Stability of Diagnosis of Obsessive-Compulsive Disorder in the Epidemiologic Catchment Area Study

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Objective: *This study examined the 1-year temporal stability of a National Institute of Mental Health Diagnostic Interview Schedule (DIS) lifetime diagnosis of obsessive-compulsive disorder in the Epidemiologic Catchment Area (ECA) study.* *Method:* *In that study, 20,862 individuals, aged 18 years and over, at five sites were evaluated by lay interviewers using the DIS (wave 1). All of those who were available 12 months later were reinterviewed (wave 2). In the present study, the temporal stability of wave 1 obsessive-compulsive disorder diagnoses at wave 2 was examined, as well as relationships with comorbid diagnoses. The consistency of reports of "new-onset" illness was also examined. Factors contributing to these measures were evaluated.* *Results:* *The temporal stability of the diagnosis of obsessive-compulsive disorder was very low. Subjects with a stable diagnosis of obsessive-compulsive disorder had a higher rate of both obsessions and compulsions, an earlier age at onset, and more comorbid anxiety, affective, and alcohol abuse/dependence disorders at initial assessment. The originally reported 1-year incidence estimates for obsessive-compulsive disorder primarily reflect data from subjects at wave 2 who reported the onset of symptoms as preceding the wave 1 interview. Older and less-educated subjects had significantly higher error rates in reporting onset.* *Conclusions:* *The DIS diagnosis of obsessive-compulsive disorder has poor validity, leaving the true incidence and prevalence of the disorder unknown. Older and less-educated subjects require special attention in the design of instruments for use with community samples.*

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The Epidemiologic Catchment Area (ECA) study (1) used lay interviewers to administer a structured diagnostic interview, the National Institute of Mental Health Diagnostic Interview Schedule (DIS) (2), to a large community sample from which the prevalence of psychiatric disorders in the U.S. population was estimated. Obsessive-compulsive disorder was found to be a surprisingly common illness, with the lifetime prevalence varying from 1.94% to 3.29% across the five ECA sites (3–5), greatly exceeding the questionably derived previous estimate of 0.05% (6). Use of the DIS in other countries has generated very similar estimates of the lifetime prevalence of obsessive-compulsive disorder (7).

Unfortunately, the previous ECA study reports are suggestive of problems with the DIS diagnosis of obsessive-compulsive disorder. The reported 1-year incidence (0.8%) (8, 9) is too high on the basis of the lifetime prevalence. A nearly 2:1 female-to-male ratio was observed (4, 5), while that seen in clinical samples has approached unity (10). Both obsessions and compulsions were reported by 9% of subjects diagnosed with obsessive-compulsive disorder (4, 5), a far smaller proportion than the 96%–100% in large clinical samples (11, 12). Although differences consistent with lower illness severity are expected in community samples compared with clinical samples, the suggestion (4, 5) that obsessions and compulsions aggregate separately in nonclinical populations seems unlikely to be true. These large disparities and the high rate of "new-onset" illness instead suggest problems with reliability, validity, and/or temporal stability of diagnosis in the ECA study.

Reliability, validity, and temporal stability are not related in a straightforward manner (13). Compromises in study design often lead investigators to report less precisely defined constructs (e.g., diagnostic concordance). Use of the kappa statistic as the primary means of quantifying these measures adds to the confusion. Kappa values are highly dependent on the measures' base rate, sensitivity, and specificity in the study population (13, 14), limiting their generalizability among samples. Diagnostic validity must be adequately established in order for reliability and temporal diagnostic

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stability to have any real importance (14); however, psychiatric diagnosis lacks a "gold standard."

An early version of the DIS (version II) was administered in random order by lay interviewers and psychiatrists to a "predominantly patient" sample (2). The kappa value obtained when the psychiatrists' obsessive-compulsive disorder diagnosis (DSM-III) was used as the "gold standard" was 0.60. "Predominately patient" samples have higher rates of affected persons, with greater severity (and resultant higher sensitivity) than community samples yielding higher kappa values (13, 14).

Two ECA sites (St. Louis and Baltimore) examined the agreement between lay interviewers' DIS diagnoses and psychiatrists' reinterview diagnoses (15, 16). Both sites used the lay interview results to choose enriched subsamples, containing higher numbers of subjects meeting the DSM-III criteria, who underwent blind reinterviews by psychiatrists weeks later. A subsequent report (4) failed to correct for these enriched samples, thereby overestimating the reinterview-derived community prevalence.

At the St. Louis site, psychiatrists coded responses on a DSM-III checklist while administering the DIS (15). Where uncertainty remained after the DIS, they asked any questions necessary to make a definitive checklist diagnosis. The unweighted kappa value reflecting agreement between the psychiatrists' DIS and DSM-III checklist lifetime obsessive-compulsive disorder diagnoses was 0.63. The corresponding values for the agreement between the lay DIS diagnoses and the psychiatrists' DIS and checklist diagnoses were 0.24 and 0.12, respectively.

The Baltimore site examined agreement between the lay interviewers' DIS diagnoses and the psychiatrists' diagnoses with the Clinical Reappraisal (a modified Present State Examination with questions added to make better 1-month diagnoses) (16). The kappa value for a 1-month obsessive-compulsive disorder diagnosis was 0.05. The weighted 1-month prevalence for obsessive-compulsive disorder obtained through the Clinical Reappraisal was 0.3%, significantly lower than the 1.3% obtained through the DIS.

Since the lay interviewers' ratings always preceded the psychiatrists', the tendency for affirmative responses to decline at reinterview (17, 18) most likely reduced agreement at both sites. Differences in interviewers' backgrounds and in instruments represent deviations from standard reliability study methods. The St. Louis study's use of a single psychiatrist simultaneously coding both instruments overestimated the validity of the psychiatrists' DIS diagnoses. It is interesting that obsessive-compulsive disorder was the DIS diagnosis most frequently negated (41.7%) by the St. Louis psychiatrists' checklists.

The 1-year prevalence of obsessive-compulsive disorder declined from the initial (wave 1) interview to the follow-up (wave 2) interview at each of four ECA sites examined (8). Lifetime rates were not reported. Although the symptoms wax and wane over time, chronicity is a hallmark of obsessive-compulsive disorder (19). Individuals first seeking treatment for obsessive-compulsive disorder were observed to have had symptoms for a mean of 7 years (10). The temporal stability of other ECA study DIS lifetime diagnoses has been examined as a means of estimating diagnostic validity (17). The chronicity of obsessive-compulsive disorder suggests that a parallel investigation is warranted.

In a similar study, the Spanish version of the DIS was administered twice to a Puerto Rican community sample; there was a 3-year interval between interviews (18). Sources of error in the estimation of the incidence and lifetime prevalence of alcoholism—a chronic illness whose DIS diagnosis has consistently demonstrated better validity than that of obsessive-compulsive disorder (17)—were evaluated. Fifty-one subjects met the lifetime criteria for alcoholism at initial interview. Thirty-five (68.6%) again met the criteria at reinterview, but eight of these dated the onset of the disorder to the period between interviews. The two lifetime prevalence estimates were similar because comparable numbers of subjects changed status across interviews (positive to negative and negative to positive). Of the 14 individuals who first met the criteria at the second interview, 10 reported an onset before the first interview. Older and less-educated subjects had higher rates of response error, which included both temporal instability of diagnosis and inconsistent dating of onset.

We examined the temporal stability of a lifetime diagnosis of DIS obsessive-compulsive disorder across the 1-year interval between ECA study interviews as an indicator of diagnostic validity. We hypothesized that although temporal stability would be low, individuals with a stable diagnosis of obsessive-compulsive disorder (meeting the criteria at both interviews) would demonstrate higher rates of both obsessions and compulsions, an earlier onset, and higher rates of comorbid diagnoses (as seen in clinical samples) than would those with unstable illness (meeting the criteria at wave 1 but not at wave 2). The rate of inconsistent reporting of "new-onset" obsessive-compulsive disorder (onset reported at wave 2 as having occurred before the wave 1 interview) was calculated post hoc. Demographic variables were examined as potential contributors to the stability of the obsessive-compulsive disorder diagnosis and the consistency of reported age at onset.

METHOD

ECA study methods have been extensively reported (1); 20,862 individuals, including 18,571 community residents and 2,290 institutional residents, aged 18 years and over, were interviewed at the five ECA sites: New Haven, Conn.; Baltimore; Durham, N.C.; St. Louis; and Los Angeles. Trained lay interviewers conducted face-to-face interviews scored by computer algorithms. Reinterviews of all subjects (wave 2) were attempted 12 months after the initial interviews (wave 1).

Previous ECA publications (3–5) used statistical weighting strategies to eliminate sampling biases, so that prevalence and incidence estimates better reflected the composition of the U.S. population. Because we sought to explore the stability of the DIS diagnosis of obsessive-compulsive disorder in a large community sample, we included

TABLE 1. Stability of the Diagnosis of Obsessive-Compulsive Disorder (Kappa) Over 1 Year at Five Sites in the Epidemiologic Catchment Area Study

Site	Kappa	95% Confidence Interval
New Haven	0.870	0.726–1.000
Baltimore	0.228	0.078–0.378
St. Louis	0.174	0.000–0.363
Durham	0.164	0.007–0.322
Los Angeles	0.248	0.053–0.443
Combined[a]	0.204	0.118–0.291

[a]Excludes New Haven data because of methodological differences in data collection at that site.

only household-sample subjects who completed both interviews and we report only unweighted data.

Although the DSM-III criteria for obsessive-compulsive disorder require the absence of Tourette's disorder, schizophrenia, major depression, and organic mental disorder, in previous ECA reports (3–5) prevalence was calculated without implementing these hierarchical exclusions. We retained this method so that no determination of stability of lifetime diagnosis would be based solely on the presence or absence of another disorder.

Statistical analyses were performed using the SAS system (20). Computer scoring algorithms had been run previously to generate appropriate DSM-III diagnoses. Weighted lifetime prevalence estimates for obsessive-compulsive disorder were calculated as a control for computational accuracy and were observed to replicate published values (3–5). Kappa coefficients and 95% confidence intervals (14, 21) were calculated for the stability of DIS obsessive-compulsive disorder diagnosis in the entire sample and separately by site and sex.

Individuals reinterviewed at wave 2 were divided into three subgroups reporting obsessions, compulsions, or both at wave 1. As in previous work (4, 5), obsessions were required to have lasted at least 3 weeks and to "keep coming into your mind no matter how hard you tried to get rid of them." Compulsions had to have been present for several weeks and be either something "you can't resist" or "had to do," depending on the question. "Skip-outs" after positive responses (places in the interview where, on the basis of answers to preceding questions, a group of questions is omitted) limited further comparisons involving individual symptoms. The rate of stable obsessive-compulsive disorder across the three subgroups was compared by means of the chi-square test. Similarly, the pooled data of the subjects who had either symptom were compared with those of the subjects who had both. Among those who reported both at wave 1, the fraction who reported both at wave 2 was calculated post hoc.

The mean age at onset of symptoms of obsessive-compulsive disorder was calculated from both wave 1 and wave 2 information and reported separately for those with stable, unstable, and "new-onset" illness. Subjects unable to date their onset were excluded. The age of 2 years was used for the onset for subjects who reported having symptoms throughout their lifetime. The data of individuals with wave 2 "new-onset" obsessive-compulsive disorder were examined to determine the rate at which the wave 2 reported age at onset was earlier than the age at the wave 1 interview (inconsistent reporting).

Data from individuals with stable and unstable obsessive-compulsive disorder were examined to evaluate the presence and stability of the following comorbid DSM-III diagnoses: panic disorder, agoraphobia, social phobia, major depression, dysthymia, alcohol abuse and/or dependence (considered a single entity), and schizophrenia. The mean numbers of these comorbid diagnoses at wave 1 and wave 2 were separately calculated for those with stable and unstable obsessive-compulsive disorder, and the Kruskal-Wallis chi-square (20) was used to evaluate between-group differences. Odds ratios were calculated to determine the contribution of wave 1 and stable comorbid diagnoses to the stability of a wave 1 obsessive-compulsive disorder diagnosis. The rates of "new-onset" comorbid illnesses were examined in the subjects with unstable obsessive-compulsive disorder. The stability of obsessive-compulsive disorder at wave 2 in those who had ever been married at wave 1 and those who had not were compared by chi-square test. A similar chi-square test was used to compare high school graduates (including those who completed equivalency tests) with nongraduates. Analysis of variance (ANOVA) was used to determine whether age contributed significantly to the stability of obsessive-compulsive disorder at wave 2. These same wave 1 demographic variables were similarly evaluated for their contribution to the consistency of "new-onset" symptoms reported at wave 2.

RESULTS

Kappa values and confidence intervals for the stability of diagnosis by site are displayed in table 1. The confidence intervals for the New Haven data lie well outside those of the other sites, which overlap extensively. Methodological differences in the New Haven wave 2 data collection explain this finding: "The questions about occurrence at any time in the past were replaced with questions about occurrence since the last interview" (18). As has been done in similar work (8, 18, 22), the New Haven data were excluded from all further analyses. Pooling the data from the other four sites, we obtained a kappa value of 0.204. Kappa values calculated separately for male and female subjects were 0.193 and 0.230, respectively. Of the 291 subjects who met the criteria for obsessive-compulsive disorder at wave 1 and were reinterviewed at wave 2, only 56 (19.2%) reported at wave 2 that they had ever had symptoms during their lifetime that met the criteria for obsessive-compulsive disorder.

Individuals with obsessive-compulsive disorder at wave 1 were separated into subgroups who reported obsessions only, compulsions only, or both, with 17.7%, 17.8%, and 34.6%, respectively, continuing to meet the criteria for obsessive-compulsive disorder at wave 2. Intergroup differences were not significant (χ^2= 4.34, df=2, p=0.11). In the comparison of the pooled data of those who had either obsessions or compulsions with the data of the individuals who had both, the difference in obsessive-compulsive disorder stability was significant (χ^2=4.34, df=1, p=0.04). A post hoc examination revealed that of the 26 individuals who had reported ever having had both obsessions and compulsions at wave 1, only two continued to report ever having had both at wave 2.

The mean age at onset of obsessive-compulsive disorder at wave 1 for subjects who were able to date onset (N=246) was 24.1 years (SD=16.1). At wave 1 the reported mean age at onset for those with stable obsessive-compulsive disorder (N=50) was 18.7 years (SD= 13.6), which differed significantly from the 25.5 years (SD=16.4) of those with unstable obsessive-compulsive disorder (N=196) (T=2.70, df=1, 244, p=0.007). At wave 2 the mean age at onset reported by the subjects with stable obsessive-compulsive disorder (N=46)—21.9 years (SD=15.4)—was not significantly different from the 24.6 years (SD=18.1) of the subjects with wave 2 "new-onset" obsessive-compulsive disorder (N=118) (T=0.89, df=1, 162, p=0.38).

The wave 1 comorbid diagnoses of the individuals

TABLE 2. Comorbid Diagnoses of 235 Individuals With an Unstable Diagnosis of Obsessive-Compulsive Disorder

	Individuals With Comorbid Diagnosis at Wave 1		Individuals With Comorbid Diagnosis at Wave 2			
			Stable		Unstable	
Comorbid Diagnosis	N	%	N	%	N	%
Panic disorder	18	7.7	4	22.2	14	77.8
Agoraphobia	59	25.1	16	27.1	43	72.9
Social phobia	24	10.2	3	12.5	21	87.5
Depression	50	21.3	26	52.0	24	48.0
Dysthymia	29	12.3	11	37.9	18	62.1
Alcohol abuse/ dependence	53	22.6	32	60.4	21	39.6
Schizophrenia	20	8.5	8	40.0	12	60.0
None of the above	87	37.0				

TABLE 3. Comorbid Diagnoses of 56 Individuals With a Stable Diagnosis of Obsessive-Compulsive Disorder

	Individuals With Comorbid Diagnosis at Wave 1		Individuals With Comorbid Diagnosis at Wave 2			
			Stable		Unstable	
Comorbid Diagnosis	N	%	N	%	N	%
Panic disorder	15	26.8	7	46.7	8	53.3
Agoraphobia	26	46.4	16	61.5	10	38.5
Social phobia	14	25.0	10	71.4	4	28.6
Depression	24	42.9	16	66.7	8	33.3
Dysthymia	13	23.2	5	38.5	8	61.5
Alcohol abuse/ dependence	14	25.0	13	92.9	1	7.1
Schizophrenia	10	17.9	8	80.0	2	20.0
None of the above	10	17.9				

with unstable obsessive-compulsive disorder (N=235) and the wave 2 status of these diagnoses are shown in table 2. The most common comorbid diagnoses, anxiety and affective disorders, also largely proved unstable at wave 2. Schizophrenia, diagnosed in 8.5% of the group, commonly proved to be an unstable diagnosis. Alcohol abuse/dependence, present in 22.6%, displayed the best overall stability (60.4% stable).

The similar comorbid diagnoses of the individuals with stable obsessive-compulsive disorder and their status at wave 2 are shown in table 3. All of the comorbid illnesses we examined were more stable in the subjects with stable obsessive-compulsive disorder (table 2 and table 3). The most striking difference was observed for social phobia.

The mean number of the examined comorbid diagnoses assigned at wave 1 to subjects with unstable obsessive-compulsive disorder was 1.08 (SD=1.08), significantly lower than the 2.07 (SD=1.62) for those with stable obsessive-compulsive disorder (Kruskal-Wallis χ^2=18.2, df=1, p<0.0001). The comparable values for these groups for diagnoses assigned at wave 2 were 0.71 (SD=1.03) and 1.91 (SD=1.69), which also differed significantly (Kruskal-Wallis χ^2=29.4, df=1, p<0.0001).

The odds ratios for stable obsessive-compulsive disorder given the presence of a wave 1 comorbid diagnosis, and given that this diagnosis proved stable, are shown in table 4. Comorbid diagnoses conferred an increased likelihood that obsessive-compulsive disorder would prove stable. Stable comorbid diagnoses conferred a further increase. Both tendencies were most significant for panic disorder, social phobia, and agoraphobia.

Most individuals (74.9%) with unstable obsessive-compulsive disorder did not meet the criteria for other "new-onset" diagnoses at wave 2. Dysthymia (7.2%) and depression (5.5%) were those most frequently observed.

Of the "new-onset" obsessive-compulsive disorder subjects able to date their onset (N=118), only 30 (25.4%) dated it (consistently) to the period between wave 1 and wave 2 interviews. No one with stable obsessive-compulsive disorder (N=48) dated the onset at wave 2 to the period between interviews.

TABLE 4. Odds Ratios for a Stable Diagnosis of Obsessive-Compulsive Disorder Depending on Wave 1 and Wave 2 Comorbid Diagnoses

	Likelihood of Stable Obsessive-Compulsive Disorder Diagnosis at Wave 2			
	If Comorbid Diagnosis Was Present at Wave 1		If Wave 1 Comorbid Diagnosis Was Stable at Wave 2	
Comorbid Diagnosis	Odds Ratio	95% Confidence Interval	Odds Ratio	95% Confidence Interval
Panic disorder	4.33	2.02–9.28	8.21	2.32–29.15
Agoraphobia	2.59	1.42–4.72	5.48	2.53–11.83
Social phobia	2.80	1.35–5.83	16.74	4.43–63.19
Depression	2.78	1.50–5.13	3.22	1.58–6.53
Dysthymia	2.15	1.03–4.47	2.00	0.67–6.00
Alcohol abuse/ dependence	1.13	0.58–2.23	1.92	0.93–3.96
Schizophrenia	2.33	1.02–5.30	4.73	1.69–13.22

Individuals who had ever been married did not differ from those who had not been married in the stability of obsessive-compulsive disorder diagnosis (χ^2=0.00, df=1, p=0.99) or in the consistency of reported "new-onset" obsessive-compulsive disorder (χ^2=0.33, df=1, p=0.57). High school graduates did not differ from nongraduates (χ^2=0.71, df=1, p=0.40) in obsessive-compulsive disorder stability, but they did demonstrate significantly higher consistency in reporting (χ^2=4.32, df=1, p=0.04). ANOVA found that the contribution of age to stability of obsessive-compulsive disorder was almost significant (F=3.65, df=1, 289, p<0.06). A similar ANOVA found a significant contribution of age to consistency (F=9.95, df=1, 116, p=0.002).

DISCUSSION

The DIS lifetime diagnosis of obsessive-compulsive disorder demonstrated very low 1-year temporal stability in this sample. Assuming that low temporal stability reflects poor diagnostic validity, our results and pre-

vious work (15, 16) indicate that the DIS diagnosis of obsessive-compulsive disorder possesses extremely limited validity. The high wave 1 lifetime prevalence may largely represent an excess of false positives. The lack of a "gold standard" precluded a direct determination of false positive and false negative rates.

Individuals with both obsessions and compulsions had approximately twice the rate of stable illness as those with one or the other, suggesting that they may better fit the construct of clinical obsessive-compulsive disorder. However, because the presence of either symptom of adequate severity is sufficient for meeting the diagnostic criteria, the rate of stable illness observed in this group (34.6%) is actually less than that which would be expected if obsessions and compulsions made independent contributions to stability (36.8%). The fact that only two subjects at the four ECA sites reported at both interviews ever having had both obsessions and compulsions emphasizes the degree of difference from clinical samples.

The frequency of other unstable diagnoses, particularly anxiety disorders, among the subjects with unstable obsessive-compulsive disorder raises further doubts about diagnostic accuracy. The greater stability of obsessive-compulsive disorder among those whose comorbid anxiety disorder proved stable at wave 2 may suggest a core of appropriately diagnosed individuals. The earlier mean age at onset observed among the subjects with stable obsessive-compulsive disorder is also more consistent with clinical samples (10).

Because diagnostic stability did not differ between the sexes, the differences in sex ratio between community and clinical samples remain unexplained. These differences are at odds with the well-established tendency of women to seek treatment more commonly than men.

Individuals first diagnosed at wave 2 typically dated the onset of obsessive-compulsive disorder symptoms as before the wave 1 interview. The high 1-year incidence most likely reflects substantial numbers of wave 1 false negatives and wave 2 false positives (invalid diagnoses of obsessive-compulsive disorder at wave 2). Seemingly high rates of both error types make the determination of the incidence and prevalence of obsessive-compulsive disorder from the ECA database quite problematic.

Older and less-educated individuals had higher rates of inconsistently dating the onset of their symptoms when first diagnosed at wave 2. These same demographic variables were associated with greater rates of response error (including both temporal instability and inconsistent dating of onset) in the diagnosis of alcoholism with the use of the Spanish DIS (17). We also found that individuals with unstable obsessive-compulsive disorder tended to be older and had a high rate of other unstable diagnoses. Older and less-educated individuals appear to have more difficulty with DIS questions and may require special attention in the design of any instrument for use with community samples.

The false negative rate of the DIS for obsessive-compulsive disorder is largely unknown. Recent examinations of social phobia exemplify the potential impact on estimates of prevalence. The data in tables 3 and 4 could indicate low temporal stability of a lifetime diagnosis of social phobia in the ECA study. However, the National Comorbidity Survey (23) added further symptom questions and found a nearly fivefold higher lifetime prevalence of social phobia, suggesting that ECA study false negatives considerably outnumbered false positives.

Other instruments used in samples of children, adolescents, and young adults have yielded prevalence estimates within the range of ECA study data (24–27). These data may support Robins's suggestion (28) that if DIS false positives are counterbalanced by false negatives, reasonable estimates of true prevalence would be obtained. Diverse methods make it unlikely that these studies incorporate similar errors of assessment. Prevalence estimates determined from younger samples are vulnerable to other biases (e.g., the cohort effect seen with other anxiety disorders in the National Comorbidity Survey [23]).

Even highly trained clinicians may have difficulty obtaining a clear description of intrusive thoughts or determining whether symptoms of obsessive-compulsive disorder are above the threshold. The use of lay interviewers constrained by vague questions about symptoms of obsessive-compulsive disorder is likely to have contributed to the errors that we observed. It has proven particularly difficult to draft questions that adequately characterize obsessions and compulsions. Sufferers from obsessive-compulsive disorder often fail to recognize these constructs unless given specific examples involving their own symptoms. To handle this, some instruments include long lists of specific obsessions and compulsions and then explore the phenomenology of each symptom endorsed.

Several studies that were not based on the DIS (24, 26, 27) used screening questionnaires to select a subsample to be more extensively interviewed. This two-step process is less time-consuming than using a single, longer instrument, but it may compound error by combining those of the two instruments. Comprehensive instruments are generally impractical for use in population samples. Regardless of the approach chosen, future studies must begin with a demonstration of the instrument's validity for individuals whose obsessive-compulsive disorder spans a considerable range of symptom severity.

REFERENCES

1. Eaton WW, Kessler LG (eds): Epidemiologic Field Methods in Psychiatry: The NIMH Epidemiologic Catchment Area Program. Orlando, Fla, Academic Press, 1985
2. Robins LN, Helzer JE, Croughan J, Ratcliff KS: The National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics, and validity. Arch Gen Psychiatry 1981; 38: 381–389
3. Robins LN, Helzer JE, Weissman MM, Orvaschel H, Gruenberg E, Burke JD Jr, Regier DA: Lifetime prevalence of specific psychiatric disorders in three sites. Arch Gen Psychiatry 1984; 41: 949–958

4. Karno M, Goldring JM, Sorenson SB, Burnam MA: The epidemiology of obsessive-compulsive disorder in five US communities. Arch Gen Psychiatry 1988; 45:1094–1099
5. Karno M, Goldring JM: Obsessive compulsive disorder, in Psychiatric Disorders in America. Edited by Robins LN, Regier DA. New York, Free Press, 1991, pp 204–219
6. Rudin E: Beitrag zur Frage der Zwangskrankheit insbesondere ihrere hereditaren Beziechungen. Arch Psychiatr Nervenkr 1953; 191:14–54
7. Kolada JL, Bland RC, Newman SC: Obsessive-compulsive disorder. Acta Psychiatr Scand Suppl 1994; 376:24–35
8. Eaton WW, Kramer M, Anthony JC, Dryman A, Shapiro S, Locke BZ: The incidence of specific DIS/DSM-III mental disorders: data from the NIMH Epidemiologic Catchment Area program. Acta Psychiatr Scand 1989; 79:163–178
9. Crum RM, Anthony JC: Cocaine use and other suspected risk factors for obsessive-compulsive disorder: a prospective study with data from the Epidemiologic Catchment Area surveys. Drug Alcohol Depend 1993; 31:281–295
10. Rasmussen SA, Eisen JL: Clinical and epidemiological findings of significance to neuropharmacologic trials in OCD. Psychopharmacol Bull 1988; 24:466–470
11. Foa EB, Kozak MJ, Goodman WK, Hollander E, Jenike MA, Rasmussen SA: DSM-IV field trial: obsessive-compulsive disorder. Am J Psychiatry 1995; 152:90–96
12. Hanna GL: Demographic and clinical features of obsessive-compulsive disorder in children and adolescents. J Am Acad Child Adolesc Psychiatry 1995; 1:19–27
13. Carey G, Gottesman I: Reliability and validity in binary ratings—areas of common misunderstanding in diagnosis and symptom ratings. Arch Gen Psychiatry 1978; 35:1454–1459
14. Grove WM, Andreasen NC, McDonald-Scott P, Keller MB, Shapiro RW: Reliability studies of psychiatric diagnosis: theory and practice. Arch Gen Psychiatry 1981; 38:408–413
15. Helzer JE, Robins LN, McEvoy LT, Spitznagel EL, Stoltzman RK, Farmer A, Brockington IF: A comparison of clinical and Diagnostic Interview Schedule diagnoses. Arch Gen Psychiatry 1985; 42:657–666
16. Anthony JC, Folstein M, Romanoski AJ, Von Korff MR, Nestadt GR, Chahal R, Merchant A, Brown CH, Shapiro S, Kramer M, Gruenberg EM: Comparison of the lay Diagnostic Interview Schedule and a standardized psychiatric diagnosis. Arch Gen Psychiatry 1985; 42:667–675
17. Rubio-Stipec M, Freeman D, Robins L, Shrout P, Canino G, Bravo M: Response error and the estimation of lifetime prevalence and incidence of alcoholism: experience in a community survey. Int J Methods in Psychiatr Res 1992; 2:217–224
18. Robins LN: Diagnostic grammar and assessment: translating criteria into questions, in The Validity of Psychiatric Diagnosis. Edited by Robins LN, Barrett JE. New York, Raven Press, 1989, pp 263–278
19. Goodwin DW, Guze SB, Robins E: Follow-up studies in obsessional neurosis. Arch Gen Psychiatry 1969; 20:182–187
20. SAS/STAT User's Guide, version 6, 4th ed, vol 1. Cary, NC, SAS Institute, 1989
21. Spitznagel EL, Helzer JE: A proposed solution to the base rate problem in the kappa statistic. Arch Gen Psychiatry 1985; 42: 725–728
22. Horwath E, Johnson J, Klerman GL, Weissman MM: Depressive symptoms as relative and attributable risk factors for first-onset major depression. Arch Gen Psychiatry 1992; 49:817–823
23. Magee WJ, Eaton WW, Wittchen H-U, McGonagle KA, Kessler RC: Agoraphobia, simple phobia, and social phobia in the National Comorbidity Survey. Arch Gen Psychiatry 1996; 53:159–168
24. Flament MF, Whitaker A, Rapoport JL, Davies M, Zaremba Berg C, Kalikow K, Sceery W, Shaffer D: Obsessive-compulsive disorder in adolescence: an epidemiological study. J Am Acad Child Adolesc Psychiatry 1988; 6:764–771
25. Whitaker A, Johnson J, Shaffer D, Rapoport JL, Kalikow K, Walsh BT, Davies M, Braiman S, Dolinsky A: Uncommon troubles in young people: prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. Arch Gen Psychiatry 1990; 47:487–496
26. Zohar AH, Ratzoni G, Pauls DL, Apter A, Bleich A, Kron S, Rappaport M, Weizman A, Cohen DJ: An epidemiological study of obsessive-compulsive disorder and related disorders in Israeli adolescents. J Am Acad Child Adolesc Psychiatry 1992; 6:1057–1061
27. Valleni-Basile LA, Garrison CZ, Jackson KL, Waller JL, McKeown RE, Addy CL, Cuffe SP: Frequency of obsessive-compulsive disorder in a community sample of young adolescents. J Am Acad Child Adolesc Psychiatry 1994; 6:782–791
28. Robins LN: Epidemiology: reflections on testing the validity of psychiatric interviews. Arch Gen Psychiatry 1985; 42:918–924