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Obsessive-Compulsive Disorder in a Birth Cohort of 18-Year-Olds: Prevalence and Predictors

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ABSTRACT

Objective: To report descriptive epidemiological information on obsessive-compulsive disorder (OCD) in an unselected birth cohort of 930 males and females, aged 18 years. **Method:** An epidemiological study of the prevalence of self-reported OCD at age 18, and a longitudinal analysis of the prospective predictors of OCD. **Results:** Using the Diagnostic Interview Schedule, the authors found a 1-year prevalence rate of 4%, with a male-female ratio of 0.7:1. The majority of OCD cases met criteria for a comorbid disorder, most commonly depression (62%), social phobia (38%), and substance dependence (alcohol 24%, marijuana 19%). **Conclusions:** Data collected on the sample from birth to age 18 years indicated that many childhood risk factors theorized in the literature did not predict OCD in this sample. However, a history of depression and substance use were prospective risk factors for OCD. *J. Am. Acad. Child Adolesc. Psychiatry*, 1995, 34, 11:1424–1431. **Key Words:** obsessive-compulsive disorder, prevalence, predictors, epidemiology.

Obsessive-compulsive disorder (OCD) is a debilitating problem for many patients who suffer from it. Progress towatd understanding OCD has not been tapid, and several questions temain about its epidemiology and etiology. Information is especially needed about how many people, and which people, are at risk for OCD.

Few studies have reported the prevalence of OCD in the general population. The majotiy have been clinical studies based on small numbers of patients or on retrospective chart reviews. Such studies are subject to the effects of selection bias because inpatients may not represent the distribution or characteristics of individuals with the disorder in the general population.

In the United States, the National Institute of Mental Health's Epidemiologic Catchment Area (ECA) survey reported diagnoses of OCD using the Diagnostic Interview Schedule (DIS) (Leaf et al., 1991). The ECA's estimates of OCD in the general population were assessed with and without the *DSM-III* exclusionary criteria. Without the exclusionary criteria, the lifetime rate ranged from 1.9% to 3.3% across the five sites assessed. With the exclusionary criteria, the range was 1.2% to 2.4% across these same sites. These estimates were 25 to 60 times higher than previous rates estimated ftom clinical studies (Katno et al., 1988).

The ECA prevalence estimates have been supported by other studies of nonreferred samples. Flament and colleagues' (1988) longitudinal study of OCD in high school students reported a prevalence rate between 1% and 1.9%. A study of randomly selected residents of Edmonton, Canada, found a 6-month point-prevalence rate of 1.6% and a lifetime prevalence rate of 3% (Bland et al., 1988a,b). Reinherz and coworkers (1993) reported a 2.1% ptevalence rate for OCD in their communiry samnple of older adolescents. Thus, contemporary estimates suggest that the prevalence rate of OCD lies between 1% and 3%, making OCD twice as common as schizophrenia or panic disorder, and the fourth most common psychiatric disorder in the general population (Rasmussen and Eisen, 1990a).

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In addition to prevalence, information is lacking about the symptom picture of OCD cases in the general population. For example, studies have reported that OCD is rarely found alone (Karno and Golding, 1991; Rasmussen and Tsuang, 1986) and that depression is a common comorbid disorder (Goodwin et al., 1969; Karno and Golding, 1991). Comorbidity can complicate diagnosis and treatment and can also hinder the uncovering of specific etiological factors. An accurate assessment of comorbidity cannot be obtained by studying clinical samples alone, but must also include data on studies of the general population (Caron and Rutter, 1991).

Since one third to one half of OCD cases have their onset by adolescence (Flament et al., 1988), identifying childhood risk factors is essential if an attempt is to be made to prevent OCD at an early stage. A variety of possible predictors of OCD have been studied, including birth abnormalities (Capstick and Seldrup, 1977), heritability (for a review of twin studies, see Rasmussen and Eisen, 1990b), temper tantrums (Allsopp and Verduyn, 1990), intelligence (Insel et al., 1983; Keller, 1989), neuropsychological status (Behar et al., 1984; Cox et al., 1989; Flor-Henry et al., 1979; Insel et al., 1983), parental mental health (Allsopp and Verduyn, 1990; Rasmussen and Tsuang, 1986), socioeconomic status (SES) (Karno and Golding, 1991), language impairment (Ludlow et al., 1989), Tourette's syndrome (Pauls et al., 1986; Robertson, 1991), and eating disorders (Kasvikis et al., 1986).

Although some of these variables were related to OCD in one or more studies, none have been shown to differentiate all or most OCD sufferers from normal controls. Moreover, to document that a risk factor is specific to OCD, as opposed to posing a more general risk for compromised mental health, people with OCD should be compared to people who suffer from other disorders, as well as to healthy controls.

We report here a descriptive study of OCD among a large sample of 18-year-olds. The sample is a representative birth cohort that has been the subject of several epidemiological studies of child and adolescent mental disorders (Anderson et al., 1987; Feehan et al., 1994; McGee et al., 1990, 1992). We also examine risk factors for OCD, ranging from perinatal complications to childhood depression.

METHOD

Research Sample and Study Design

The Dunedin Multidisciplinary Health and Development Study has been described by Silva (1990). Briefly, the study is a longitudinal investigation of the health, development, and behavior of a cohort of consecutive births between April 1, 1972, and March 31, 1973, in New Zealand's fourth-largest city. Perinatal data were obtained at birth and when the children were traced for follow-up at 3 years of age; 1,139 were eligible for inclusion in the longitudinal study because they were still living in the province of Otago. Of these, 1,037 (501 girls and 536 boys) were assessed. The sample has been reassessed using psychological, medical, and sociological measures every 2 years since the children were 3 years old. Data were collected for 991 sample members at age 5 years, 954 at age 7 years, 955 at age 9 years, 925 at age 11 years, 850 at age 13 years, 976 at age 15 years, and 993 at age 18 years, in 1990–1991.

With regard to social origins, the children's fathers were representative of the social class distribution in the general population of similar-age men in New Zealand. Regarding racial distribution, members of the sample are predominately of European ancestry (fewer than 7% identified themselves as Maori or Polynesian at age 18, compared with 12% in the country as a whole). At age 18, the proportions of the sample who were students (27%) and unemployed (13%) matched closely the 1986 New Zealand census rates for their age group. Elsewhere we have published evidence that the effects of missing data at each wave of data collection do not appear to seriously bias the representativeness of this sample for studies of mental disorders (Feehan et al., 1994; Silva, 1990).

One important characteristic of the longitudinal design bears on the validity of the subjects' responses during the DIS: the young people have been interviewed repeatedly (about sensitive topics such as sexuality, illegal behavior, suicidal ideation, and family violence) without violation of their confidentiality. Sufferers of OCD are especially reluctant to disclose their symptoms (Flament et al., 1988; Rasmussen and Tsuang, 1984), a factor that may have compromised the validity of previous studies. We believe that the history of the Dunedin sample contributes to valid reporting and thus to the value of the present data.

Measures

Mental Health. Mental disorders at age 18 were assessed by a modified version of the DIS (version III-R) (Robins et al., 1989) developed for the American ECA study. Interview and diagnostic procedures and evidence of their reliability and validity have been described in detail by Feehan et al. (1994). Four modifications to the original DIS were made: (1) we used only the items required for *DSM-III-R* diagnoses, (2) we adjusted for differences in American and New Zealand idiom, (3) we rephrased lifetime questions to inquire only about symptoms during the past 12 months ("ever" was replaced with "in the last year"), and (4) some disorders with base rates lower than 1% of young adults (e.g., schizophrenia) were not assessed. To be consistent with ECA studies, diagnostic hierarchy exclusions were not used in establishing the presence of a disorder (Leaf et al., 1991; Robins et al., 1984).

Sample members who reported symptoms during the DIS interview were asked to indicate on a 5-point scale (1 = "very little," 5 = "very much") the extent to which their symptoms had interfered with their life or everyday activities during the past year. They were also asked whether they had sought treatment. To be considered as

having a disorder at age 18, the sample member had to have (1) met the required *DSM-III-R* criteria and (2) rated symptom interference as a 2 or more and/or sought treatment (Feehan et al., 1994). Complete DIS data were obtained for 91% of the sample at age 18 (454 females and 476 males).

Mental health was assessed using the Diagnostic Interview Schedule for Children (DISC-C) (version XIII-III) (Costello et al., 1982) at ages 11, 13, and 15 years. Although substance dependence was not assessed as a disorder before age 18, a prospective measure of substance abuse was available from age 15. A self-report delinquency measure (Moffitt and Silva, 1988a) from age 15 asked subjects whether they had used any of the following: alcohol, cannabis, illegal drugs other than cannabis, or glue.

Child Behavior. Parents and teachers were asked to complete the Rutter Child Behaviour Questionnaire when the children were aged 5, 7, 9, and 11 years (Rutter et al., 1970). At ages 13 and 15, the Revised Behavior Problem Checklist (Quay and Peterson, 1987) was administered.

Perinatal Problems/Complications. The perinatal data analyzed for the current study consisted of the sum of the following complications which were present for some of the mothers during pregnancy or birth of the study child: diabetes or prediabetes; epilepsy; glycosuria; hypertension, moderate (diastolic blood pressure 100 to 109 mm Hg) or severe (more than 109 mm Hg); antepartum hemorrhage; accidental hemorrhage; placenta previa; twins; delivery other than spontaneous (forceps and rotation vertex delivery, cesarean section or breech birth); low Apgar score at birth (required resuscitation, regular respiration not established 10 minutes after birth; at 15 minutes heart rate less than 100 beats per minute, respiration irregular or absent and signs of ventral cyanosis); small for gestational age (10th percentile of birth weight for gestational age or less); preterm (less than 37 weeks gestational age); idiopathic respiratory distress syndrome; apnea; minor neurological signs of the neonatal period (jitteriness, tenseness, limpness, hypotonicity) or major neurological signs; nonhemolytic hyperbilirubinemia (serum bilirubin levels greater than 15 mg/100 mL); Rh incompatibility and hyperbilirubinemia; ABO incompatibility and hyperbilirubinemia. The prevalence rates of these perinatal problems/complications have been previously reported (Buckfield, 1978; Silva et al., 1984; Stanton et al., 1991).

Intelligence. IQ was assessed using the WISC-R (Wechsler, 1974) at ages 7, 9, and 11 years. Maternal IQ was assessed by the SRA Verbal Test (Thursrone and Thurstone, 1973).

Neuropsychological Tests. The neuropsychological tests administered at age 13 years were the Rey Osterreith Complex Figure Copy and Delayed Recall Test, WISC-R Mazes Test, Verbal Fluency Test, Trail Making Test (Forms A and B), Grooved Pegboard, Rey Auditory Verbal Learning Test, and the Wisconsin Card-Sorting Test (Moffitt and Silva, 1988b).

Parental SES. The SES level of parents was measured when children were aged 15 years by a scale developed for occupations in New Zealand (Elley and Irving, 1972).

RESULTS

Prevalence

A total of 37 cases of OCD were identified (15 male, and 22 female), giving an overall prevalence of 4%. The sex ratio (male-female) was 0.7:1. Of the 37 cases, 26 met *DSM-III-R* criteria for obsessions only (10 males, 16 females), 6 met criteria for compulsions only (1 male, 5 females), and 5 met criteria for both obsessions and compulsions (4 males, 1 female). Thirty-two (86%) of the cases reported having had their OCD symptoms for 12 months or longer. Six (16%) of our OCD cases had sought treatment during the past 12 months, and 31 had not.

Symptom Content

The most common obsession among males, reported by 40%, was the persistent unwelcome thought that they had "accidentally done something that harmed or endangered someone" (Table 1). The most common obsession among females was the persistent thought that "relatives who are away have been hurt or killed."

The most common compulsion among males was counting. The most common among females was checking. No subject reported compulsive handwashing.

Comorbid Disorders

Of the 37 with OCD, only 16% (33% male, 67% female), had OCD as their only diagnosis. Of those who met criteria for a comorbid disorder, 29% had only one comorbid disorder and 71% had two or more. Table 2 presents the results of a χ^2 analysis comparing the prevalence of comorbid disorders among the OCD cases versus the prevalence in the remainder of the sample excluding OCD.

The three most common disorders comorbid with OCD were major depressive episode, social phobia, and substance dependence (marijuana/alcohol), respectively. None of the OCD cases had an eating disorder. Prevalence rates for all disorders, except panic disorder and eating disorders, were higher in the OCD sample than in the remainder of the sample.

Predictors

To examine correlates and predictors of OCD, those 37 with the disorder were compared with three other groups identified at age 18 years. Those who were not diagnosed with any psychopathology at age 18 made up the "psychologically healthy" group (n = 590). A conduct disorder group was included to investigate how those with a predominately externalizing disorder would compare with those who had a predominately internalizing disorder like OCD. Those in this group

TABLE 1
Number of Subjects Reporting Specific Obsessions and Compulsions by Gender

Obsession	Male (n = 14)[a]	Female (n = 17)	Compulsion	Male (n = 5)	Female (n = 6)
Hands are dirty or have germs on them	0	0	Hand washing	0	0
Relatives who are away have been hurt or killed	5	6	Checking things	2	3
You might harm or cause the death of someone you loved, even though you really didn't want to	5	2	Have to do something in a certain order	1	2
You have accidently done something that harmed or endangered someone	6	3	Counting	3	1
Having thoughts ashamed of, but can't keep them out of your mind	5	4	Can't resist touching something	1	1
Other	3	4	Other	0	0

Note: Subjects could choose more than one obsession/compulsion.
[a] n = Number of subjects who met diagnostic criteria for obsessions or compulsions.

met criteria for conduct disorder with no comorbid OCD (n = 45). A third comparison group consisted of those who met criteria for any anxiety disorder (other than OCD) and/or major depressive episode or dysthymia (n = 215).

These four groups were compared on a variety of measures collected since birth. The measures selected for analysis were guided by the existing literature on OCD and child health. We set the criterion for statistical significance for the initial omnibus analysis of variance F test of the difference among the four groups to $p < .01$ (F values are shown in Table 3). Following a significant F test, we compared pairs of groups using the Scheffe multiple ranges test, with p set at .05.

There were no significant differences among the groups on measures of perinatal problems/complications. Furthermore, parental educational status, maternal IQ, and parental SES did not differ among the groups. Consequently, these results are not presented in detail. Although nonsignificant findings are not

TABLE 2
Comorbidity: Prevalence of DIS Diagnosis among the 37 OCD Cases Compared to Prevalence in the Remainder of the Sample

DIS Diagnosis	Prevalence (%) in OCD Cases: Female (n = 22)	Male (n = 15)	Total (n = 37)	Prevalence (%) in Remainder of Sample (n = 893)	χ^2 (1 df)
Major depressive episode	59	67	62	15	56.86**
Social phobia	36	40	38	10	28.02**
Alcohol dependence	18	33	24	10	7.96*
Dysthymia	27	13	22	2	41.77**
Marijuana dependence	14	27	19	5	14.89**
Simple phobia	18	20	19	6	10.95**
Agoraphobia	18	13	16	3	15.10**
Conduct disorder	9	27	16	5	8.56*
Generalized anxiety disorder	9	0	5	2	2.74 NS
Panic disorder	0	0	0	1	0.29 NS
Anorexia nervosa	0	0	0	0.2	0.08 NS
Bulimia nervosa	0	0	0	1	0.25 NS

Note: DIS = Diagnostic Interview Schedule; OCD = obsessive-compulsive disorder; NS = not significant, $p > .05$.
* $p < .01$; ** $p < .000$.

TABLE 3
Predictors and Correlates That Significantly Differentiated OCD from Comparison Groups

	OCD (n = 37)		Comparison Groups: Anxiety/ Depression[a] (n = 215)		Comparison Groups: Conduct Disorder (n = 45)		Comparison Groups: Healthy Group (n = 590)[b]		Omnibus F Ratio	OCD Group Differs[c] at $p < .05$
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)		
Depression										
Age 11	6.8	(6.5)	5.3	(5.3)	7.0	(6.3)	4.2	(3.9)	8.22*	HG
Age 13	4.4	(5.9)	2.8	(4.6)	5.2	(10.2)	2.0	(3.9)	6.95*	
Age 15	8.9	(10.9)	5.3	(8.3)	4.1	(7.8)	2.1	(4.6)	24.26*	AD, CD, HG
Age 18	22.8	(14.1)	14.3	(12.5)	8.9	(12.4)	2.0	(4.7)	169.83*	AD, CD, HG
Anxiety										
Age 11	5.9	(4.6)	6.8	(6.9)	8.1	(7.6)	4.6	(5.1)	9.18*	
Age 13	6.5	(5.0)	6.6	(6.3)	8.8	(7.4)	5.2	(5.2)	6.03*	
Age 15	12.2	(7.4)	11.3	(6.6)	9.1	(5.4)	7.6	(5.3)	25.39*	HG
Age 18	25.1	(10.5)	16.1	(9.5)	11.6	(10.6)	6.4	(6.1)	141.41*	AD, CD, HG
Substance abuse[d]										
Age 15	2.0	(2.7)	0.7	(1.5)	2.1	(2.4)	0.4	(1.0)	35.78*	AD, HG
Substance dependence[e]										
Age 18	14.9	(17.5)	7.9	(11.0)	23.9	(14.9)	3.2	(4.7)	111.07*	AD, HG

Note: Symptom counts were obtained by using the Diagnostic Interview Schedule for Children (DISC-C) at ages 11, 13, and 15 years and the Diagnostic Interview Schedule (DIS) at age 18 years. OCD = obsessive-compulsive disorder.

[a] Cases met criteria for one or more of the following disorders: major depression, dysthymia, simple phobia, social phobia, generalized anxiety disorder, panic disorder, and agoraphobia, but did not meet criteria for OCD.

[b] Number of cases identified at age 18 years.

[c] OCD group differs significantly from the anxiety/depression group (AD) or the conduct disorder group (CD) or the healthy group (HG).

[d] Substance abuse was assessed by using a self-report delinquency measure at age 15 years.

[e] Substance dependence was assessed by using the DIS at age 18 years.

* $p < .001$.

presented in tabular form in this article, they may be obtained by writing to the first author.

The following individual items from the Rutter Child Behaviour Questionnaire were analyzed: tics (of the face or body), temper tantrums, nail-biting, thumb-sucking, stuttering, stammering, worries, and fearfulness. To increase reliability, cumulative indices were developed by summing identical items collected across ages. For example, a cumulative variable was created called "total tics" which represented the total number of reports of tics by either a parent or teacher across ages 7, 9, and 11 (range = 0 to 6). None of the eight cumulative variables from the Rutter Questionnaire were significant predictors of OCD.

At ages 13 and 15 years, three cumulative variables tapping speech abnormalities were summed from items concerning repetitive speech, incoherent speech, and parroting speech reported by parents on the Revised Behavior Problem Checklist. Again there were no significant differences among the four groups.

The three IQ scores were summed to create a cumulative index of IQ. Although the OCD group had the highest mean IQ score, this finding was not significant.

The OCD group did not perform significantly differently on any of the seven neuropsychological tests administered at age 13 years.

Affective and Anxiety Symptoms. Symptom scores were calculated as the sum of symptoms reported for each diagnosis. Of particular interest is the comparison between the OCD group and each other group, as shown in Table 3.

Post hoc contrasts (Scheffe multiple ranges test) demonstrated that the members of the age 18 OCD group had reported significantly ($p < .05$) more depression symptoms than any other group at ages 15 and 18. At age 11, they reported significantly more depression symptoms than the healthy group. The OCD group reported significantly ($p < .05$) more symptoms of anxiety on the DISC-C at age 15 than the healthy group and on the DIS at age 18 than did any other

group. Overall, it appeared that depression in early adolescence was a predictor of risk for OCD in young adulthood.

Substance Use. The OCD group reported significantly more symptoms of substance dependence on the DIS at age 18 than either the healthy or depressed/anxious groups. Only the conduct disorder group reported more symptoms than the OCD group.

At age 15 years, the OCD group reported using substances (alcohol, cannabis, illegal drugs other than cannabis, or glue) significantly ($p < .05$) more than the healthy or depressed/anxious groups. Although the conduct disorder group had a slightly higher score on this measure than the OCD group, the difference between groups was not significant. This was the case for those in the OCD group with and without comorbid conduct disorder.

DISCUSSION

The primary purpose of the current study was to describe and discuss the prevalence, correlates, and predictors of OCD in a large birth cohort. Our study adds evidence that the prevalence of OCD in the general population, at least among young adults, may have been underestimated.

The prevalence of OCD in this sample (4%) is slightly higher than the lifetime prevalence of OCD (3.3%) found in the ECA study, although both studies used the DIS. This difference may be due to the young age of the present sample compared with other samples. Our study supports the results of other studies that found a slightly higher incidence of OCD in females than males (Karno and Golding, 1991; Rasmussen and Tsuang, 1986: Reinherz et al., 1993).

Our results support those from the ECA study (Karno and Golding, 1991), which found that only a few individuals meet diagnostic criteria for both obsessions and compulsions (only 9% in the ECA sample and 14% in the present study). By contrast, studies of clinical populations report that the majority of individuals suffer from *both* obsessions and compulsions (Piacentini et al., 1992; Rasmussen and Tsuang, 1986)

The symptom content reported by our OCD subjects is in accordance with other published studies. The most common obsession of our male subjects was that they had accidentally done something that harmed someone. A similar result was found by Rasmussen and Tsuang (1986). Aggressive obsessions or thoughts of inadvertently harming someone were reported by 50% of OCD subjects in their study.

We did not identify a link as theorized by Kasvikis and coworkers (1986) between OCD and eating disorders. Furthermore, many of the predictors of OCD theorized in the current clinical literature did not apply to our sample. For example, there was no support for Capstick and Seldrup's (1977) findings that OCD sufferers have a higher rate of perinatal problems or abnormal birth events.

Previous studies reported that individuals with OCD perform differently on several neuropsychological tests (Behar et al., 1984; Flor-Henry et al., 1979). Similar tests were administered on our OCD group at age 13, well before the diagnosis of OCD was made. Although we cannot say how these individuals would perform on these tests at present, at age 13 the OCD group did not perform differently from controls.

Although the OCD group in our study had a slightly higher IQ than our other groups, this result was not significant. More specifically, they did not show a difference between Performance IQ and Verbal IQ as had been found previously (Insel et al., 1983; Keller, 1989). The claim that OCD patients have a higher than average IQ seems to be based on clinical impressions and not empirical data (refer to Rasmussen and Eisen, 1990b, for a review).

Our study did not support the literature that suggests a link between OCD and Tourette's syndrome. Tourette's patients sometimes have comorbid OCD, and OCD is apparent in the families of those who have Tourette's (Pauls et al., 1986; Robertson, 1991). Studies of clinical samples have described tics experienced by 7% to 31% of OCD cases (Leonard et al., 1993; Rasmussen and Tsuang, 1986; Swedo and Rapoport, 1989). Although Tourette's syndrome was not formally assessed in this sample, data on behaviors similar to symptoms of Tourette's were collected (presence of tics and odd speech) well before the diagnosis of OCD was made. A comparison of our groups on these variables did not show the OCD group as significantly different. The few individuals who did demonstrate childhood tics were more likely to be members of the healthy group at age 18, not the OCD group. Flament and colleagues (1988) also did not find support for

this link with Tourette's syndrome in their community sample.

When we followed those assessed as having OCD at age 18 back through time, we found them to have been significantly more depressed than all comparison groups at age 15 and significantly more depressed than the healthy group at age 11. They were also significantly more anxious than the healthy group at age 15. Even after we controlled for the effect of conduct disorder, the level of substance use in this group was still higher than that of the healthy group. These findings suggest that clinicians should be aware of risk for emerging OCD among young teenagers who have other disorders, especially depression and substance abuse. Since 84% of our cases did not seek treatment for emotional problems, professionals such as general practitioners, who may be more likely to come across these young adults at risk, should take note and ask specifically about OCD symptomatology.

Similar to other studies (Goodwin et al., 1969; Karno and Golding, 1991), depression was also a common comorbid disorder for our OCD cases, with 84% meeting criteria for either major depression or dysthymia during the last 12 months. Since an affective disturbance was such a common comorbid disorder and since the presence of depressive symptoms predicted membership in the OCD group at age 18, but not membership in the depressed/anxious group, future research for upcoming versions of diagnostic manuals such as the *DSM* may benefit from considering the possibility of merging a diagnostic category of OCD with an affective component instead of keeping them as such distinct entities. The fact that so much comorbidity is found over and over may demonstrate that the current classification system is too limited (Caron and Rutter, 1991).

Another possible explanation of the finding that depressive symptoms at age 15 and 18 predicted OCD at age 18, but did not predict membership in the anxiety/depression group at age 18, also relates to the issue of comorbidity. The very high rate of comorbidity in the OCD group at age 18 suggests that these cases may be more severe and longstanding than the age 18 anxiety/depression group, which may have contained more episodic, newly onset cases. As such, the OCD cases at age 18, but not the anxiety/depression cases at age 18, may be cases of more severe, persistent internalizing disorder.

Several limitations of the present study need to be acknowledged. We obtained, via the DIS, the necessary information to make epidemiological *DSM-III-R* diagnoses. However, our study cannot provide the detailed information about symptom severity, impairment in functioning, and duration that may be obtained by using an instrument like the Yale-Brown Obsessive Compulsive Scale (Goodman et al., 1989). Nevertheless, this study also has unique advantages. First, our data were collected prospectively and as part of a longitudinal study of health and development. Therefore, when we look at the precursors of OCD, we can be more confident that results are not biased by retrospective recall or knowledge of OCD outcome. Second, this sample represents young New Zealanders, with equal numbers of males and females, from all walks of life, and it therefore avoids the selection bias inherent in clinical samples. Third, there is evidence that persons with OCD are never treated, either because their symptoms do not interfere with their lives enough to require treatment (Karno and Golding, 1991) or because they tend to avoid treatment (Flament et al., 1988; Rasmussen and Tsuang, 1986). Therefore, findings based on studies of OCD inpatients should be complemented with studies of individuals in the general population who meet diagnostic criteria for OCD.

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