

ORIGINAL ARTICLE

Quality of life in adolescents with obsessive-compulsive disorder

Analise de Souza Vivan,¹ Lidiane Rodrigues,² Guilherme Wendt,² Mônica Giaretton Bicca,¹ Aristides Volpato Cordioli¹

¹Department of Psychiatry, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. ²School of Psychology, Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, RS, Brazil.

Objective: To compare adolescents with and without obsessive-compulsive disorder (OCD) with regard to quality of life and to investigate the association between quality of life and clinical characteristics.

Methods: Participants were recruited from an epidemiological study conducted at high schools in the city of Porto Alegre, southern Brazil. The sample comprised 75 adolescents with OCD and 150 without the disorder, aged between 14 and 18 years. Participants were assessed using the following instruments: Schedule for Affective Disorders and Schizophrenia for School Aged Children – Present and Lifetime Version (K-SADS-PL), Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), World Health Organization Quality of Life Assessment – Abbreviated Version (WHOQOL-BREF), Beck Anxiety Inventory (BAI), and Beck Depressive Inventory – II (BDI-II).

Results: The two groups showed significant differences in relation to depression symptoms, anxiety symptoms, and quality of life (all domains), with a poorer performance among adolescents with OCD when compared to those without the disorder. Stepwise regression analysis revealed a significant association between BDI-II scores and quality of life, in all domains.

Conclusions: Our findings suggest that adolescents with OCD, especially those with depression symptoms, have a poorer quality of life when compared with adolescents without OCD.

Keywords: Obsessive-compulsive disorder; quality of life; adolescents; depression symptoms

Introduction

Obsessive-compulsive disorder (OCD) is an anxiety disorder characterized by the presence of recurrent and persistent obsessions and/or of compulsions performed in an attempt to prevent or reduce anxiety.¹ According to the World Health Organization, OCD is the fourth most frequent psychiatric disorder, after depression, social phobia, and substance abuse. Moreover, OCD is among the 10 major causes of disability worldwide, accounting for 2.2% of cases of disability due to general disease.²

OCD usually has an early onset, with an estimated prevalence of up to 4.2% in different samples of young adults around the world.^{3,4} In addition, as also reported for adults, comorbidities with other psychiatric disorders are very often observed in children and adolescents with OCD, with rates as high as 85%⁵ and a predominance of suicidal ideation and suicide attempts.^{6,7} When left untreated, OCD can evolve into a chronic condition, affecting different areas of life. In children and adolescents, the first signs of impairment are usually related to the performance of routine daily activities, maintenance of family and social relationships, and academic performance.^{8,9}

In spite of the early onset and major suffering and impairment caused by the disease, several individuals do not seek treatment. In general, individuals with OCD show self-criticism toward their own symptoms, and therefore fear exposing the contents of their obsessions and describing the rituals they perform.^{10,11} Moreover, many patients believe that verbalizing their obsessions will make them become true. Also, when sexual or aggressive obsessions are present, patients often fear being seen as crazy or dangerous by other people.¹² As a result, in many cases, OCD tends to remain untreated for several years (as long as 18.1 years in a previous study with an adult sample).¹³

As a consequence of the long years living with the disease, OCD ultimately affects the quality of life of patients, or their perception of subjective well-being. Even though there is no such thing as a global definition of quality of life, the concept usually includes aspects such as psychological well-being, satisfaction with life, social functioning and performance, life conditions, and social support.¹⁴ Only a few studies have assessed quality of life in adolescents with OCD, but studies conducted with adults suggest that these patients present lower quality of life scores when compared with control groups, including healthy, depressive, and heroine-dependent controls.¹⁵⁻¹⁸ One study involving children and adolescents has also suggested an important negative effect of OCD symptoms on quality of life.¹⁹ This scarcity of data related to the

Correspondence: Analise de Souza Vivan, Rua Mariante, 288, sala 408, CEP 90430-180, Porto Alegre, RS, Brazil.
E-mail: anavivan@gmail.com

Submitted Apr 01 2013, accepted May 16 2013.

quality of life of children and adolescents with OCD was the main motivation for the present study.

Therefore, the objectives of this study were 1) to compare adolescents with and without OCD with regard to quality of life, and 2) to investigate the association between quality of life and clinical characteristics, including obsessive-compulsive, depression, and anxiety symptoms.

Methods

This study was approved by the Research Ethics Committee of Hospital de Clínicas de Porto Alegre, Porto Alegre, RS, Brazil. All patients and guardians participating in the sample selection phase (epidemiological study) received an informed consent form; those who did not wish to be included in the research were required to sign and return the form to the investigators.

Participants and procedures

All participants were recruited from a population-based, epidemiological study conducted with high school students from the city of Porto Alegre, southern Brazil, designed to assess the prevalence of OCD and obsessive-compulsive symptoms in adolescents (publication of the results of the first study is currently under way). Seventy six adolescents with OCD were identified, but one refused to participate in the present experiment. The necessary number of controls was therefore calculated based on a sample of 75 participants with OCD. Taking into consideration a significance level of 5%, 80% power, a 1:2 ratio between cases and controls, a minimum odds ratio of 2.5, and a prevalence of 3%, a total minimum of 210 subjects was considered appropriate, namely 70 cases and 140 controls.

Total sample comprised 225 adolescents aged between 14 and 18 years: 75 had been diagnosed with OCD, and 150 did not have the disorder (control group).

Subjects with OCD should meet the diagnostic criteria for the disorder according to DSM-IV 1 and score ≥ 16 on the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS). Controls were randomly selected among participants; they had to score < 21 on the scale used to screen for obsessive-compulsive symptoms (Obsessive Compulsive Inventory – Revised, OCI-R) and should not have a diagnosis of OCD.

Data were collected between May 2009 and August 2011. Adolescents were interviewed individually by previously trained psychologists at a university hospital (Hospital de Clínicas de Porto Alegre) or at their homes.

Measures

Schedule for Affective Disorders and Schizophrenia for School Aged Children: Present and Lifetime Version (K-SADS-PL)

The Brazilian version of the K-SADS-PL was used to confirm the diagnosis of OCD.²⁰ The K-SADS-PL is a

semi-structured psychiatric interview designed to assess psychiatric disorders in children and adolescents aged 6 to 18 years according to DSM-IV criteria.¹

Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)

This instrument was used to assess the severity of obsessive-compulsive symptoms. The scale includes 10 items, five for obsessions and five for compulsions. Each item can be rated from 0 (none) to 4 (extreme) in relation to time, impairment, frequency, control, and discomfort.²¹

World Health Organization Quality of Life Assessment – Abbreviated Version (WHOQOL-BREF)

Quality of life was investigated using this instrument.²² The scale comprises 26 questions, each one rated according to five levels of severity, covering four domains: physical health, psychological health, social relations, and environment. For each domain, scores may range from 0 to 100, with higher scores suggesting a better quality of life.

Beck Anxiety Inventory (BAI)

This instrument assesses the presence and severity of anxiety symptoms. It includes 21 statements that describe anxiety symptoms and can be rated from 0 (not at all) to 3 (severely) with regard to symptom severity.²³

Beck Depressive Inventory-II (BDI-II)

The BDI-II was used to assess depression symptoms. This instrument includes 21 statements, with scores ranging from 0 to 3, which reflect increasing levels of severity for each symptom. The revised version, translated and adapted into Brazilian Portuguese by Goreinstein et al.,²⁴ was used in the present study.

Statistical analysis

Quantitative variables were expressed as mean and standard deviation, and categorical variables as absolute and relative frequencies. Means obtained for the two groups were compared using the *t* test, and proportions using Pearson's chi-square test. Associations among the scores of different scales in the group of adolescents with OCD were assessed using Pearson's linear correlation test. Multivariate models were used to control for confounding factors.

Considering OCD as the outcome, logistic regression was used and the risk estimated by odds ratio; considering quality of life scores as the outcome, linear regression analysis was used and the effect estimated by angle coefficient (*b*). A minimum *p*-value of 0.20 was used as the criterion for inclusion in the multivariate model.

Significance was set at 5% ($p \leq 0.05$). All analyses were performed using SPSS version 18.0.

Table 1 Clinical characteristics of adolescents with and without OCD (mean \pm SD)

Variables	With OCD (n=75)	Without OCD (n=150)	p-value*
WHOQOL-BREF			
Physical health	62.1 \pm 16.3	71.5 \pm 14.3	< 0.001
Psychological health	52.1 \pm 18.4	64.3 \pm 17.0	< 0.001
Social relations	62.6 \pm 20.0	70.0 \pm 18.6	0.006
Environment	56.0 \pm 14.7	63.1 \pm 14.9	0.001
Overall	63.0 \pm 18.1	71.4 \pm 18.1	0.001
BAI	17.8 \pm 11.0	9.5 \pm 7.5	< 0.001
BDI-II	20.8 \pm 11.5	12.6 \pm 9.7	< 0.001

BAI = Beck Anxiety Inventory; BDI-II = Beck Depressive Inventory-II; OCD = obsessive-compulsive disorder; WHOQOL-BREF = World Health Organization Quality of Life Assessment – Abbreviated Version.

* *t* test.

Results

Sample characteristics

The 75 adolescents with OCD were predominantly female (n=59, 78.7%); mean age was 16.2 \pm 1.1 years. Females also accounted for the majority of the 150 controls (n=90, 60%); mean age in this group was 16 \pm 1.0 years. The two groups were significantly different in relation to sex ($p = 0.008$). Girls included in the study showed a 2.5 higher chance of developing OCD when compared with boys (OR = 2.5; 95%CI: 1.3 to 4.7; $p = 0.006$), even after adjustment for age.

With regard to the severity of obsessive-compulsive symptoms among participants with OCD, overall Y-BOCS scores showed a mean of 21.1 \pm 4.1, namely 10.1 \pm 2.3 for obsessions and 11.0 \pm 2.8 for compulsions.

Results obtained for all clinical characteristics, including quality of life scores (according to WHOQOL-BREF), anxiety symptoms (BAI), and depression symptoms (BDI-II), are shown in Table 1. The groups showed differences in all variables assessed, and not only in overall WHOQOL-BREF scores, but also in each of the domains comprising the scale. Results obtained for the different WHOQOL-BREF domains and the differences between groups are better illustrated in Figure 1.

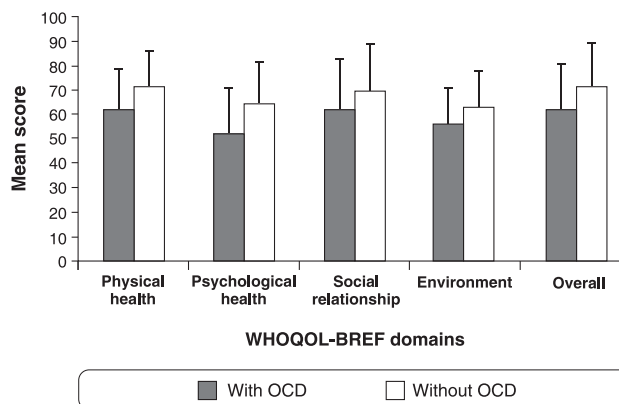
Following multivariate regression analysis, adolescents with OCD showed, on average, 6.1 lower scores in overall quality of life when compared with adolescents without the disorder ($b = -6.1$; 95%CI: -11.1 to -1.1; $p = 0.016$), regardless of sex.

Table 2 Pearson's correlation coefficient (*r*) between quality of life domains (WHOQOL-BREF) and clinical variables (scores obtained on Y-BOCS, BAI, and BDI-II) in adolescents with OCD

Variables	WHOQOL Physical	WHOQOL Psychol	WHOQOL Social	WHOQOL Envir	WHOQOL Overall
Y-BOCS					
Obsessions	-0.281*	-0.281*	0.114	0.020	-0.061
Compulsions	-0.101	-0.143	0.062	-0.053	0.017
Total	-0.227*	-0.247*	0.106	-0.024	-0.023
BAI	-0.340 [†]	-0.345 [†]	-0.110	-0.377 [‡]	-0.232*
BDI-II	-0.667 [‡]	-0.807 [‡]	-0.408 [‡]	-0.446 [‡]	-0.517 [‡]

BAI = Beck Anxiety Inventory; BDI-II = Beck Depressive Inventory-II; Envir = environment; OCD = obsessive-compulsive disorder; Physical = physical health; Psychol = psychological health; Social = social relationship; WHOQOL-BREF = World Health Organization Quality of Life Assessment – Abbreviated Version; Y-BOCS = Yale-Brown Obsessive-Compulsive Scale.

* $p < 0.05$; [†] $p < 0.01$; [‡] $p < 0.001$.

**Figure 1** Quality of life (WHOQOL-BREF) in adolescents with and without OCD. OCD = obsessive-compulsive disorder; WHOQOL-BREF = World Health Organization Quality of Life Assessment – Abbreviated Version.

Quality of life and clinical correlates

The following negative correlations were observed: a) between Y-BOCS Obsessive and Y-BOCS total scores and the physical and psychological domains; b) between BAI scores and overall quality of life scores plus the physical, psychological, and environment domains; and c) between BDI-II scores and all quality of life domains (Table 2). Other clinical characteristics, such as number of comorbidities and age at the onset of OCD, did not show significant association with quality of life scores.

Considering WHOQOL-BREF domains as dependent variables, stepwise regression analysis was used to assess the characteristics of adolescents with OCD. Independent variables were sociodemographic characteristics (sex and age) and clinical data (scores obtained on Y-BOCS, BAI, and BDI-II). Only BDI-II scores (depression symptoms) showed an association with quality of life, with significant results in all domains ($p < 0.001$).

Discussion

The findings of the present study revealed that adolescents with OCD, in addition to the already known impairment and suffering caused by the disorder, also have their quality of life affected. When compared with

adolescents without OCD, youngsters with the disorder showed significant differences in WHOQOL-BREF scores, both overall and in each domain. Negative correlations between WHOQOL-BREF scores and Y-BOCS, BAI, and BDI-II results were also observed.

Even though the impact of OCD on quality of life among adults is well documented, studies with adolescents are practically nonexistent. A study conducted in the Netherlands with subjects aged 8 to 18 years indicated that the presence of psychiatric disorders significantly interfered with the quality of life of children and adolescents. That study comprised a sample of 252 participants, of whom 50 presented anxiety disorders, but does not inform whether children and adolescents with OCD were present.²⁵ Another study has investigated quality of life in 310 children and adolescents with different psychiatric disorders. A total of 57 patients were assessed, with different anxiety disorders diagnosed, but only four had OCD. The study revealed that participants with anxiety disorders scored lower on psychosocial health and emotional function when compared with individuals with other diagnoses or without any psychopathology.²⁶

Conversely, studies involving adults are more frequent and have described specific characteristics of individuals with OCD. In line with our study, previous research has evidenced significant impairment in all quality of life domains in adults with OCD.^{16,18,27} Other studies have observed impairment associated with some but not all quality of life domains, e.g., environment¹⁷ and bodily pain,^{15,28,29} areas assessed by the WHOQOL-BREF and the Medical Outcomes Survey 36-Item Short-Form Health Survey (SF-36), respectively.

The impact of OCD on the psychological health domain has been consistently shown in the literature and can possibly be understood based on some well-established impairments associated with the disease. For instance, it is currently well known that adolescents with OCD show high levels of psychiatric comorbidities and an increased presence of depression and anxiety symptoms.^{5,30}

The social relationship domain has also been consistently shown in the literature to be strongly affected by OCD, especially with regard to family burden. As a rule, family members accommodate to obsessive-compulsive symptoms.³¹ Moreover, rage attacks, exaggerated criticism, and family isolation are extremely common.^{32,33} Symptoms also very often affect the patient's social interaction with peers, as a result of avoidance behaviors and rules that hamper events such as travelling, sleeping over a friend's place, or having a boy/girlfriend.

The environment domain has also been shown to be affected in adolescents with the disorder. Concerns with the environment are not only extremely common but also usually excessive, especially fear of dirt, contaminants, and germs. Concerns with personal and family safety are also very frequent and usually excessive (e.g., checking door locks, gas, electronic appliances).

In the physical health domain, sleep disturbances and difficulties performing daily life activities are common in patients with OCD, especially as a result of indecision

and slowness. Even though the assessment of pain is included in this domain, this symptom is not common among individuals with OCD. Studies using the SF-36 scale, which specifically assesses bodily pain, did not find significant results in this area.^{15,28,29}

Another important result of our study was a significant negative correlation between Y-BOCS Obsessions and Y-BOCS overall scores on the one hand and WHOQOL-BREF physical and psychological domains on the other. A previous study involving children and adolescents with OCD had already evidenced a negative correlation between Children's Y-BOCS scores and quality of life. When quality of life scores were assigned by parents, significant correlations were observed in all domains; when rated by children and adolescents, significant correlations were also found in most domains, except physical health.¹⁹

Our findings revealed a significant relationship between BDI-II scores in adolescents with OCD and quality of life results. Among the clinical characteristics assessed, BDI-II scores showed the strongest correlation with all quality of life domains. Moreover, according to the stepwise regression analysis, depression symptoms were the only independent variable associated with quality of life, with a significant result in all domains. Similar data have been reported by previous studies conducted with adults.^{29,34,35} These findings may be explained by the fact that, even though quality of life is considered a multifactorial construct, the different features analyzed by each of the domains are probably also present in the impairment associated with depression episodes, with a potential overlap between depression characteristics and the quality of life construct.

A previous study conducted with youngsters aged 7 to 20 years and designed to compare functional impairment in OCD patients with and without comorbidities with depressive disorders showed that those with comorbidities had more severe levels of functional impairment.³⁶ This relationship can also be analyzed using a causal model proposed by some investigators, where OCD would be a risk factor for the development of depression. Depression symptoms may therefore occur as a reaction to the high levels of anxiety, functional impairment, and suffering associated with a severe chronic and incapacitating condition such as OCD.³⁷

Our study adds to the existing body of knowledge by revealing important data on the quality of life of adolescents with OCD, but some limitations should be taken into consideration while interpreting results. The fact that we used a population-based sample, on the one hand, is a strength of the study, but on the other it prevents our data from being extrapolated to other populations of outpatients or inpatients, with potentially more severe symptoms and, as a consequence, a poorer quality of life. Another limitation of our study was the cross-sectional evaluation of patients: participants were interviewed at only one occasion, which prevented us from assessing relationships between possible changes in the severity of OCD symptoms and changes in specific quality of life domains. Finally, the cross-sectional design

of the study does not allow us to establish causal relationships between OCD and depression symptoms.

In summary, the findings of the present study contribute to improve our understanding of the quality of life of adolescents with OCD. Our results indicate that all quality of life domains were impaired in adolescents with OCD when compared with individuals without the disorder. Moreover, the depression symptoms often present in subjects with OCD seem to be associated with a poorer quality of life in all the domains assessed. Future studies are warranted to further improve our knowledge of these issues, if possible with a longitudinal design and with a focus on the relationship between OCD, depression symptoms, and quality of life.

Acknowledgement

This study received financial support from Fundo de Incentivo à Pesquisa e Eventos, Hospital de Clínicas de Porto Alegre (FIPE-HCPA) and from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), via a grant awarded to the lead investigator. The authors would like to thank the staff of the schools and the adolescents and parents who agreed to the use of their data in this study.

Disclosure

The authors report no conflicts of interest.

References

- American Psychiatric Association (APA). Diagnostic and statistical manual of mental disorders (4th ed., text revision). Washington: APA; 2000.
- Murray CJL, Lopez AD. The global burden of disease. Cambridge: Harvard University Press; 1996.
- Douglass HM, Moffitt TE, Dar R, McGee R, Silva P. Obsessive-compulsive disorder in a birth cohort of 18-year-olds: prevalence and predictors. *J Am Acad Child Adolesc Psychiatry*. 1995;34:1424-31.
- Yoldascan E, Ozenli Y, Kutlu O, Topal K, Bozkurt AI. Prevalence of obsessive-compulsive disorder in Turkish university students and assessment of associated factors. *BMC Psychiatry*. 2009;9:40.
- Canals J, Hernandez-Martinez C, Cosi S, Voltas N. The epidemiology of obsessive-compulsive disorder in Spanish school children. *J Anxiety Disord*. 2012;26:746-52.
- Balci V, Sevincok L. Suicidal ideation in patients with obsessive-compulsive disorder. *Psychiatry Res*. 2010;175:104-8.
- Sareen J, Cox BJ, Afifi TO, de Graaf R, Asmundson GJ, ten Have M, et al. Anxiety disorders and risk for suicidal ideation and suicide attempts: a population-based longitudinal study of adults. *Arch Gen Psychiatry*. 2005;62:1249-57.
- Valderhaug R, Ivarsson T. Functional impairment in clinical samples of Norwegian and Swedish children and adolescents with obsessive-compulsive disorder. *Eur Child Adolesc Psychiatry*. 2005;14:164-73.
- Piacentini J, Bergman RL, Keller M, McCracken J. Functional impairment in children and adolescents with obsessive-compulsive disorder. *J Child Adolesc Psychopharmacol*. 2003;13 Suppl 1:S61-9.
- Heyman I, Fombonne E, Simmons H, Ford T, Meltzer H, Goodman R. Prevalence of obsessive-compulsive disorder in the British nationwide survey of child mental health. *Br J Psychiatry*. 2001;179:324-9.
- Presta S, Marazziti D, Dell'Osso L, Pfanner C, Pfanner P, Marcheschi M, et al. Obsessive-compulsive disorder in childhood and adolescence. *Psychopathology*. 2003;36:55-64.
- Torres A, Lima M. Epidemiologia do transtorno obsessivo-compulsivo: uma revisão. *Rev Bras Psiquiatr*. 2005;27:237-42.
- Miguel EC, Ferrao YA, Rosario MC, Mathis MA, Torres AR, Fontenelle LF, et al. The Brazilian Research Consortium on Obsessive-Compulsive Spectrum Disorders: recruitment, assessment instruments, methods for the development of multicenter collaborative studies and preliminary results. *Rev Bras Psiquiatr*. 2008;30:185-96.
- Torresan RC, Ramos-Cerqueira AT, de Mathis MA, Diniz JB, Ferrao YA, Miguel EC, et al. Sex differences in the phenotypic expression of obsessive-compulsive disorder: an exploratory study from Brazil. *Compr Psychiatry*. 2009;50:63-9.
- Fontenelle IS, Fontenelle LF, Borges MC, Prazeres AM, Range BP, Mendlowicz MV, et al. Quality of life and symptom dimensions of patients with obsessive-compulsive disorder. *Psychiatry Res*. 2010;179:198-203.
- Stengler-Wenzke K, Kroll M, Matschinger H, Angermeyer MC. Subjective quality of life of patients with obsessive-compulsive disorder. *Soc Psychiatry Psychiatr Epidemiol*. 2006;41:662-8.
- Hou SY, Yen CF, Huang MF, Wang PW, Yeh YC. Quality of life and its correlates in patients with obsessive-compulsive disorder. *Kaohsiung J Med Sci*. 2010;26:397-407.
- Bobes J, Gonzalez MP, Bascaran MT, Arango C, Saiz PA, Bousono M. Quality of life and disability in patients with obsessive-compulsive disorder. *Eur Psychiatry*. 2001;16:239-45.
- Lack CW, Storch EA, Keeley ML, Geffken GR, Ricketts ED, Murphy TK, et al. Quality of life in children and adolescents with obsessive-compulsive disorder: base rates, parent-child agreement, and clinical correlates. *Soc Psychiatry Psychiatr Epidemiol*. 2009;44:935-42.
- Brasil HHA. Desenvolvimento da versão brasileira da K-SADS-PL (Schedule for Affective Disorders and Schizophrenia for School Aged Children Present and Lifetime Version) e estudo de suas propriedades psicométricas [dissertation]. São Paulo: Universidade Federal de São Paulo; 2003.
- Goodman WK, Price LH, Rasmussen SA, Mazure C, Delgado P, Heninger GR, et al. The Yale-Brown Obsessive Compulsive Scale. II. Validity. *Arch Gen Psychiatry*. 1989;46:1012-6.
- Development of the World Health Organization WHOQOL-BREF quality of life assessment. The WHOQOL Group. *Psychol Med*. 1998;28:551-8.
- Cunha J. Manual da versão em português das escalas de Beck. São Paulo: Casa do Psicólogo; 2001.
- Goreinstein C, Pang WY, Argimon IIL, Werlang BSG. Manual do Inventário de Depressão de Beck - BDI-II. São Paulo: Casa do Psicólogo; 2011.
- Bastiaansen D, Koot HM, Ferdinand RF. Determinants of quality of life in children with psychiatric disorders. *Qual Life Res*. 2005;14:1599-612.
- Bastiaansen D, Koot HM, Ferdinand RF, Verhulst FC. Quality of life in children with psychiatric disorders: self-, parent, and clinician report. *J Am Acad Child Adolesc Psychiatry*. 2004;43:221-30.
- Eisen JL, Mancebo MA, Pinto A, Coles ME, Pagano ME, Sturt R, et al. Impact of obsessive-compulsive disorder on quality of life. *Compr Psychiatry*. 2006;47:270-5.
- Rodriguez-Salgado B, Dolengevich-Segal H, Arrojo-Romero M, Castelli-Candia P, Navio-Acosta M, Perez-Rodriguez MM, et al. Perceived quality of life in obsessive-compulsive disorder: related factors. *BMC Psychiatry*. 2006;6:20.
- Albert U, Maina G, Bogetto F, Chiarle A, Mataix-Cols D. Clinical predictors of health-related quality of life in obsessive-compulsive disorder. *Compr Psychiatry*. 2010;51:193-200.
- Sukhodolsky DG, do Rosario-Campos MC, Scahill L, Katsovich L, Pauls DL, Peterson BS, et al. Adaptive, emotional, and family functioning of children with obsessive-compulsive disorder and comorbid attention deficit hyperactivity disorder. *Am J Psychiatry*. 2005;162:1125-32.
- Calvocoressi L, Lewis B, Harris M, Trufan SJ, Goodman WK, McDougle CJ, et al. Family accommodation in obsessive-compulsive disorder. *Am J Psychiatry*. 1995;152:441-3.
- Futh A, Simonds LM, Micali N. Obsessive-compulsive disorder in children and adolescents: parental understanding, accommodation, coping and distress. *J Anxiety Disord*. 2012;26:624-32.

- 33 Storch EA, Jones AM, Lack CW, Ale CM, Sulkowski ML, Lewin AB, et al. Rage attacks in pediatric obsessive-compulsive disorder: phenomenology and clinical correlates. *J Am Acad Child Adolesc Psychiatry*. 2012;51:582-92.
- 34 Hauschildt M, Jelinek L, Randjbar S, Hottenrott B, Moritz S. Generic and illness-specific quality of life in obsessive-compulsive disorder. *Behav Cogn Psychother*. 2010;38:417-36.
- 35 Stengler-Wenzke K, Kroll M, Riedel-Heller S, Matschinger H, Angermeyer MC. Quality of life in obsessive-compulsive disorder: the different impact of obsessions and compulsions. *Psychopathology*. 2007;40:282-9.
- 36 Storch EA, Lewin AB, Larson MJ, Geffken GR, Murphy TK, Geller DA. Depression in youth with obsessive-compulsive disorder: clinical phenomenology and correlates. *Psychiatry Res*. 2012;196:83-9.
- 37 Yap K, Mogan C, Kyrios M. Obsessive-compulsive disorder and comorbid depression: the role of OCD-related and non-specific factors. *J Anxiety Disord*. 2012;26:565-73.