

Quality of Life in Children With Psychiatric Disorders: Self-, Parent, and Clinician Report

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ABSTRACT

Objective: To study the relationship between child psychiatric disorders and quality of life (QoL). **Method:** In a sample of 310 children (ages 6–18 years) referred for psychiatric problems, children, parents, and clinicians reported on psychopathology and subjective and objective QoL indicators. **Results:** Six diagnostic categories were distinguished: attention-deficit and disruptive behavior disorders, anxiety disorders, pervasive developmental disorders, mood disorders, other disorders, and no diagnosis. In overall QoL, no differences were found between the diagnostic categories, except in clinician's ratings, who rated children with pervasive developmental disorder as having a poorer QoL than children with other diagnoses. In each diagnostic category specific QoL subdomains were affected: for children with attention-deficit and disruptive behavior disorder, school functioning and social functioning; for children with anxiety disorder, emotional functioning; for children with pervasive developmental disorder, social functioning; and for children with mood disorder, emotional functioning. **Conclusions:** Across multiple raters, the distinguished child psychiatric disorders had a different impact on QoL. Knowledge about domains of QoL that are affected in specific child psychiatric disorders can help clinicians to focus on particular QoL domains during the diagnostic process and to define adequate treatment goals. *J. Am. Acad. Child Adolesc. Psychiatry*, 2004;43(2):221–230. **Key Words:** child psychiatric disorders, functional impairment, quality of life.

Quality of life (QoL) measurement in child psychiatric populations addresses a wide range of aspects concerning a patient's functional adaptation in his or her context. It encompasses more than simple symptom listing, but emphasizes the patient's subjective satisfaction with his or her functioning in everyday life. Since most psychiatric illnesses tend to persist (Hofstra et al., 2000), improvement in the quality of everyday life should be an important treatment goal (Schmeck and Poustka, 1997). The concept of QoL could also be used to

define outcome variables in treatment outcome research. To fine-tune interventions, more knowledge is needed regarding the impact of psychiatric diseases on different aspects of QoL.

QoL is defined as a multidimensional concept that taps a person's subjective functioning and objective indicators (Schmeck and Poustka, 1997). The subjective functioning comprises the physical, emotional, and social functioning of the individual (Wallander et al., 2001). The objective QoL indicators include living conditions, employment or school functioning, and social relationships (Lehman, 1988; Mogotsi et al., 2000). In QoL measurement, besides information from the patient, information from significant others may also be very important (Wallander et al., 2001), especially when the patient's perspective may be flawed or distorted by psychiatric symptoms (Sainfort et al., 1996). Significant others can provide information on both subjective and objective QoL indicators.

Most research on QoL in adult psychiatry has concerned patients with schizophrenia and, more recently, patients with depression and anxiety disorders (Bonicatto et al., 2001; Mogotsi et al., 2000). These studies

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concluded that the QoL of psychiatric patients is considerably poorer than that of individuals from the general population, and comparable to or even poorer than that of physically ill patients. Surprisingly, until now little attention has been paid to QoL in children and adolescents with psychiatric disorders. Bastiaansen et al. (in press) and Sawyer et al. (2002) reported a poorer overall QoL for children with psychiatric disorders compared to children with no disorder. Landgraf et al. (1996) reported a poorer QoL for children with psychiatric disorders versus children with physical disorders in many areas. So far, only two studies have compared QoL between children and adolescents with different psychiatric diagnoses. In the study by Clark and Kirisci (1996), posttraumatic stress disorder, major depressive disorder (MDD), and alcohol use disorder in adolescents from a combined clinical and community sample had different effects on QoL. In the general population study by Sawyer et al. (2002), children with MDD showed a poorer physical and emotional functioning than children with attention-deficit/hyperactivity disorder (ADHD) or conduct disorder.

The two above-mentioned studies (Clark and Kirisci, 1996; Sawyer et al., 2002) have several limitations concerning community samples, age distribution, type of informants providing information, and type of child psychiatric diagnoses included. Clark and Kirisci (1996) included only children aged 12 years and older and used information from self-report. Sawyer et al. (2002) relied on information obtained from parents only and used a community sample. Therefore, the aim of the present study was to determine the relationship between the most prevalent child psychiatric diagnoses and QoL as reported by the child, the parents, and the attending clinician in a clinical sample of children aged 6 to 18 years. Information was collected on both subjective and objective QoL indicators. Furthermore, we studied the agreement in reported QoL between child, parent, and clinician. We expected QoL to be poorest in those areas of life that are most affected by the symptoms specific to the diagnosis: emotional functioning in children with anxiety and mood disorders, social functioning in children with pervasive developmental disorders, and social and school functioning in children with attention-deficit or disruptive disorders.

METHOD

Procedure and Participants

The target sample consisted of consecutive referrals of children and adolescents aged 6 to 18 years who had been referred between

August 1, 2000, and September 15, 2001, to a general or a university outpatient child psychiatric clinic in Rotterdam, The Netherlands. By recruiting patients from these two clinics, children with a broad range of presenting problems, ranging from mild to severe, were included. A clinician informed the children and their parents about the QoL study during their first visit to the clinic and asked for their participation. After informed consent was obtained from the child and parents, questionnaires were sent to their homes for completion and an appointment was made for a home visit. During this visit the completed questionnaires were checked for missing data and the child and parents filled in additional questionnaires in the presence of an interviewer. Following all required diagnostic procedures in the clinic, the child's clinician informed the researchers on the diagnosis and functional impairment of the child. Finally, questionnaires concerning psychopathology and school results were sent to the child's teacher. The study was conducted after approval by the university hospital medical ethical committee.

A total of 310 children and their parents were included (response 73.1% of the eligible sample). There were no significant differences between responders and nonresponders in the distribution of sex ($\chi^2_1 = 0.11, p = .74$), age ($t_{422} = 1.36, p = .17$), socioeconomic status (SES) ($\chi^2_2 = 1.39, p = .50$), or Total Problem score on the Child Behavior Checklist (CBCL) (Achenbach, 1991a) ($t_{390} = 1.67, p = .09$). SES was assessed using a 9-point scale of parental occupation, with 1 to 3 corresponding with elementary and lower occupations (low SES), 4 and 5 corresponding with middle occupations (medium SES), and 6 to 9 corresponding with higher and scientific occupations (high SES). Completed questionnaires from both child and parent were available in 293 (94.5%) cases, from the child only in 3 (1.0%) cases, and from the parent only in 14 (4.5%) cases. The parental informant was mainly the child's mother (89.9%). The mean age for the total sample of 185 boys (59.7%) and 125 girls (40.3%) was 11.3 years (SD = 3.2; range 6.0–18.2 years). In terms of SES, 33.2% of the children came from low SES families, 30.0% from medium SES families, and 36.8% from high SES families.

Measures

Pediatric Quality of Life Inventory Version 4.0. The Pediatric Quality of Life Inventory Version 4.0 (PedsQL) (Varni et al., 2001) was used to measure the child's QoL from the perspective of the child and the parents. It has a child self-report and a parallel parent proxy-report format and has different versions for ages 5 to 7, 8 to 12, and 13 to 18 years. The items on each of the forms differ slightly in developmentally appropriate language or use of the first or third person. The parent proxy-report format assesses the parent's perceptions of the child's QoL. The instructions in each question ask how much of a problem an item has been for the child during the past month. By formulating the instruction in this way, the informant is not asked to rate the frequency with which a certain behavior took place, but how much the child was suffering from the behavior. The 23 items are scored on a 5-point Likert scale from 100 to 0 (100 = "never a problem"; 0 = "almost always a problem"; higher scores indicated a better QoL). Four subscales can be computed from the 23 items, covering different dimensions of QoL: (1) physical functioning (8 items; e.g., "hard to do sports or exercises"); (2) emotional functioning (5 items; e.g., "feel angry" or "feel afraid"); (3) social functioning (5 items; e.g., "trouble getting along with peers"); and (4) school functioning (5 items; e.g., "trouble keeping up with schoolwork"). A scale score is computed as the sum of the items divided by the number of items answered. Also, a psychosocial health summary score and a Total Scale score can be computed. The psychosocial health summary score (15 items) is the sum of the items divided by the number of items

answered in the emotional, social, and school functioning subscales. Good reliability and validity of the PedsQL have been reported (Bastiaansen et al., in press; Varni et al., 2001).

Child and Adolescent Functional Assessment Scale. The Child and Adolescent Functional Assessment Scale (CAFAS) (Hodges, 1997) was used to measure the child's QoL from the perspective of the clinician, working with the child and parents. It is designed to measure functional impairment across multiple domains in children and adolescents. Impairment is operationalized as the degree to which the child's problems interfere with his or her functioning in various life roles. The child's functioning is rated on eight domains: (1) Role Performance-School/Work (e.g., "school grades are below average"); (2) Role Performance-Home (e.g., "comply with rules"); (3) Role Performance-Community (e.g., "delinquent behavior"); (4) Behavior Toward Others (e.g., "difficulties in interactions with friends"); (5) Moods/Emotions (e.g., "fears" or "sad"); (6) Self-Harmful Behavior (e.g., "harming self"); (7) Substance Use (e.g., "usage of alcohol or drugs"); and (8) Thinking (e.g., "thought distortions"). Each domain contains numerous behavioral descriptions, divided into four categories of impairment and scored as follows: 30, severe; 20, moderate; 10, mild; or 0, minimal or no impairment. The rater determines for each domain the category that describes the child's most severe level of dysfunctioning during the past 3 months. The eight domain scores are summed to yield a CAFAS Total Child score, with a possible range from 0 to 240; higher scores indicate more impairment. The CAFAS is a reliable and valid instrument (Hodges and Wong, 1996).

Child Behavior Checklist/4-18 and Teacher's Report Form. To assess the effect of the severity of the emotional and behavioral problems on experienced QoL, we used the CBCL (Achenbach, 1991a) and the Teacher's Report Form (TRF) (Achenbach, 1991b). The CBCL and the TRF obtain standardized parent and teacher reports of children's problem behavior over the preceding 6 and 2 months, respectively. The problem items are scored on a 3-point Likert scale, and a Total Problem score can be obtained by summing the scores on all individual problem items. Studies have shown good reliability and validity of the Dutch CBCL and TRF (Verhulst et al., 1996, 1997).

The DSM-IV Checklist Interview. The DSM-IV Checklist Interview (Hudziak et al., 1993), a software-only interview created for the diagnostic assessment of psychiatric disorders, was used to establish subjects' diagnoses. The interview text is written as it appears in the DSM-IV and includes the psychiatric disorders as listed in Table 1. Diagnoses not included were added, such as pervasive developmental disorder. The validity of the instrument was shown in an agreement of 95% between attending psychiatrists' diagnoses and the DSM-IV Checklist Interview (Hudziak et al., 1993).

To confirm the validity of the DSM-IV Checklist Interview, we determined associations between the DSM-IV Checklist Interview diagnoses and the DSM-oriented scales of the CBCL and TRF (Achenbach and Rescorla, 2001). The DSM-oriented scales of the CBCL and TRF comprise problems that psychiatrists and psychologists from 16 cultures rated as very consistent with diagnostic categories of the DSM-IV (Achenbach and Rescorla, 2001). The following DSM-oriented scales for both CBCL and TRF can be computed by summing the scores on the individual problem items: (1) affective problems; (2) anxiety problems; (3) somatic problems; (4) attention-deficit/hyperactivity problems; (5) oppositional defiant problems; and (6) conduct problems. We performed forward stepwise logistic regression analyses. A first logistic regression analysis was performed with all continuous DSM-oriented scales of the CBCL and TRF as predictor variables and a DSM-IV Checklist Interview diagnosis of "any mood disorder" as the dependent variable. Similar regression analyses were performed for the following DSM-IV Checklist Interview diagnoses that were present in more

than 10 cases and for which correspondence with a DSM-oriented scale of the CBCL or TRF could be expected: "any anxiety disorder," ADHD, oppositional defiant disorder, and "any somatoform disorder." Logistic regressions yield odds ratios (ORs) for specific outcomes (a DSM-IV Checklist Interview diagnosis) in relation to predictor variables (DSM-oriented scales of CBCL and TRF). ORs greater than 1 indicate a positive association between the predictor and the outcome variable, while values smaller than 1 indicate a negative association. Likelihood ratio tests were used to test the significance of full regression models, and Wald tests were used to test the significance of each predictor variable. The forward stepwise logistic regression analyses were used to identify the best set of predictors, using a significance criterion of $p < .05$ for inclusion. In this way, DSM-oriented scales that did not contribute to the prediction of a DSM-IV Checklist Interview diagnosis, independently of other scales, were not included in the model.

The forward stepwise logistic regression analysis indicated that a DSM-IV Checklist Interview diagnosis of "any mood disorder" was predicted by the CBCL DSM-scale affective problems (OR = 1.22, $p < .01$), TRF DSM-scale affective problems (OR = 1.27, $p < .01$), CBCL DSM-scale conduct problems (OR = 0.78, $p < .01$), and TRF DSM-scale anxiety problems (OR = 0.77, $p < .05$). Hence, these DSM-oriented scales of CBCL and TRF predicted the presence of a DSM-IV Checklist Interview diagnosis of "any mood disorder" independently of other scales.

Similar results were found for the other DSM-IV Checklist Interview diagnoses. A DSM-IV Checklist Interview diagnosis of "any anxiety disorder" was predicted by CBCL DSM-scale anxiety problems (OR = 1.47, $p < .01$), CBCL DSM-scale affective problems (OR = 0.83, $p < .01$), and TRF DSM-scale ADHD problems (OR = 0.89, $p < .01$). A DSM-IV Checklist Interview diagnosis of ADHD was predicted by CBCL DSM-scale ADHD problems (OR = 1.24, $p < .01$), TRF DSM-scale ADHD problems (OR = 1.09, $p < .01$), and CBCL DSM-scale anxiety problems (OR = 0.84, $p < .05$). A DSM-IV Checklist Interview diagnosis of oppositional defiant disorder was predicted by CBCL DSM-scale conduct problems (OR = 1.14, $p < .01$). Finally, a DSM-IV Checklist Interview diagnosis of "any somatoform disorder" was predicted by CBCL DSM-scale somatic problems (OR = 1.45, $p < .05$), and CBCL DSM-scale ADHD problems (OR = 0.56, $p < .05$).

In summary, the results showed that an increase in scores on a specific DSM-oriented scale of the CBCL or TRF increased the likelihood of the presence of the corresponding diagnosis on the DSM-IV Checklist Interview, and the unlikelihood of the presence of noncorresponding diagnoses.

The checklist was completed after all diagnostic information was obtained from the child, parents, and teacher. Multiple diagnoses were allowed. The diagnosis of greatest immediate clinical significance was taken as the primary diagnosis.

Objective Quality of Life Indicators. Several aspects of functional status of the children were studied. From the first part of the CBCL and TRF, we obtained information on the number of sports and number of organizations the child was participating in, number of friends, academic performance, and special education. The items were scored according to the rules of the CBCL and TRF manual (Achenbach, 1991a,b). From a questionnaire on demographic data, we registered whether the parents were divorced. Furthermore, the child reported on the number of persons inside and outside the family seen as important to himself or herself.

Data Analysis

Sex, age, and SES differences between diagnostic categories were analyzed using the χ^2 test and one-way analysis of variance

TABLE 1
Number of Children and Distribution of Sex and Mean Age Across the Diagnostic Categories

Diagnostic Category	No.	%	Sex (%)		Age (yr)	
			Male	Female	Mean	SD
Attention-deficit and disruptive behavior disorders	107	35	76.6	23.4	10.4	3.0
Attention-deficit disorder	39					
Disruptive behavior disorder	28					
Attention-deficit and disruptive behavior disorder	16					
Attention-deficit/disruptive disorder and anxiety disorder	7					
Attention-deficit/disruptive disorder and mood disorder	9					
Attention-deficit/disruptive disorder and any other disorder	8					
Anxiety disorders	57	18	38.6	61.4	11.4	3.1
Specific phobia	2					
Social phobia	4					
Separation anxiety disorder	7					
Obsessive-compulsive disorder	4					
Posttraumatic stress disorder	11					
Generalized anxiety disorder	8					
Panic disorder	1					
Other anxiety disorders	13					
Combination of anxiety disorders	4					
Anxiety disorder and dysthymic disorder	3					
Pervasive developmental disorders	28	9	82.1	17.9	9.7	2.4
Autistic disorder	5					
Asperger's disorder	4					
Pervasive developmental disorder not otherwise specified	14					
Pervasive developmental disorder and any other disorder	5					
Mood disorders	29	9	31.0	69.0	11.8	3.4
Depressive disorder	6					
Dysthymic disorder	18					
Depressive disorder and any other disorder	5					
Other disorders	22	7	50.0	50.0	12.0	3.3
Somatoform disorder	6					
Communication or learning disorder	9					
Other	7					
No diagnosis	67	22	56.7	43.3	12.6	3.2

(ANOVA). Mean scale scores on questionnaires for the different diagnostic categories were compared using ANOVA with a 6 (diagnostic category) \times 2 (ages 6–12 versus 13–18 years) \times 2 (sex) factorial design. In case of a significant F ratio for diagnostic category, a least square differences (LSD) post hoc test was carried out. To control for overall severity of problem behavior that might conceal differences between diagnostic groups, Total Problem scores on CBCL and TRF were added as covariates to the ANOVA.

Differences in objective QoL indicators between diagnostic categories were analyzed using the χ^2 test and ANOVA. In case of a significant F ratio for diagnostic category, LSD post hoc tests were carried out. To assess agreement between ratings of parents, children, and clinicians, Pearson correlations were computed. Significance was set at $p \leq .05$.

RESULTS

Diagnostic Categories

Six diagnostic categories were distinguished: attention-deficit and disruptive behavior disorders, anxiety

disorders, pervasive developmental disorders, mood disorders, other disorders, and no diagnosis. The latter contained children who had been referred to mental health services but for whom no *DSM-IV* diagnosis could be made. There were no differences in CBCL and TRF Total Problem scores between this group of children and the other children ($t_{303} = 0.68, p = .50$ for CBCL Total Problem score and $t_{252} = 1.65, p = .10$ for TRF Total Problem score). The category "other disorders" contained children with a diagnosis of somatoform disorder, tic disorder, or another disorder not listed above. Table 1 shows the characteristics of each diagnostic category. Boys had significantly more attention-deficit and disruptive behavior disorders and pervasive developmental disorders; girls had more anxiety disorders and mood disorders ($\chi^2_5 = 40.17, p < .001$). Children with attention-deficit and disruptive behavior

disorders and pervasive developmental disorders had a lower mean age than children in the other diagnostic categories ($F_5 = 6.00, p < .001$). No SES differences were found ($\chi^2_{10} = 12.83, p = .23$).

Child and Parent Report on Quality of Life

Table 2 shows child and parent PedsQL scores; higher scores reflect a better QoL. There were no significant differences in Total PedsQL scores between diagnostic categories. In the PedsQL parent report, however, significant differences in subscale scores between diagnostic categories were found for satisfaction with psychosocial health ($p < .01$; proportion of explained variance [PEV] = 6%), satisfaction with emotional functioning ($p < .01$; PEV = 6%), and satisfaction with school functioning ($p < .05$; PEV = 4%). Post hoc tests were performed to determine which effects were responsible for these significant differences (see footnotes in Table 2). Children with attention-deficit and disruptive behavior disorder, for instance, were scored significantly higher than children with anxiety disorder ($p < .01$) on satisfaction with emotional functioning.

The CBCL Total Problem score was associated with the child Total PedsQL score ($p < .05$; PEV = 3%), and the CBCL Total Problem score was associated with the parent Total PedsQL score ($p < .01$; PEV = 38%). The TRF Total Problem score showed no significant association with the child Total PedsQL score or the parent Total PedsQL score. The CBCL Total Problem score was associated with the child PedsQL physical and school functioning score ($p < .05$; PEV = 2–3%) and with all parent subdomain PedsQL scores ($p < .01$; PEV = 11–28%). The TRF Total Problem score was associated only with the child and parent PedsQL social functioning score ($p < .01$, PEV = 4%; $p < .05$, PEV = 2%, respectively), and not with the other subdomain PedsQL scores.

To control for overall severity of problem behavior that might conceal differences between diagnostic groups, CBCL and TRF Total Problem scores were added as covariates to the ANOVA. The only difference between diagnostic categories that remained significant was the parent PedsQL report on satisfaction with emotional functioning ($p < .05$; PEV = 5%).

There was no significant difference in child and parent Total PedsQL scores between children with one diagnosis versus those with more than one diagnosis in the category attention-deficit and disruptive behavior disorder. This was the only category in which the num-

ber of children with multiple diagnoses was adequate for testing differences in QoL between diagnostic categories.

Clinician Report on Quality of Life

Table 3 shows mean CAFAS scale scores for different diagnostic categories; a higher score means more impairment. There was a significant ($p < .05$; PEV = 5%) difference in the CAFAS Total Child score between the diagnostic categories. Significant differences in subscale scores were found for Role Performance-Home ($p < .01$; PEV = 8%), Behavior Toward Others ($p < .01$; PEV = 8%), Moods/Emotions ($p < .01$; PEV = 14%), and Thinking ($p < .01$; PEV = 11%). To determine which effects were responsible for significant differences in scale scores, post hoc tests were performed (see footnotes in Table 3). On the CAFAS Total Child score, for instance, children with pervasive developmental disorder were scored significantly ($p < .01$) higher than all other categories.

Agreement Between Informants

Table 4 shows the correlations between parent Total PedsQL score, child Total PedsQL score, and clinician CAFAS Total Child score for ages 6 to 12 and 13 to 18 separately. Correlations between the child Total PedsQL score and the parent Total PedsQL score were moderate (Cohen, 1988); correlations between the child Total PedsQL score and the clinician CAFAS Total Child score were small (Cohen, 1988). Correlations were somewhat higher for older children than for younger children. Correlations between the parent Total PedsQL score and the clinician CAFAS Total Child score were moderate.

Objective Quality of Life Indicators

Four objective QoL indicators were significantly different between diagnostic categories: (1) children with pervasive developmental disorder had fewer friends than all other categories ($\chi^2_{15} = 48.4, p < .01$); (2) children with attention-deficit and disruptive behavior disorder showed a lower academic performance than children with anxiety disorders and other disorders ($F_5 = 2.7, p < .05$); (3) more parents of children with attention-deficit and disruptive behavior disorder, mood disorder, or no diagnosis were divorced than those of children in the other three categories ($\chi^2_5 = 17.9, p < .01$); (4) more children in the categories pervasive developmental disorder and other disorder received special education ($\chi^2_5 = 16.6, p < .01$).

TABLE 2
Mean Scale Scores (SD) on PedsQL Child Self-Report and Parent Proxy-Report for Different Diagnostic Categories

Scale	Attention-Deficit and Disruptive Behavior Disorders (n = 107)		Anxiety Disorders (n = 57)		Pervasive Developmental Disorders (n = 28)		Mood Disorders (n = 29)		Other Disorders (n = 22)		No Diagnosis (n = 67)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Child self-report												
Total Score	72.4	(12.2)	71.3	(12.2)	69.6	(14.0)	69.7	(13.1)	75.4	(13.5)	73.5	(13.2)
Physical Functioning	84.3	(13.2)	78.6	(15.6)	78.5	(14.3)	80.0	(13.3)	79.9	(13.1)	80.4	(14.8)
Psychosocial Health	66.0	(14.7)	67.4	(13.6)	64.8	(16.6)	64.2	(15.0)	72.9	(16.0)	69.8	(14.3)
Emotional Functioning	61.3	(19.5)	59.0	(17.7)	63.8	(17.4)	55.5	(21.7)	68.4	(21.5)	62.6	(19.8)
Social Functioning	70.3	(21.4)	74.4	(19.5)	63.1	(23.0)	73.3	(22.0)	79.5	(17.5)	77.0	(17.7)
School Functioning	66.4	(16.2)	68.9	(13.9)	67.6	(20.5)	63.9	(16.4)	71.0	(21.0)	70.2	(17.2)
Parent proxy-report												
Total Score	65.8	(13.5)	66.0	(14.2)	61.5	(13.1)	65.7	(11.7)	74.3	(15.0)	70.1	(14.7)
Physical Functioning	80.3	(16.2)	80.3	(17.6)	76.3	(22.0)	79.2	(17.8)	82.1	(19.7)	80.4	(17.8)
Psychosocial Health	58.0 ^{a,c}	(15.4)	58.2 ^{a,b}	(15.1)	53.7 ^{a,c}	(12.4)	58.6 ^a	(12.3)	70.1	(16.8)	64.7	(15.1)
Emotional Functioning	54.9 ^{a,d}	(18.7)	46.8 ^{a,c}	(16.7)	53.7 ^a	(14.0)	49.1 ^{a,b}	(16.9)	67.7	(18.7)	58.5	(20.1)
Social Functioning	59.1	(22.5)	66.3	(25.7)	47.2	(20.2)	66.2	(18.4)	70.8	(21.1)	70.6	(20.2)
School Functioning	59.8 ^{b,e}	(17.8)	62.0 ^e	(17.8)	61.4	(15.8)	60.6 ^e	(16.7)	72.0	(19.7)	65.5	(19.6)

Note: PedsQL = Pediatric Quality of Life Inventory.

^a Lower score than children in the category Other Disorders at $p < .01$.

^b Lower score than children in the category No Diagnosis at $p < .05$.

^c Lower score than children in the category No Diagnosis at $p < .01$.

^d Higher score than children in the category Anxiety Disorders at $p < .01$.

^e Lower score than children in the category Other Disorders at $p < .05$.

TABLE 3
Mean Scale Scores (SD) on CAFAS for Different Diagnostic Categories

Scale	Attention-Deficit and Disruptive Behavior Disorders (n = 106)		Anxiety Disorders (n = 57)		Pervasive Developmental Disorders (n = 27)		Mood Disorders (n = 28)		Other Disorders (n = 22)		No Diagnosis (n = 55)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Total Child Score	44.1 ^b	(23.6)	41.6	(30.2)	63.0 ^a	(33.2)	33.6	(16.4)	31.4	(21.0)	37.8	(30.7)
Role Performance-School/Work	12.7	(8.0)	8.8	(10.4)	11.8	(9.2)	6.8	(7.2)	10.0	(10.2)	8.5	(8.6)
Role Performance-Home	11.7 ^{b,c}	(8.3)	6.5 ^d	(7.2)	11.1	(8.5)	4.8 ^e	(5.8)	7.3	(8.8)	9.6	(8.4)
Role Performance-Community Behavior Toward Others	1.5	(4.3)	1.0	(4.1)	0.7	(2.7)	0.0	(0.0)	0.0	(0.0)	0.9	(4.0)
Moods/Emotions	9.5 ^c	(6.8)	6.3	(6.5)	13.3 ^a	(6.8)	5.6	(5.1)	6.8	(4.8)	7.8	(6.0)
Self-Harmful Behavior	7.3	(5.9)	14.5 ^f	(7.1)	13.0 ^f	(6.1)	14.3 ^f	(5.7)	5.4	(5.1)	7.6	(6.9)
Substance Use	0.3	(2.1)	1.0	(3.6)	1.5	(6.0)	1.4	(4.5)	0.0	(0.0)	0.9	(4.4)
Thinking	0.5	(2.5)	0.5	(4.0)	0.4	(1.9)	0.0	(0.0)	0.5	(2.1)	0.7	(3.8)
	0.7	(2.5)	2.8 ^g	(5.6)	11.1 ^a	(10.5)	1.1	(3.2)	1.4	(4.8)	2.0	(4.9)

Note: CAFAS = Child and Adolescent Functional Assessment Scale.

^a Higher score than children in all other categories at $p < .01$.

^b Higher score than children in the category Other Disorders at $p < .05$.

^c Higher score than children in the categories Anxiety Disorders and Mood Disorders at $p < .01$.

^d Lower score than children in the categories Pervasive Developmental Disorders and No Diagnosis at $p < .05$.

^e Lower score than children in the categories Pervasive Developmental Disorders and No Diagnosis at $p < .01$.

^f Higher score than children in the categories Attention-Deficit and Disruptive Behavior Disorders, Other Disorders, and No Diagnosis at $p < .01$.

^g Higher score than children in the category Attention-Deficit and Disruptive Behavior Disorders at $p < .05$.

TABLE 4
Cross-Informant Correlations Between PedsQL Child and Parent Report and CAFAS Clinician Report

	PedsQL Total Score, Child Report	PedsQL Total Score, Parent Report	CAFAS Total Score, Clinician Report
PedsQL Total Score, child report	—	0.38**	-0.07
PedsQL Total Score, parent report	0.51**	—	-0.39**
CAFAS Total Score, clinician report	-0.25*	-0.37**	—

Note: Age group 6–12 years above and age group 3–18 years below diagonal. PedsQL = Pediatric Quality of Life Inventory; CAFAS = Child and Adolescent Functional Assessment Scale.

* Correlation significant at $p < .05$; ** correlation significant at $p < .01$.

DISCUSSION

This article describes the first study that included the most prevalent child psychiatric diagnoses and assessed their impact on specific areas of QoL in a clinical sample, and the first study that relied on information obtained from three different informants. In general, we found few differences in QoL between children with different child psychiatric disorders. However, clinicians rated children with pervasive developmental disorder as having a poorer QoL than children with other diagnoses. Although few differences in overall QoL between the child psychiatric disorders could be demonstrated, each diagnostic category influenced QoL in a different way.

Attention-Deficit and Disruptive Behavior Disorders

Children with attention-deficit and disruptive behavior disorder had, according to parent ratings, a better emotional functioning score than children with anxiety disorders. Their academic performance was significantly lower than for children with anxiety disorders and other disorders, but school functioning was reported as equal. Clinicians reported more problems in behavior toward others for this group compared to children with anxiety and mood disorders. Comorbidity of attention-deficit disorder or disruptive behavior disorder with other psychiatric diagnoses did not influence overall QoL. Landgraf et al. (1996) also found that children with ADHD were more limited in schoolwork and social functioning.

Anxiety Disorders

This study was the first that looked at the impact on QoL of anxiety disorders in children. Although clinicians may consider anxiety disorders less severe than other child psychiatric disorders, we saw their impact on QoL being equal to children with externalizing behavior disorders and mood disorders. They even had a

poorer QoL on emotional functioning compared to other disorders on both parent and clinician report. Compared to other disorders, their functioning at home was less affected. Adverse effects on QoL were also shown for adults with anxiety disorders (Mogotsi et al., 2000).

Pervasive Developmental Disorders

According to clinician's ratings, children with pervasive developmental disorder had a poorer overall QoL than children in all other diagnostic categories. They received significantly more special education than children in other diagnostic categories, but surprisingly all three raters did not judge their school functioning as poorer than that of children in other categories. Apparently, raters judge school functioning against the background of special school placement.

Mood Disorders

Children with mood disorder had a poorer QoL in the emotional functioning domain compared to children with attention-deficit and disruptive behavior disorder, other disorder, or no disorder. School functioning was less affected. Sawyer et al. (2002) also observed that children with MDD had more emotional problems, but they only made a comparison with children with ADHD and conduct disorder and relied on parent information solely. Clark and Kirisci (1996) found a substantial effect of MDD on psychological functioning, and also a less severe effect on school achievement, but they only included children aged 12 years and older and used information from self-report.

Informant Differences

The agreement on QoL between children and parents was moderate, the agreement between children and clinicians was small, and the agreement between parents and clinicians was moderate. This is remarkable

because parents agreed with both children and clinicians, but children and clinicians did not agree with each other. These results confirm that a multirater assessment is desirable in QoL measurement in children with psychiatric disorders, as was also concluded from QoL studies in adult psychiatric samples (Sainfort et al., 1996).

The level of agreement on QoL between children and parents was larger than the previously reported correlation of 0.25 between children's and parents' reports on behavioral/emotional problems (Achenbach et al., 1987). The agreement on QoL between children and clinicians for the older age group resembled the average correlation of 0.27 found by Achenbach et al. (1987). The agreement on QoL between parents and clinicians found in our sample was somewhat larger than the average of 0.24 reported by Achenbach et al. (1987).

Limitations

The instruments used to measure QoL were different for children/parents and clinicians. Although the PedsQL and CAFAS measure approximately the same constructs, their items and scales differ. Besides, we investigated a referred sample that may represent those with the most serious impairment and may be unrepresentative of children with psychiatric disorders in general, but this is the first study that included all most prevalent child psychiatric disorders.

Clinical Implications

In this article the most affected QoL domains were as follows: for children with attention-deficit and disruptive behavior disorder, school functioning and social functioning; for children with anxiety disorder, emotional functioning; for children with pervasive developmental disorder, social functioning; and for children with mood disorder, emotional functioning. Knowing which domains of QoL are affected in specific psychiatric disorders can help clinicians focus on particular QoL domains during the diagnostic process and to define adequate treatment goals. Therefore, the assessment of QoL may be an important part of the diagnostic process because it can give insight into the areas of functioning in which a child is suffering the most. This should be a multirater assessment, because each rater (child, parent, and clinician) has his or her unique point of view, as can be concluded from the relatively low agreement on QoL between children, parents, and clinicians in this study.

Since few differences in overall QoL were found between different diagnostic categories, we may speculate that factors other than the psychiatric diagnosis may influence the QoL of children with psychiatric disorders, at least as experienced by themselves and their parents. The fact that in parent ratings, differences between diagnostic groups became less obvious when the severity of child problems was accounted for by adding parent and teacher ratings on psychopathology to the analyses, suggests that number of symptoms may be one of these factors. Differences in QoL may be influenced more by the magnitude of the emotional/behavioral problems than by the characteristics of the diagnosis itself. Besides, other factors, which were not measured in the present study, may influence the child's QoL, such as family functioning or the child's social skills.

REFERENCES

- Achenbach TM (1991a), *Manual for the Child Behavior Checklist/4-18 and 1991 Profiles*. Burlington: University of Vermont, Department of Psychiatry
- Achenbach TM (1991b), *Manual for the Teacher's Report Form and 1991 Profiles*. Burlington: University of Vermont, Department of Psychiatry
- Achenbach TM, McConaughy SH, Howell CT (1987), Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational specificity. *Psychol Bull* 101:213-232
- Achenbach TM, Rescorla LA (2001), *Manual for the ASEBA School-Age Forms & Profiles*. Burlington: University of Vermont, Research Center for Children, Youth, & Families
- Bastiaansen D, Koot HM, Bongers IL, Varni JW, Verhulst FC (in press), Measuring quality of life in children referred for psychiatric problems: psychometric properties of the Dutch Version of the PedsQL 4:0 generic core scales. *Qual Life Res*
- Bonicatto SC, Dew MA, Zaratiegui R, Lorenzo L, Pecina P (2001), Adult outpatients with depression: worse quality of life than in other chronic medical diseases in Argentina. *Soc Sci Med* 52:911-919
- Clark DB, Kirisci L (1996), Posttraumatic stress disorder, depression, alcohol use disorders and quality of life in adolescents. *Anxiety* 2:226-233
- Cohen J (1988), *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. Hillsdale, NJ: Erlbaum
- Hodges K (1997), *CAFAS Manual for Training Coordinators, Clinical Administrators, and Data Managers*. Available from Dr. K. Hodges, 2140 Old Earhart Road, Ann Arbor, MI 48105; hodges@provide.net
- Hodges K, Wong MM (1996), Psychometric characteristics of a multidimensional measure to assess impairment: the Child and Adolescent Functional Assessment Scale. *J Child Fam Stud* 5:445-467
- Hofstra MB, Van der Ende J, Verhulst FC (2000), Continuity and change of psychopathology from childhood into adulthood: a 14-year follow-up study. *J Am Acad Child Adolesc Psychiatry* 39:850-858
- Hudziak JJ, Helzer JE, Wetzel MW et al. (1993), The use of the *DSM-III-R* checklist for initial diagnostic assessments. *Comp Psychiatry* 34:375-383
- Landgraf JM, Abetz L, Ware JE (1996), *The CHQ User's Manual*. Boston: Health Institute, New England Center
- Lehman AF (1988), A quality of life interview for the chronically mentally ill. *Eval Program Plann* 11:51-62
- Mogotsi M, Kaminer D, Stein DJ (2000), Quality of life in the anxiety disorders. *Harv Rev Psychiatry* 8:273-282
- Sainfort F, Becker M, Diamond R (1996), Judgments of quality of life of individuals with severe mental disorders: patient self-report versus provider perspectives. *Am J Psychiatry* 153:497-502

- Sawyer MG, Whaites L, Rey JM, Hazell PL, Graetz BW, Baghurst P (2002), Health-related quality of life of children and adolescents with mental disorders. *J Am Acad Child Adolesc Psychiatry* 41:530–537
- Schmeck K, Poustka F (1997), Quality of life and child psychiatric disorders. In: *Quality of Life in Mental Disorders*, Katschnig H, Freeman H, Sartorius N, eds. Chichester, England: Wiley, pp 179–191
- Varni JW, Seid M, Kurtin PS (2001), PedsQL 4.0™: reliability and validity of the Pediatric Quality of Life Inventory™ version 4.0 generic core scales in healthy and patient populations. *Med Care* 39:800–812
- Verhulst FC, Van der Ende J, Koot HM (1996), *Manual for the CBCL/4-18*. Rotterdam: Erasmus University/Department of Child and Adolescent Psychiatry, Sophia Children's Hospital
- Verhulst FC, Van der Ende J, Koot HM (1997), *Manual for the Teacher's Report Form (TRF)*. Rotterdam: Erasmus University/Department of Child and Adolescent Psychiatry, Sophia Children's Hospital
- Wallander JL, Schmitt M, Koot HM (2001), Quality of life measurement in children and adolescents: issues, instruments and applications. *J Clin Psychol* 57:571–585