schiz, 27.66 (SD = 6.7)	51.4%	Severe OCD was correlated with poor quality of life, high family burden, and significant disability, comparable to schizophrenia.
22. Eisen *et al.*, 2006	Q-LES-Q, SF-36, SOFAS, LIFE-RIFT, Y-BOCS, MHRSD	197	40.6 (SD = 12.9)	56.9%	Compared to community norms, those with OCD have significantly impaired QOL on all domains, and impairment was associated with severity of symptoms, most strongly above YBOCS score above 20, and also associated with both compulsions and obsessions (obsessions more so) and depressive symptoms.

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Table 1. Continued

Reference	Measures	N	Mean age (SD)	% Females	Summary of findings
25. Huppert *et al.*, 2009	Q-LES-Q, SAS-SR, SF-36 (MOS), SDS, Y-BOCS, SCID-IV, HAM-A, HAM-D, BDI, OCI-R	66 66 OCD (32 current OCD, 15 history of OCD, 19 comorbid OCD) 36 Healthy controls	38.3	46.3%	-Patients with OCD had significantly lower QOL and functional impairment than healthy controls in some QOL areas, with those with psychiatric comorbidity having even more severe QOL impairment. -QOL in patients considered to be in remission did not differ significantly from healthy controls or current OCD patients.
26. Cassin *et al.*, 2009	Q-LES-Q, SCID, BDI, Y-BOCS	56 28 OCD 28 OCD and MDD	35	75%	Comorbid depression in OCD significantly impacts QOL domains of subjective feelings, social relations, and general activities.
27. Fontenelle *et al.*, 2010	SCID IV, BDI, SF-36, OCI-R, BAI	65	39.3	55.4%	Patients with OCD displayed significantly lower levels of quality of life in all dimensions measured by the SF-36, except bodily pain. The severity of depressive and anxiety symptoms seems, therefore, to be a powerful determinant of the level of QOL in patients with OCD.
28. Didie *et al.*, 2007	Q-LES-Q, SF-36, GAF, SOFAS, SAS-SR, LIFE	295 210 OCD 45 BDD 40 comorbid	OCD: 39.8 (SD = 12.6), BDD: 36.5 (SD = 12.7), comorbid: 36.5 (SD = 11.7)	OCD: 58.5%, BDD: 66%, co: 45%	Patients with comorbid OCD and body dysmorphic disorder have poorer QOL than those with OCD without comorbid BDD.
29. Grant *et al.*, 2006	Q-LES-Q, SCID-I, SCID-II, Y-BOCS, SOFAS	293	40.6 (SD = 12.9)	56.8%	OCD patients with comorbid ICD have more impaired QOL.
30. Besiroglu *et al.*, 2007	WHOQOL-BREF, SCID-I, SCID-II, Y-BOCS, HDRS	67 OCD without MDD 43 OCD and MDD	OCD-MDD: 31.5 (SD = 11.1), OCD-NMDD: 30.9 (SD = 12.3)	OCD-MDD: 70.4% NMDD: 67.2%	In a regression model, obsession severity, aggressive obsessions, and comorbid GAD are associated with the development of MDD after OCD onset. Individuals with OCD and subsequent MDD experience more impaired QOL than those without MDD.

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Table 1. Continued

Reference	Measures	N	Mean age (SD)	% Females	Summary of findings
31. Rodriguez-Salgado *et al*., 2006	SF-36, Y-BOCS, HDS, MINI	64	36.4	54.7	Quality of life in OCD was more impaired than in the general Spanish population, and was related to the severity of the disorder, employment, and medical and psychiatric comorbidity.
32. Koran *et al*., 1996	SF-36, Y-BOCS, SCID, HDRS	60	40.1 (SD = 10.6), range 19–67	43%	OCD symptoms that are moderate to severe are associated with impaired social functioning and role limitations due to emotional problems. Those with OCD had more impaired QOL on these domains as well as mental health as compared to the general U.S. population and to a group with diabetes mellitus II.
34. Ferrao *et al*., 2006	MOS/SF-36, SCID-I, SCID-II, Y-BOCS, DYBOCS, HAM-A, HAM-D, YGTSS, BABS, PSR, FAS	49 23 refractory 26 responder	Refractory: 35.22 (SD = 10.74), responder: 41.35 (SD = 11.45)	Refractory: 47.8%, responder: 61.5%	When comparing treatment-responding and treatment-resistant patients with OCD, those with refractory illness, in regression analysis, had lower economic status, higher modification of family function, more sexual/religious symptoms; they also had lower QOL.
35. Besiroglu *et al*., 2004	WHOQOL-103-TR, SCID-I, Y-BOCS, HDRS	48	NHCS 31.4 (SD = 6.3), HCS 28.3 (SD = 8.3)	NHCS: 65.2%, HCS: 56%	Treatment-seeking and non-treatment-seeking patients with OCD were compared; treatment seeking was associated with poor psychological QOL and level of independence, improved insight, and comorbidity.
43. Hou *et al*., 2010	Y-BOCS, BDI – Taiwan,	57	30.3 (SD = 12.3) OCD, 33.8 (SD = 8.1) non-OCD	49%	The analysis revealed that QOL scores for the general, physical, psychological, and social relationship domains were lower in the OCD than in patients without OCD; however, no difference in the environmental domain was found.
55. Albert *et al*., 2010	Y-BOCS, SF-36	151	36.3 (SD = 12.08)	47%	In comparison to community norms, QOL in OCD was impaired in most domains especially social functioning. Predictors of poor SF-36 physical QOL included higher obsessions and contamination/washing symptom scores, depressive symptoms, and fewer years of education. Predictors of poor SF-36 mental QOL included higher compulsion and anxiety scores, and comorbid mood disorders.
56. Hauschildt *et al*., 2010	Y-BOCS, OCI-R, BDI-SF, WHOQEL-BREF, QoLOC	123	34.01 (SD = 11.82)	66%	Overall, OCD is associated with reduced QOL in various domains, whereby psychosocial aspects seem to be primarily affected.

Abbreviations: BABS (Brown Assessment of Beliefs Scale), BAI (Beck Anxiety Inventory), BDI (Beck Depression Inventory), CGI (Clinical Global Improvement), DYBOCS (Dimensional Y-BOCS), FAS (Family Accommodation Scale), FBS (Family Burden Schedule), GAD (Generalized Anxiety Disorder), GAF (Global Assessment of Functioning), HAM-A (Hamilton Anxiety Rating Scale), HAM-D (Hamilton Depression Rating Scale), HDRS (Hamilton Depression Rating Scale), HOCI (Hamburg Obsessive-Compulsive Inventory), LIFE-RIFT (Range of Impaired Functioning Toll), MHRSD (Modified Hamilton Rating Scale of Depression), MINI (Mini International Neuropsychiatry Interview), PANSS (Positive and Negative Symptom Scale), PSR (Psychiatric State Rating), SAS (Social Adjustment Scale), SCID (Structured Clinical Interview for DSM-IV), SDS (Sheehan Disability Scale), SOFAS (Social and Occupational Functioning Assessment Scale), STAI (State-Trait Anxiety Inventory, WHO-DAS (Disability Assessment Scale), Y-BOCS (Yale-Brown Obsessive Compulsive Scale), YGTSS (Yale Global Tic Severity Scale).

How do comorbid conditions affect QOL in OCD?

Generally, patients with OCD tend to have comorbid conditions. Surveys have indicated that at least 50% of OCD patients have at least one other psychiatric disorder, most commonly another anxiety disorder.[23] Approximately one-third met diagnostic criteria for major depression disorder, over one-third suffered from depressed mood, and over one-third suffered from anxiety symptoms.[24] Research shows that among patients with OCD, those with comorbidities had greater QOL impairment and demonstrated the poorest QOL when compared to those with OCD alone or with OCD in remission as measured by the Q-LES-Q.[24,25] Some common comorbid conditions include major depression,[19,26,27] body dysmorphic disorder,[28] and impulse control disorders,[29] all of which have significant negative impact on QOL.

In order to verify that the additional QOL impairment can be attributed to a corresponding comorbid condition, Gururaj *et al*.[21] ran a study and found that social and family QOL items on the WHOQOL-BREF had statistically significant correlations with anxiety and depression as well as with OCD symptoms. These correlations, however, dissolved after controlling for depressive symptom severity using the Beck Depression Inventory (BDI) score, which strongly suggests that comorbid illnesses (in this case depression) can be associated with increased QOL impairment. Besiroglu *et al*.[30] came to a similar conclusion when they found that in individuals suffering from OCD and subsequent major depressive disorder (MDD), the severity of depressive symptoms contributed more to the impairment of QOL than the severity of OCD symptoms.

The effects of medical comorbidity have been investigated as well. For instance, studies by Rodriguez-Salgado *et al*.[31] and Koran *et al*.[32] revealed that OCD patients with comorbid medical conditions exhibited poorer QOL on the SF-36 than those without.

Overall, evidence shows that comorbid conditions, particularly depression, are major contributing factors in QOL impairment in OCD. Given the substantial impact of comorbid conditions, treatment strategies should aim to achieve remission in these conditions.

How does the treatment of OCD symptoms impact QOL?

Current treatment recommendations of OCD include pharmacotherapy with selective serotonin reuptake inhibitors (SSRI) or clomipramine, cognitive-behavioral therapy (CBT), and combination therapy.[33–35] Generally, OCD treatment leads to QOL improvement. The findings of the impact of treatment on QOL in OCD are depicted in Table 2.

Pharmacotherapy

The FDA-approved medications for the treatment of OCD include clomipramine, fluoxetine, fluvoxamine, paroxetine, and sertraline. However, other SSRIs and serotonin-norepinephrine reuptake inhibitors (SNRIs) have been studied and shown to be effective in OCD treatment.

Similarly, QOL has also been shown to improve in treatment studies using oral fluvoxamine,[36] escitalopram,[37,38] paroxetine,[38] sertraline,[39] IV citalopram,[40] and clomipramine.[41,42] Overall, these studies seem to indicate that QOL improvement is gradual and is maintained/improved by continued pharmacotherapy. For instance, fluvoxamine ER's impact on QOL was seen in 52 weeks, but not after 12 weeks. Of the participants who achieved symptom remission according to Y-BOCS scores at week 12, those who had a 52-week follow-up achieved significantly higher psychological QOL on multiple domains than those participants who did not experience remission. Thus, symptom relief seems to be correlated to subsequent significant improvements in QOL.[36] Of note, research has also shown that some patients do not experience an improved QOL even with improvement in OCD symptoms due to medication. This suggests that there are factors beyond OCD symptom severity that affect QOL.[43]

The advantages of continual pharmacotherapy were suggested by Koran *et al*.[39] in a 54-week sertraline trial. Longitudinal studies of OCD showed QOL improvements in SSRI nonresponders over extended treatment time, although it remains unclear whether this is secondary to the continued efforts to treat or the natural course of the illness.[44,45] However, adverse side effects from pharmacological treatments must be taken into account with prolonged treatment times, as adverse effects can have a negative effect on QOL.[43] When adverse effects present a barrier to treatment adherence, frequent discussions should occur with the patient to encourage continued treatment after careful consideration of the risks and benefits.

Psychotherapy

Exposure and response prevention (EX/RP),[46] one of the most efficacious interventions for OCD, is currently the first-line treatment for this disease. When adhered to, EX/RP is highly effective, yet patients often fail to reach this level of effectiveness, as they often drop out or do not fully implement the recommended procedures. Simpson *et al*.[47] examined whether motivational interviewing (MI), a tool proven to show patient adherence in other disorders, could be added to EX/RP to effectively improve patient adherence. MI is a client-centered, goal-oriented method designed to motivate patients to change. The study revealed that

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Table 2. *The impact of treatment on QOL in OCD*

Reference	Measures	N	Mean age (SD)	% Females	Summary of findings
19. Moritz *et al.*, 2005	SF-36-German, MINI, Y-BOCS, HOCI, BDI	79 OCD 32 Controls	OCD: 34.08 (SD = 9.19), control: 32.69 (SD = 9.50)	50% OCD 66% Control	The majority of CBT patients, about half of whom also received pharmacologic treatment, had QOL improvements, with a significant difference in QOL change between responders and nonresponders, and with many still displaying QOL impairment after treatment.
36. Koran *et al.*, 2010	SF-36, Y-BOCS	Placebo 55, 12 weeks rx = 60, additional 40 weeks rx = 32		64%	Improvement in symptom severity with treatment with fluvoxamine ER was associated with QOL improvements over an extended period of time (52 weeks).
37. Dougherty *et al.*, 2009	Q-LES-Q, Y-BOCS, SCID, HAM-D-17, BDI, BAI	27	36.74 (SD = 12.45)	33%	In patients treated with 20 mg or 30 mg of escitalopram for 16 weeks, there were significant improvements in OCD symptoms, anxiety, depression, and QOL.
38. Hollander *et al.*, 2010	Y-BOCS, SDS, SF-36	466	Range 18–65		Patients receiving escitalopram or paroxetine reported significant improvements on most SF-36 dimensions and on the SDS. However, patients receiving escitalopram saw improvements in work-related functioning earlier. SF-36 scores were significantly better in patients who were responders versus nonresponders.
39. Koran *et al.*, 2002	Q-LES-Q, Y-BOCS, NIMH-OC, CGI-S	649 at start of first trial, 223 in double-blind trial: 109 sertraline, 114 placebo	39.2	44% sertraline, 45% placebo	For responders to 52 weeks of a sertraline trial, maintenance with sertraline has an advantage over placebos in terms of QOL and prevention of dropout due to relapse or insufficient clinical response.
40. Pallanti *et al.*, 2002	SF-36, Y-BOCS, CGI-I, CGI-S, HAMD, SCID-I, SCID-II	39	29.2 (SD = 6.5)	46.15%	IV citalopram was safe and rapidly effective in reducing symptoms in this group of treatment-resistant OCD patients, and response predicted subsequent response to oral citalopram. All patients with positive response to IV citalopram and who subsequently received oral citalopram showed significant improvement in some QOL domains.
41. Ross *et al.*, 2008	Q-LES-Q, Y-BOCS, CGI, NIMH-OC, SCL-90, SCID-I, SCID-II	44	41.2 (SD = 10)	47.8%	After 4–11 years after IV clomipramine treatment, there was improvement in OCD symptoms accompanied by improvement in QOL.

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Table 2. Continued

Reference	Measures	N	Mean age (SD)	% Females	Summary of findings
44. Reddy *et al.*, 2010	Q-LES-Q, Y-BOCS, CGI, GAF, SCID, PSRS	36	29.77 (SD = 8.27)	36%	In this naturalistic follow-up study with a catch-up longitudinal design, the QOL of SRI nonresponders with OCD did improve when re-evaluated about 4.5 years later.
47. Simpson *et al.*, 2010	Y-BOCS, HAM-D, Q-LES-Q,	30	Range 18–70, 39.9 (SD = 13.4)	47%	Both EX/RP and EX/RP+MI groups experienced clinically significant improvement in OCD symptoms, without significant group differences in patient adherence. The improvement leads to an increase in QOL.
50. Maher *et al.*, 2010	Y-BOCS, HAM-D, HAM-A, Q-LES-Q, SAS	108	Range 18–70	46%	Pretreatment OCD severity, being male, comorbidity, and having past SRI trials predicted lower EX/RP outcome in patients, which in turn yields a lower QOL.
51. Cordioli *et al.*, 2003	WHOQOL-BREF, OVIS, HAM-A, HAM-D, NIMH-OC, Y-BOCS, MINI	47	36.5 (SD = 12.8)	51%	There was improvement in symptom severity and QOL after cognitive behavioral group therapy. QOL did not improve further 3 months post-treatment, but symptoms did improve further.
52. Sousa *et al.*, 2006	WHOQOL-BREF, Y-BOCS, CGI-S, BAI	56	38.5 (SD = 11.79)	76.8%	Both cognitive behavioral group therapy (CBGT) and sertraline (100 mg/day) treatments for 12 weeks were effective in terms of symptom reduction and led to improvement in QOL. Significantly greater reduction in symptoms, reduction in intensity of compulsions, and greater percent of patients with full remission was seen in the CGBT group.
53. Brown *et al.*, 2007	Q-LES-Q, Y-BOCS, SCID-P, self-report exercise measures	15	44.4	47%	In patients with Y-BOCS >16 and at least 3 months of treatment with pharmacotherapy, CBT, or both, adjunctive moderate intensity exercise for 12 weeks improved symptoms and QOL significantly.
58. Raffin *et al.*, 2009	WHOQOL-BREF, CGI, Y-BOCS, Y-BOCS Symptom Checklist	181	37.44 (SD = 12.52)	72.4%	In the final regression model, variables associated with symptom response after CBGT were female gender, good insight, better psychological QOL, and less severe global disease on CGI.

Abbreviations: BABS (Brown Assessment for Beliefs Scale), BAI (Beck Anxiety Inventory), BDI (Beck Depression Inventory), BDI-SF (Beck Depression Inventory Short Form), CGI (Clinical Global Improvement), GAF (Global Assessment of Functioning), HAM-A (Hamilton Anxiety Rating Scale), HAM-D (Hamilton Depression Rating Scale), HOCI (Hamburg Obsessive-Compulsive Inventory), OCI-R (Obsessive Compulsory Inventory – Revised), MINI (Mini International Neuropsychiatry Interview), NIMH-OC (NIMH Global Obsessive-Compulsive Scale), OVIS (Overvalued Ideas Scale), PSRS (Psychiatric Status Rating Scale), QoLOC (Quality of Life in Obsessive Compulsive Disorder), SCID (Structured Clinical Interview for DSM-IV), SCL-90 (Symptom Checklist 90), SAS (Social Adjustment Scale), SDS (Sheehan Disability Scale), SRI (Serotonin-Reuptake Inhibitor), Y-BOCS (Yale-Brown Obsessive Compulsive Scale).

though both the EX/RP and EX/RP+MI groups showed significant improvement in symptom reduction and QOL, there were no significant differences in improvement between the groups, especially with regard to patient adherence. On the other hand, two other studies suggest otherwise,[48,49] showing that readiness interventions utilizing MI yielded more adherence rates in adults who previously refused EX/RP. Furthermore it was shown that three sessions of MI appeared to accelerate treatment progress in pediatric OCD. Maher *et al*.[50] showed that greater comorbidity, greater number of past SSRI trials, and lower baseline QOL predicted poorer EX/RP treatment adherence. Although the individual effects of these inhibitors were small, their collective effect is significant, suggesting that multimodular strategies may improve EX/RP outcomes.

Other treatment options, such as individual and group CBT, have been shown to have a positive impact on QOL in OCD.[19,51] In a CBT comparison to SSRIs,[52] patients showed improvement in the four domains of the WHOQOL-BREF QOL, without significant difference between the two groups. Other interventions such as exercise have demonstrated effectiveness in reduction of OCD symptoms and in improving QOL.[53]

Discussion

Obsessive-compulsive disorder can be a relentless mental illness as it plagues patients with undesired thoughts and impulses. The anxiety and discomfort from not submitting to these intrusive obsessions can lead to great anguish for the patient, especially when they hinder patients from accomplishing their occupational, social, and recreational aspirations. As treatments continue to progress for OCD, mental healthcare providers find that symptom relief is just the beginning of the pathway toward remission and patient satisfaction. Patients' quality of life of must also improve for them to truly resume an unburdened life in which they can enjoy work, love, and play.

As the various studies we reviewed have shown, there are several steps in the process to restoring the QOL when diagnosing and treating OCD. Ideally, the provider should be aware, from the initial contact with the patient, of predictors that highlight those patients who are at risk for poorer QOL in order to better prepare for the treatment plan. The literature does shed some light to the predictors of QOL in OCD patients. For instance, low social support was indicative of a low QOL.[43] Patients with OCD features such as hoarding were found to have lower QOL than non-hoarders.[54] Fewer years of education, higher HAM-D scores, higher YBOCS scores, and higher scores on the contamination/washing symptom dimension predicted poorer scores on the physical component of the SF-36.[55] Likewise, higher YBOCS compulsion scores, the presence of a comorbid mood disorder, and higher anxiety scores predicted poorer scores on the mental health component of the SF-36. By identifying these predictors of QOL and treating patients using a multidimensional approach, physicians can tailor their treatment to the individual needs of their patients.[56–58]

In order to better understand the effects of OCD treatment on QOL, standardized measurements (such as the ones listed earlier) should be taken prior to starting treatment and then monitored throughout the course of the treatment, whether the treatment plan includes pharmacotherapy, psychotherapy, or a combination of the two. The studies we reviewed documented benefits from both types of therapies with regard to symptom reduction and QOL improvement.

With regard to pharmacotherapy, antidepressant treatments (such as citalopram[40] and escitalopram[37,38]) have been shown to improve QOL. Further research should continue to investigate how the timing and duration of these treatments promote the intended improvement of QOL. For example, fluvoxamine initially showed little or no QOL improvement in studies that checked after 12 weeks of treatment, but when followed over a longer course of 40–52 weeks, mental health and role emotional problems showed improvement.[36] This suggests that QOL improvements can take time, with the various aspects of QOL improving over different timelines. Likewise, QOL must be monitored over an extended period of time beyond symptom improvement. For instance, sertraline was found to be effective at 52 weeks in improving the QOL of patients, and continued administration of sertraline was advantageous in the maintenance of improved QOL.[39] Additional research should continue to determine the length of pharmacotherapy treatment time necessary for QOL improvement, as these findings could prove beneficial to keep patients on treatment past mere symptom reduction and toward truly regaining satisfaction with their health.

Similarly, psychotherapeutic treatments have proven effective for QOL enhancement. For instance, cognitive behavioral group therapy (CBGT) was shown to improve QOL in the short-term and keep QOL stable thereafter. Group therapy, especially when leading to long-lasting QOL stability, can be cost-effective for the patient when compared to individual therapy. But financial concerns aside, both group and individual psychotherapies have shown benefits on par with pharmacotherapy in alleviating disease burden and in improving QOL. CBT and EX/RP can dramatically impact a patient's understanding of OCD and help the patient learn how to maneuver around the

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obstacles that the obsessions and compulsions create. More research attention should also focus on the specific aspects of psychotherapy most beneficial to gaining improved QOL. Saxena *et al*.[54] showed that interventions are optimally administered when using a multidisciplinary approach, wherein the treatment of OCD could address the three dimensions of the illness: symptom severity, functional impairment, and quality of life. For example, the study suggests that OCD patient treatment should be augmented by targeting the patient's individual problems (e.g., victimization, safety, employment, and finances) to reach better appreciated results. Along with patient-specific treatment plans, research suggests that motivational interviewing can be key to strengthening patient adherence through the arduous exercises implemented during therapy in order to ultimately overcome the obsessions and compulsions.

Just as the current published evidence clearly shows that QOL is impaired in individuals suffering from OCD, studies also demonstrate how QOL is further affected by the presence of psychiatric or medical comorbidities.[17–19] Comorbid disorders with OCD, including major depressive disorder, body dysmorphic disorder, and impulse control disorders, show a larger impairment in QOL than OCD alone.[21,22,24,30,32] Specifically when dealing with comorbid major depression, the subscales of psychological health and social relations are the most adversely affected. In order to achieve a substantial impact on functioning and QOL, treatment strategies should aim to improve comorbid conditions along with OCD.[21,51]

While this review article has surveyed the impact of OCD on QOL, as well as the numerous ways that treatments can better patient QOL and satisfaction, it is important to note that our studies need to be viewed in light of several study limitations. First, studies were limited by sample size,[28,31,32,37,39,40,44,52] by significant dropout amounts,[39] and by having information about depressive symptoms that was gathered cross-sectionally.[30] Also, variable findings indicate the need for further research in order to definitively ascertain several factors, including the effects of OCD on physical impairment and the difference in the impacts of compulsions versus obsessions. And again, the role of comorbid depressive and anxiety symptoms as well as the efficacy of motivational interviewing on patient adherence should be more thoroughly investigated to better help healthcare providers develop treatment courses.

Further research that utilizes larger samples is needed. This research should examine the effects of demographic and clinical factors such as gender, age, symptom severity, and symptom types. Other facets of QOL and OCD that should be examined include longer follow-up after treatment, cost-effectiveness of different treatments, and comparing findings with different QOL measures. It may even be necessary to develop a tool specifically designed to measure quality of life in OCD in order to to pick up on the specific difficulties that this population experiences.[27] Randomized, controlled, large-sample studies need to be designed with three outcome measures: QOL, functioning, and OCD symptom severity. A new methodology of assessing the burden of illness that incorporates the above three outcomes has been studied in depression [Individual Burden of Illness Index for Depression (IBI-D)], and a similar tool could be designed for OCD.[59] Interventional research to improve QOL in OCD is also needed. Initial evidence shows the utility of the following interventions in other psychiatric disorders: exercise,[60] nutrition,[61] future-directed therapy,[62] meditation,[63] massage,[64] music,[65] and humor.[66] Such interventional research could contribute to the notion that the ultimate success of treatment lies not only in the complete remission of symptoms, but also in the overall improvement in QOL.

Conclusion

Quality of life in OCD patients is significantly impaired compared to that in the general population and to that in other psychiatric and medical disorders. OCD appears to hamper patients' ability to enjoy life just as strongly as other severe mental illnesses, such as major depression and schizophrenia. It is also largely affected by psychiatric and medical comorbidity, and at times, the additional weight of these comorbid symptoms (especially with regard to depression) is even more disruptive to QOL than the OCD symptoms alone. However, QOL in OCD has been shown to improve with medications and with individual and/or group CBT psychotherapy. Efforts should be made to encourage treatment compliance and adherence, often by implementing motivational interviewing, so that patients can finally enjoy life free from these disabling and demoralizing symptoms. Clinicians and researchers will need to include QOL measurement in research studies and in clinical settings, both at baseline and during follow-up in the treatment course, in order to assess treatment effectiveness and to monitor patients' progress toward the ultimate goal of full recovery from OCD.

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