

Obsessive-Compulsive Disorder in Callers to the Anxiety Disorders Association of America

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Background. Obsessive-compulsive disorder (OCD) is a chronic, impairing and often comorbid disorder.

Methods. 1000 subjects who called the Anxiety Disorders Association of America (ADAA) were surveyed and divided in three groups: (a) callers with OCD (OCD) and two overlapping control groups: (b) callers with no axis I disorder (NAC) and (c) with no-OCD (NOC) using a 97-item questionnaire.

Results. The rate of OCD was 14.5% ($N = 145$). Relative to the NOC group, OCD subjects were more likely to be female, White, younger and not married. Relative to the NAC group, subjects with OCD were more likely to be White, not married and younger. OCD was accompanied by significant comorbidity and was associated with an increased number of visits to health professionals than NAC subjects. There was no significant difference regarding unemployment rates among the three groups. However, OCD callers were more likely than both control groups to have missed work or have decreased productivity due to their mental condition. OCD subjects took an average of 1 psychotropic medication in the past year and were statistically more likely than the control groups to experience sleepiness and nervousness as side effects.

Conclusions. OCD was fairly prevalent among ADAA callers and presented high levels of comorbidity, impairment, health care utilization and sensitivity to psychotropic side effects.

Keywords Obsessive-compulsive disorder, OCD, Survey, ADAA

INTRODUCTION

Obsessive-compulsive disorder (OCD) is a chronic and impairing disorder with a lifetime prevalence of 2 to 3% in the general population in North America (1–3). Similar prevalence rates were found in the Cross National Collaborative Study carried out over four different continents (North America and the Caribbean; Europe, Asia and New Zealand) (4). OCD causes significant morbidity, resulting in substantial distress and interference with academic, occupational, social, and family functioning (5,6). OCD is often comorbid with other axis I disorders, with

two thirds of subjects having a lifetime history of major depression and one third having current major depression at the time of psychiatric evaluation (2,7,8). Other frequently comorbid conditions are simple phobia, social phobia, and eating disorder (7).

Compared to other Axis I diagnoses, less is known about population characteristics of OCD, its pattern of health care utilization, level of impairment, medication use, comorbidity, and needs of this population. McCusker et al. (9) found that OCD was the only anxiety disorder associated with a significantly higher rate of high intensity mental health service use in a Canadian sample of outpatients from seven anxiety disorder clinics, with 50% of the OCD patients reporting at least 10 visits to a mental health professional in the previous year.

DuPont et al. (10) estimated that the total cost of OCD was \$8.4 billion in 1990, or 5.7% of the estimated \$147.8 billion

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cost of all mental illness, and 18.0% of the costs of all anxiety disorders. The indirect costs of OCD were estimated to be \$6.2 billion.

Koran et al. (11) studied the quality of life of medication-free patients with moderately severe OCD compared to published norms for the general US population, and also compared to depression and diabetes. OCD was associated with worse instrumental role performance and social functioning than those in the general population and diabetic patients. Social functioning was impaired in OCD, even after controlling for depression. The general and physical health rating of patients with OCD was better than those of the depressed patients. However, in the mental health domains, quality of life impairment was similar among OCD and depressed patients.

We conducted the first survey among callers to the Anxiety Disorders Association of America (ADAA), a nonprofit organization founded in 1980 with a mission to promote prevention, treatment, and cure of anxiety disorders, and to improve the lives of people suffering from anxiety disorders by providing advocacy, support, referrals, and education. The goal of this survey was to obtain information on patients with anxiety disorders who contacted ADAA to better understand this hitherto unstudied population and its needs. The present article focuses on participants who met criteria for OCD and compares them to the No-Axis I psychiatric disorder (NAC) and No-OCD (NOC) controls. The main questions addressed in this report are: 1) What are the prevalence rate and demographic characteristics of OCD in this population? 2) Which are the most frequent comorbid Axis I disorders in subjects with OCD, and how does this compare with subjects without OCD? 3) Is OCD associated with increased visits to general health practitioners and to mental health practitioners? 4) Is OCD associated with greater work impairment compared to the control groups? 5) What is the level of psychotropic utilization in OCD and to what extent do subjects with OCD report psychotropic medication related problems compared to the other diagnostic groups? 6) Why did individuals with OCD contact the ADAA?

METHODS

Subjects

A pool of 2,298 adults from callers to the ADAA between February and December 1997 was randomly chosen. Initially, those who were unreachable, uninterested or ineligible to participate were identified. After subtracting that group, there were exactly 1000 subjects who participated in the survey, among whom 145 met DSM-IV criteria for current OCD. Callers who did not have OCD, but who may or may not have exhibited other Axis I disorders, were identified as NOC (Non OCD-Controls), and callers who did not meet any current axis I diagnosis were identified as NAC (No Axis I Control group). The two control groups overlapped, that is, the NAC subjects were also included in the NOC group.

Instruments

A 97-item questionnaire described elsewhere (12) included an evaluation of the original ADAA call, an overall health assessment, screening of 24 medical conditions and 7 DSM-IV axis I disorders; demographic data and items about suicide, service utilization, and work productivity assessed by the Work Productivity and Adjustment inventory (WPAI), a quantitative measure of work productivity (13). The WPAI measures work productivity in the seven days prior to the interview by quantifying time missed from work or decreased productivity while at work due to medical problems. Many of the demographics, health seeking, and diagnostic questions were derived from the Diagnostic Interview Schedule (DIS) (14), a widely used instrument which was originally developed and used with a major national study of psychiatric epidemiology (15). The questionnaire was administered using a computer assisted telephone interview. Trained interviewers entered answers directly into the computer during the interview. Diagnosis was made according to the Mini International Neuropsychiatric Interview (MINI), which is a brief structured interview for the major Axis I psychiatric disorders in the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV) and the International Statistical Classification of Diseases and Related Health Problems (ICD-10) with established validation and reliability (16).

PROCEDURE

The Duke University Medical Center Institutional Review Board approved the protocol. After approval, subjects were contacted to confirm eligibility. Informed consent was obtained by phone. An independent research organization, Schulman, Ronca and Bucuvalas, Inc. was contracted to conduct the telephone survey. Experienced interviewers received general and specific project training at the beginning of the study and were monitored during the survey. Interviews were conducted between August 27, 1997, and July 5, 1998, and lasted an average of 30 minutes.

We explored the presence of current (past year) comorbid Axis I disorders in the surveyed population; namely, major depression (MDD), panic disorder (PD), post-traumatic stress disorder (PTSD), social phobia (SP), and generalized anxiety disorder (GAD).

Health service use was measured by number of visits to health professionals for treatment in the six months prior to interview, as per the DIS, and percentage rates of subjects seeking help for mental problems in the past year.

Work impairment and productivity was assessed by unemployment rate, percentage of participants who missed time from work in the past week due to emotional or physical problems and rate of subjects who reported reduced work productivity due to emotional or physical problems as per the WPAI.

Participants were asked if they were taking psychotropic medications in the past year and to report the total number of

medications taken for psychological problems. Subjects were also asked about possible side effects from the psychotropics used, specifically gastrointestinal symptoms, sleepiness, sexual complaints, nervousness and weight gain.

DATA ANALYSIS

Comparisons of interest were: (i) respondents with OCD (OCD; $n = 145$) versus all remaining non-OCD (NOC) subjects ($n = 855$), and (ii) OCD versus those with no current Axis I diagnosis (NAC; $n = 162$). SAS statistical software (Cary, NC) was used to examine the data. We used two tailed-t tests or the chi square test to determine the significance of differences between OCD versus NAC, and OCD versus NOC. Fisher's exact test was used when cell tables were sparse and chi-squared analysis was unreliable. The t test was used to compare means across pairs of groups (OCD vs. NAC; OCD vs. NOC). We used the Wilcoxon rank sum test for continuous variables with a nonnormal distribution across all three groups.

RESULTS

Demographics

One hundred and forty five subjects met criteria for OCD (14.5%), the majority being female ($N = 99$), White, employed, not married and with a mean (SD) age of 36.6 (9.2) years. Compared to NOC subjects, there were no statistically significant differences on gender, race or employment status. However, subjects with OCD were more likely to be not married and younger. In comparison to NAC subjects, those with OCD were more likely to be White, not married, and younger. There was no statistical difference related to gender or employment status (see Table 1).

Psychiatric Comorbidity

GAD was the most frequent comorbid disorder in OCD (74%) versus 42% in NOC group ($X^2 = 49.63$; $df = 1$; $p < .0001$). The second most frequent comorbid disorder was panic disorder (65% vs. 55% in the NOC control; $X^2 = 5.01$; $df = 1$; $p = .02$). Major depression was present in 62% of the subjects in the OCD group, versus 27% in the NOC group ($X^2 = 71.05$; $df = 1$; $p < .0001$). Social phobia was present in 50% of OCD respondents, versus 26% in NOC controls ($X^2 = 53.43$; $df = 1$; $p < .0001$). PTSD was present in 21% of OCD subjects while among NOC subjects the rate was only 6% ($X^2 = 42.24$; $df = 1$; $p < .0001$). NAC, by definition, had no current Axis I diagnosis.

Health Service Use and Work Impairment

Regarding the number of visits to any health care professional, there was no significant difference between OCD and NOC controls (OCD averaged a total of 5.42 visits (SD = 10; range 3–97) versus NOC with an average of 4.21 visits (SD = 7; range: 2–60). However, when OCD subjects were compared with the NAC control group, which had 3.87 visits (SD = 6; range: 0–45), the difference reached statistical significance ($X^2 = 4.8$; $df = 1$; $p = .03$). Concerning the percentage of subjects who sought help for mental health problems, no significant difference was found when comparing OCD with the other controls (OCD = 92%; NOC = 87%; NAC = 88%; $X^2 = 2.46$ and $X^2 = 1.33$, respectively).

Forty percent of OCD subjects were unemployed but there was no statistically significant difference compared to the control groups (NOC = 34%; NAC = 36%; $X^2 = 1.32$ and $X^2 = 0.39$, respectively). However, among employed subjects, individuals with OCD missed significantly more work days and reported decreased productivity at work due to their mental

Table 1 Demographic Characteristics of Subjects with Obsessive-Compulsive Disorder (OCD), No Axis I Disorder (NAC) and No OCD (NOC)

Variable	OCD ^a N = 145	NAC ^b N = 162	NOC ^c N = 855	p value	
				OCD vs NAC	OCD vs NOC
Average age (SD)	36.6 ± 9.2	44 ± 14.0	39.1 ± 11.4	$p < 0.0001$	$p = 0.005$
Gender				NS	NS
Male	32%	30%	27%		
Female	68%	70%	73%		
Ethnicity				$p = 0.03$	NS
White	90%	82%	88%		
Non-White	10%	18%	12%		
Marital Status				$p = 0.0001$	$p = 0.003$
Married	41%	63%	54%		
Not married	59%	37%	46%		
Employment status				NS	NS
Employed	60%	64%	66%		
Not employed	40%	36%	34%		

^aObsessive-Compulsive Disorder group.

^bNo Axis I diagnosis group.

^cNo OCD group; NS: not statistically significant.

condition than subjects from the two other control groups. Callers with OCD were also more likely than NOC controls to experience decreased productivity at work due to physical problems ($p = 0.03$). Table 3 summarizes employment status and work impairment of the study sample.

Psychotropic Usage and Side Effects

Subjects with OCD reported taking a mean of 1.0 medications in the past year ($SD = 1.19$; range: 0–7). NOC controls received a mean of 0.78 medications ($SD = 0.99$; range: 0–6; $t = -2.0$; $df = 597$; $p = 0.045$). Respondents in the NAC group took a mean of 0.74 medications in the previous year ($SD = 1.03$; range: 0–4; $t = -1.51$; $df = 172$; NS). OCD subjects reported significantly higher rates of all side effects compared to the NAC group, and significantly higher rates of sleepiness and nervousness compared to the NOC group (see Table 2).

Reasons for Contacting the ADAA

Most common reasons given by the OCD, NOC and NAC groups (%) respectively were as follows: 1) to obtain written information, links to books or articles (38, 38, 47%); 2) to obtain the name of a support group in their area (17, 12, 9%);

3) to learn how to cope with anxiety problem (17, 19, 15%); 4) to obtain the name of a professional in their area (14, 15, 10%); and 5) to obtain information on medications (6, 5, 6%).

DISCUSSION

Our study demonstrates a high prevalence of OCD in this population, and points out the impact of OCD, as well as the high cost to subjects, their families and society as a whole. OCD respondents were demographically similar to the comparison groups other than having a higher likelihood of being unmarried.

The prevalence rate is similar to the 15.5% rate reported by Welcovitz et al. in the National Anxiety Screening Program sample (17), and both are markedly greater than those found in the general population (2–3%), a difference which is likely related to the fact that they come from self-selected populations concerned about, or suffering from, anxiety disorders.

In our sample, persons with OCD had marked comorbidity consistent with previous epidemiological and clinical studies of this disorder, although the rates that we found were higher (2,4). Callers with OCD exhibited significantly higher rates of all comorbidities than subjects from the NOC group. Generalized anxiety disorder (GAD) was the most frequently comorbid diagnosis, followed by panic disorder, major depression, social phobia and post-traumatic stress disorder. Interestingly, major depression was not the most frequently found comorbid disorder in our sample, unlike the reports of Rasmussen and Eisen and Fireman et al. (7,18). Welkowitz et al. (17), however, found GAD to be the most common comorbidity in a sample from the National Anxiety Screening Program. These differences could be related to the possibility that people calling the ADAA are more likely to be suffering from anxiety disorders than depression or the fact that lifetime comorbidity was not assessed. It could also reflect differences between population-based epidemiological samples and self selected samples that choose to contact a support organization such as ADAA or present for screening of anxiety disorders. Moreover, in the National Anxiety Screening Program, depression was not investigated.

Table 2 Psychotropic Side Effects in Subjects with Obsessive-Compulsive Disorder (OCD), No Axis I Disorder (NAC) and No OCD (NOC)

Category	OCD ^a N = 66	NAC ^b N = 33	NOC ^c N = 253	p value	
				OCD vs NAC	OCD vs NOC
Gastrointestinal	47%	21%	40%	$p = 0.01$	NS
Sleepiness	73%	27%	49%	$p < 0.0001$	$p = 0.0007$
Sexual	39%	27%	30%	$p = 0.001$	NS
Nervousness	60%	15%	42%	$p < 0.0001$	$p = 0.0009$
Weight gain	41%	18%	28%	$p = 0.02$	NS

^aObsessive-Compulsive Disorder group.

^bNo Axis I diagnosis group.

^cNo OCD group; NS: not statistically significant.

Table 3 Work status and impairment in subjects with Obsessive-Compulsive Disorder (OCD), No Axis I Disorder (NAC) and No OCD (NOC)

Category	OCD N = 77–140*	NAC N = 97–159*	NOC N = 517–838*	p value	
				OCD vs. NAC	OCD vs. NOC
Unemployed	40%	36%	34%	NS	NS
Missed work (past week)					
Due to MH	24%	5%	11%	0.0002	0.0007
Due to PH	10%	11%	10%	NS	NS
Reduced work productivity					
Due to MH	68%	15%	34%	<0.0001	<0.0001
Due to PH	31%	21%	20%	NS	0.03

NS: not statistically significant. MH: mental condition or emotional problems; PH: physical problems or condition.

*Actual numbers vary depending upon whether subjects were employed and/or missing data.

Subjects with OCD made an average of 5.42 visits to health care professionals in the 6 months prior to the phone interview, which is consistent with the mean number of visits found in the whole sample (13). No significant differences were found compared to NOC controls. NAC controls, however, had significantly less visits in the same time period. In comparison with other Axis I diagnosis from the ADAA survey, we found that OCD was associated with lower health service use than callers with post-traumatic stress disorder or social anxiety disorder (19,20).

In a multi-site study carried out in Canada, McCusker et al. (9) reported that OCD was associated with a greater high intensity mental health service use, defined as 10 or more consultations per year. In evaluating the percentage of subjects from each group in our sample who sought mental health help in the previous year, there were no statistically significant differences, with all groups having high rates of mental health visits, and OCD subjects being in the higher end of the spectrum. Welkowitz et al. (17) found that the readiness to seek help for anxiety symptoms increased with the number of comorbid anxiety symptoms (i.e., subjects with two comorbid anxiety disorders were more ready to seek mental health help than subjects with one comorbidity).

Subjects in the NAC group made a similar number of visits to a mental health professional in the past year as did the other groups. This finding is interesting and could be explained by the possibility of sub-threshold disorders or other non-assessed disorders being present at the time of the phone interview (i.e., callers that did not meet full diagnostic criteria but would still suffer from enough symptomatology to require professional help; also, participants who currently do not meet criteria because of recent treatment received for a past diagnosis).

Our findings of greater work-related impairment are in agreement with the findings from Koran et al. (11) who observed limitation in work, home and school functioning to be worse in medication free OCD patients compared to the US general population and diabetic patients. These effects of OCD on work performance add to the individual and socioeconomic cost of OCD, as reported by DuPont et al., with an estimated amount of \$5.9 billion in 1990 dollars in reduced or lost economic productivity, which accounted for 70.4% of the total economic cost of OCD (10). We are not sure why physical health problems were more frequently reported by subjects with OCD as a cause for lower productivity, although conceivably OCD may be associated with dermatological problems, which could be a factor.

Subjects with OCD took more psychotropics than those in the NOC group, and reported higher rates of side effects from these medications. These rates are higher than those reported by Zhang et al., and Bull and collaborators from samples of subjects experiencing social phobia and depression, respectively (20,21). We do not know if this means that patients with OCD are more sensitive to adverse effects of psychotropic drugs, if they are being treated with unusually high doses or perhaps some other explanation may apply. Either way, side effects remain an important factor in lessening treatment compliance (21,22).

Finally, callers to the ADAA who met diagnostic criteria of OCD were often motivated to obtain written information and links to books or articles; to obtain the name of a support group in their area and learn ways to cope with an anxiety problem. To a lesser proportion, callers wanted the name of a professional in their area or to obtain information on medications.

One limitation of this study is that the standard MINI, while well established, does not include the diagnoses of body dysmorphic disorder and hypochondriasis, which are, however, represented in the larger MINI Plus version. Time and cost constraints limited the amount of information it was possible to obtain from subjects. Accordingly, it may well be that the NAC group included subjects with these or other diagnoses, such as dysthymia or subthreshold depression or anxiety.

CONCLUSION

Among the entire sample of callers to the ADAA ($n = 1000$), 145 met diagnostic criteria for OCD (14.5%). The majority of individuals with OCD from our survey were unmarried, employed, White females, with an average age of 36.6 years.

OCD was comorbid with GAD, PD, and MDD. Subjects with OCD made an average of 5.42 visits to a general health practitioner in the past 6 months and 92 % of OCD callers had visited a mental health practitioner in the previous year. It appears as if OCD imposes considerable work impairment and underachievement. In our sample, individuals with OCD were more likely to have missed work or had decreased productivity at work secondary to their mental condition. OCD individuals were also more likely to have decreased productivity due to physical problems. Participants with OCD took an average of one psychotropic and were very likely to experience troublesome side effects, in particular sleepiness and nervousness.

OCD callers reported as the main reasons for contacting the ADAA: 1) To obtain written information, links to books or articles; 2) To obtain the name of support group in their area and to learn how to cope with anxiety problem; 3) To obtain the name of a professional in their area; and 4) To obtain information on medications.

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REFERENCES

1. Bland RC, Newman SC, Orn H: Age of onset of psychiatric disorders. *Acta Psychiatr Scand* 1988; 338:43–49
2. Karno M, Golding JM, Sorenson SB, Burnam MA: The epidemiology of obsessive-compulsive disorder in five US communities. *Arch Gen Psychiatry* 1988; 45:1094–1099

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. Weissman MM, Bland RC, Canino GJ, Greenwald S, Hwu HG, Lee CK, Newman SC, Oakley-Browne MA, Rubio-Stipec M, Wickramaratne PJ: The cross national epidemiology of obsessive compulsive disorder. The Cross National Collaborative Group. *J Clin Psychiatry* 1994; 55:5–10
5. Stein DJ, Roberts M, Hollander E, Rowland C, Serebro P: Quality of life and pharmaco-economic aspects of obsessive-compulsive disorder. A South African survey. *S Afr Med J* 1996; 86:1579, 1582–1585
6. Steketee G: Disability and family burden in obsessive-compulsive disorder. *Can J Psychiatry* 1997; 42:919–298
7. Rasmussen SA, Eisen JL: The epidemiology and differential diagnosis of obsessive compulsive disorder. *J Clin Psychiatry* 1994; 55:5–10; discussion 11–14
8. Rasmussen SA, Tsuang MT: Clinical characteristics and family history in DSM-III obsessive-compulsive disorder. *Am J Psychiatry* 1986; 143:317–322
9. McCusker J, Boulenger JP, Boyer R, Bellavance F, Miller JM: Use of health services for anxiety disorders: a multisite study in Quebec. *Can J Psychiatry* 1997; 42:730–736
10. DuPont RL, Rice DP, Shiraki S, Rowland CR: Economic costs of obsessive-compulsive disorder. *Med Interface* 1995; 8:102–109
11. Koran LM, Thienemann ML, Davenport R: Quality of life for patients with obsessive-compulsive disorder. *Am J Psychiatry* 1996; 153:783–788
12. Kramer ML, Ross J, Davidson JR: Consumers who call the Anxiety Disorders Association of America: characteristics and satisfaction. *J Nerv Ment Dis* 2001; 189:328–331
13. Reilly MC, Zbrozek AS, Duker EM: The validity and reproducibility of a work productivity and activity impairment instrument. *Pharmacoeconomics* 1993; 4:353–365
14. Robins LN, Helzer JE, Croughan J, Ratcliff KS: National Institute of Mental Health Diagnostic Interview Schedule. Its history, characteristics, and validity. *Arch Gen Psychiatry* 1981; 38:381–389
15. Robins LN, Regier D (Eds). *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study*. New York. Free Press 1991
16. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC: The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry* 1998; 59:22–33
17. Welkowitz LA, Struening EL, Pittman J, Guardino M, Welkowitz J: Obsessive-compulsive disorder and comorbid anxiety problems in a national anxiety screening sample. *J Anxiety Disord* 2000; 14:471–482
18. Fireman B, Koran LM, Leventhal JL, Jacobson A: The prevalence of clinically recognized obsessive-compulsive disorder in a large health maintenance organization. *Am J Psychiatry* 2001; 158:1904–1910
19. Zhang W, Ross J, Davidson JR: Posttraumatic stress disorder in callers to the Anxiety Disorders Association of America. *Depress Anxiety* 2004; 19:96–104
20. Zhang W, Ross J, Davidson JR: Social anxiety disorder in callers to the Anxiety Disorders Association of America. *Depress Anxiety* 2004; 20:101–106
21. Bull SA, Hu XH, Hunkeler EM, Lee JY, Ming EE, Markson LE, Fireman B: Discontinuation of use and switching of antidepressants: influence of patient-physician communication. *JAMA* 2002; 288:1403–1409
22. Lin EH, Von Korff M, Katon W, Bush T, Simon GE, Walker E, Robinson P: The role of the primary care physician in patients' adherence to antidepressant therapy. *Med Care* 1995; 33:67–74