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Prevalence and Correlates of Estimated DSM-IV Child and Adult Separation Anxiety Disorder in the National Comorbidity Survey Replication (NCS-R)

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Abstract

Objective— Despite its inclusion in DSM-IV, little is known about the prevalence or correlates of adult Separation Anxiety Disorder (SEPAD) or its relationship to the childhood form of the disorder. Results of the first epidemiological study of adult SEPAD and its relationship to childhood SEPAD are presented in this report.

Methods— Data come from the National Comorbidity Survey Replication (NCS-R), a nationally representative survey of the US household population. A fully structured lay-administered diagnostic interview assessed a wide range of DSM-IV disorders that included SEPAD. No independent clinical validation was obtained of the SEPAD assessment.

Results— Lifetime prevalence estimates of childhood and adult SEPAD are 4.1% and 6.6%, respectively. Approximately one-third (36.1%) of respondents classified as childhood cases persist into adulthood, while the majority (77.5%) of respondents classified as adult cases have first onsets in adulthood. The assessment of SEPAD in the NCS-R is highly comorbid with other NCS-R/DSM-IV disorders and associated with severe role impairment in roughly half of comorbid cases and one-fourth of pure cases. The majority of people with estimated adult SEPAD are untreated for the disorder even though many obtain treatment for comorbid conditions.

Conclusions— Criteria for adult SEPAD need to be refined in future editions of the DSM based on the fact that SEPAD is likely to be a much more common adult condition than previously recognized. Research is needed to develop and evaluate treatments for the disorder that take into consideration its high comorbidity with other DSM-IV disorders.

Keywords

Separation Anxiety Disorder; Diagnosis And Classification -AJP0086; Epidemiology - AJP0087

Although Separation Anxiety Disorder (SEPAD) is described in DSM-IV-TR as a childhood disorder that seldom persists into adulthood, several empirical studies have argued that adult SEPAD is more common than suggested by DSM-IV-TR (1–10). This could be due to either of two possibilities. First, a higher proportion of childhood-onset cases might persist into adulthood than assumed in DSM-IV-TR. Second, at least some first onsets might occur in adulthood. Only a few short-term follow-up studies have evaluated the first possibility (11, 12). While these studies showed that the vast majority of childhood cases remit before

adulthood, they did not follow cases long enough to determine whether an adult form of the disorder subsequently reemerges in conjunction with the development of adult attachment relationships. A few studies of adult SEPAD evaluated the second possibility (2,13–15). These studies consistently found a number of adults with SEPAD report who never had childhood SEPAD. However, as these studies were all based on small and unrepresentative samples, no generalizations can be made about prevalence or correlates of adult-onset SEPAD.

Basic descriptive information about adult SEPAD would be of considerable interest for several reasons. As SEPAD is only rarely diagnosed among adults in treatment, documentation of nontrivial prevalence and clinical significance would point to a problem of low recognition and treatment. This, in turn, would turn attention to the relative importance of persistent childhood cases versus adult first onsets in accounting for adult cases. To address these issues, fully structured assessments of child and adult SEPAD were included in the recently completed National Comorbidity Survey Replication study (NCS-R; 16). Adult cases were assessed for both persistence of childhood SEPAD and for first onset in adulthood. This report presents basic descriptive information about prevalence and correlates of childhood and adult SEPAD, including age-of-onset distributions, course, socio-demographic correlates, comorbidity, impairment, and treatment.

METHODS

Sample

As detailed elsewhere (17), the NCS-R is a nationally representative survey of the English-speaking household population in the coterminous United States. Face-to-face interviews were carried out with 9282 respondents ages 18 and older between February 2001 and April 2003. The response rate was 70.9%. Sample recruitment featured an advance letter and Study Fact Brochure followed by an in-person interviewer visit to answer questions before obtaining informed consent. Consent was obtained verbally rather than in writing to parallel the procedures used in the baseline NCS (18) for purposes of trend comparison. The Human Subjects Committees of Harvard Medical School and the University of Michigan both approved these recruitment and consent procedures.

The NCS-R interview was administered in two parts. Part I included a core diagnostic assessment administered to all respondents. Part II included questions about correlates and additional disorders administered to all Part I respondents who met lifetime criteria for any core disorder plus a probability subsample of other respondents ($n = 5692$). SEPAD was included in Part II. The sample was weighted to be representative of the US adult population. Details on NCS-R weighting are reported elsewhere (17).

Childhood and Adult Separation Anxiety Disorder

The retrospective assessment of childhood SEPAD in the NCS-R was based on an expansion of the SEPAD module in the Diagnostic Interview Schedule for DSM-IV (19). Respondents were classified as having had childhood SEPAD if they endorsed at least three of the eight DSM-IV Criterion A symptoms of SEPAD, indicated that these symptoms were present for at least one month at some time before age 18, and reported clinically significant distress or role impairment. Respondents who met criteria for childhood SEPAD were asked both about age of onset (AOO) and persistence into adulthood. A parallel set of symptom, AOO, and recency questions were also asked about adult-onset SEPAD, making age-appropriate modifications to the Criterion A symptom questions. The SEPAD symptom questions closely resemble those in the Structured Clinical Interview for Separation Anxiety Symptoms (SCI-SAS), an instrument with good psychometric properties that was developed for use with clinical samples

of adults (2). However, no independent clinical evaluation was made of the SEPAD section of the NCS-R interview, which means that the validity of this assessment is unknown.

Comorbid DSM-IV disorders

Other DSM-IV disorders were assessed in the NCS-R with version 3.0 of the World Health Organization's (WHO) Composite International Diagnostic Interview (CIDI; 20), a fully structured lay-administered diagnostic interview. The core lifetime CIDI disorders include other anxiety disorders (panic disorder with or without agoraphobia, generalized anxiety disorder, specific phobia, social phobia, agoraphobia without panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder), mood disorders (major depressive disorder, bipolar I or II disorder, dysthymic disorder), impulse-control disorders (oppositional-defiant disorder, conduct disorder, attention-deficit/hyperactivity disorder, intermittent explosive disorder), and substance use disorders (alcohol and illicit drug abuse and dependence). Organic exclusion rules and diagnostic hierarchy rules were used in making diagnoses. SEPAD was not included in operationalizing the hierarchy rules. As detailed elsewhere (21), blind clinical re-interviews using the Structured Clinical Interview for DSM-IV (SCID; 22) with a probability sub-sample of NCS-R respondents found generally good concordance between DSM-IV diagnoses of anxiety, mood, and substance disorders based on the CIDI and the Blinded SCID clinical reappraisal interviews, with AUC in the range .65-.81. Diagnoses of impulse-control disorders and SEPAD were not validated because the SCID does not include assessments of these disorders.

Other correlates of Childhood and Adult SEPAD

Three other sets of possible correlates of SEPAD were also examined: socio-demographics, role impairment, and treatment. Socio-demographics included gender, age (18–29, 30–44, 45–59, 60+), race-ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Other), education (0–11, 12, 13–15, 16+), marital status (married-cohabitating, previously married, never married), and employment status (working, student, homemaker, retired, other). Role impairment among 12-month cases was assessed with the Sheehan Disability Scales (23). These scales asked respondents to focus on the one month in the past year when their SEPAD was most severe and to rate how much SEPAD interfered with their home management, work, social life, and personal relationships using a 0–10 visual analogue scale of none (0), mild (1–3), moderate (4–6), severe (7–9), and very severe (10) interference. Treatment was assessed in two places: in each diagnostic section, where we asked about treatment of the focal disorder; and in a separate section on overall treatment, where we asked about treatment of any problem with emotions, nerves, or mental health. A comparison of responses to the more and less inclusive questions allowed us to distinguish respondents with SEPAD who received mental health treatment that did not focus on SEPAD from those who received treatment for SEPAD.

Analysis methods

The actuarial method was used to generate age of onset (AOO) distributions from retrospective AOO reports. Associations of SEPAD assessments with socio-demographic variables and comorbid conditions were estimated using bivariate logistic regression analysis, with coefficients exponentiated and reported as odds-ratios (ORs) for ease of interpretation. Bivariate rather than multivariate logistic regression was used because our goal was to be descriptive rather than to make causal inferences. Impairment and treatment were examined using simple cross-tabulations. Because the NCS-R data are weighted and clustered, all statistical analyses used the Taylor series linearization method (24) implemented in the SUDAAN software system (25). Significance tests of sets of coefficients were made using Wald χ^2 tests based on SUDAAN coefficient variance-covariance matrices. Statistical significance was evaluated using two-sided .05 level tests.

RESULTS

Prevalence, age of onset, and persistence

Lifetime prevalence estimates of childhood and adult SEPAD are 4.1% and 6.6%, respectively. (Table 1) The 12-month prevalence estimate of adult SEPAD is 1.9%. Somewhat more than one-third (36.1%) of respondents classified in the NCS-R as childhood cases persist into adulthood and 11.5% into the 12 months before the interview. Respondents classified as childhood cases represent 22.5% of all those classified as lifetime cases of adult SEPAD and 24.8% of those classified as 12-month adult cases, indicating that the majority of the NCS-R respondents classified as both lifetime (77.5%) and 12-month (75.2%) adult cases had first onsets in adulthood.

Analysis of AOO curves (Figure 1) shows that the majority of respondents classified as childhood cases began in early or middle childhood. The majority of respondents classified as adult-onset cases, in comparison, began in the late teens or early 20s, with 80% of first onsets occurring by age 30.

Socio-demographic correlates

Lifetime child and adult SEPAD, as assessed in the NCS-R, are significantly more common among women than men, with ORs of 2.2 (child) and 1.4 (adult). (Table 2) Odds of lifetime estimated SEPAD are also substantially higher among respondents in the age range 18–59 than 60+, with ORs in the range 4.2–4.9 for child and 3.9–5.4 for adult estimated SEPAD. Unmarried people (both those never married and those previously married) also have somewhat higher odds of both estimated child (ORs in the range 1.5–1.6) and adult (1.4–1.8) SEPAD than people who are married or cohabiting. Adult, but not childhood, assessments of SEPAD are significantly related to low education (0–12 years), with ORs of 1.9–2.3, and to “other” employment status (a category made up mostly of unemployed and disabled individuals), with an OR of 1.9.

Comorbidity with other DSM-IV disorders

The vast majority of respondents classified in the NCS-R as having either childhood SEPAD (86.1%) or adult SEPAD (88.5%) have a history of at least one of the other DSM-IV disorders assessed in the survey. (Table 3) Strength of comorbidities, as indicated by ORs, does not differ markedly in magnitude between estimated childhood SEPAD (with a median OR of 2.9 and an inter-quartile range of ORs of 2.2–4.0) and adult SEPAD (median OR of 3.9, inter-quartile range of 3.4–5.0). Moreover, the strength of comorbidity between estimated SEPAD and other anxiety disorders (ORs in the range 4.9–5.3) is not markedly different from the strength of comorbidities with mood disorders (ORs in the range 4.3–7.5), although somewhat higher than comorbidities with impulse-control disorders (ORs in the range 3.0–4.3) and substance use disorders (ORs in the range 2.2–3.3).

Functional Impairment

More than 40% of respondents classified as having 12-month SEPAD reported severe impairment in at least one of the life domains assessed by the Sheehan Disability Scales. (Table 4) Severe impairment is especially common in the domains of social and personal life. Not surprisingly, comorbidity is associated with impairment. Nonetheless, a meaningful proportion (29.8%) of respondents classified as having 12-month SEPAD in the absence of any other NCS-R/DSM-IV disorder (i.e., pure 12-month SEPAD) reported severe impairment in role functioning.

Treatment

Only about one-fifth (21.8%) of respondents with estimated childhood SEPAD reported receiving treatment for emotional problems before age 18. Most were seen by a mental health specialist. (Table 5) Less than one-fourth of these patients (24.3%), however, reported that SEPAD was a focus of treatment. A much higher percentage of respondents with estimated adult SEPAD (74.7%), in comparison, reported receiving treatment for emotional problems, with the highest proportions seen by a psychiatrist, some other mental health professional, or a primary care physician. Less than one-third of these adult patients (31.9%), however, reported that SEPAD was ever a focus of treatment. Approximately half (50.3%) of respondents classified as having SEPAD in the 12 months before the interview received 12-month treatment for emotional problems, but less than one-third of these patients (28.5%) reported that SEPAD was a focus of treatment.

DISCUSSION

Two limitations of the study are noteworthy. First, the potentially distorting influence of retrospective recall bias cannot be ruled out in interpreting reports about childhood SEPAD. Second, diagnoses were based on un-validated fully structured interviews administered by lay interviewers rather than by clinical interviewers. This could be an especially important limitation for a disorder like SEPAD, where clinical judgment may be needed to determine whether the degree of anxiety about separation from an attachment figure truly is excessive in relation to the respondent's life situation or developmental phase or if the symptoms are better explained by another mental disorder. Because of these limitations, the results reported here should be considered provisional.

Within the context of these limitations, we presented the first nationally representative data on the descriptive epidemiology of adult Separation Anxiety Disorder. The 4.1% estimated prevalence of childhood SEPAD is similar to previously published estimates (26). However, contrary to suggestions in DSM-IV-TR, the estimated lifetime prevalence of adult SEPAD (6.6%) was higher than the estimated lifetime prevalence of childhood SEPAD. In addition, the vast majority of respondents classified as having adult SEPAD reported first onsets in adulthood rather than childhood, even though a substantial proportion of the respondents classified as childhood cases persisted into adulthood. These results call into question the DSM-IV-TR representation of adult SEPAD.

The NCS-R finding that estimated SEPAD is more prevalent among women than men is consistent with previous research on childhood SEPAD (11,12,26,27). That the female-male OR is lower for estimated adult (1.4) than childhood (2.2) cases could mean either that persistence into adulthood is higher for males than females or that males are more likely than females to have first onsets in adulthood. More detailed analyses (results not shown) found that only the latter process is at work. The findings that estimated adult SEPAD is associated with roughly doubling of the odds of low (0–12 years) education, unemployment, and marital disruption are consistent with the suggestion in the clinical literature that SEPAD can be seriously impairing, although temporal and causal priority were not sorted out in the cross-sectional analyses of these socio-demographic correlates. Odds of being not married are elevated both among respondents with estimated childhood SEPAD and those with estimated adult SEPAD. This result indirectly suggests that estimated childhood SEPAD might be a risk marker for remaining unmarried and, once married, for marital instability. Education and occupation, in comparison, are related to estimated adult SEPAD but not to estimated childhood SEPAD. The failure to find an association of estimated childhood SEPAD with these core indicators of socioeconomic status (SES) differs from the consistent finding in child epidemiological studies that SEPAD is strongly related to low parental SES (26).

The finding that both estimated childhood and estimated adult SEPAD are strongly comorbid with many other DSM-IV disorders is consistent with a broader pattern of high comorbidity in the NCS-R (28) and other epidemiological surveys (29). The finding that the OR's of estimated SEPAD with other anxiety disorders are no higher than with mood disorders and somewhat higher than with impulse-control and substance use disorders is consistent with the existence of a broad internalizing-externalizing distinction in the comorbidity of mental disorders (28,30–32). Methodological studies are needed to investigate whether comorbidities involving SEPAD are due to overlap of symptoms, imprecision of diagnostic criteria, or other methodological confounds. To the extent that such confounds can be ruled out, studies could profitably address whether these comorbidities are causal and, if so, whether early successful treatment of SEPAD in childhood and early adulthood would lower rates of secondary adult disorders. A related question is whether adult SEPAD has any effect on the persistence or severity of other comorbid disorders.

As high comorbidity is generally found to be significantly associated with impairment (28), it is not surprising that nearly half of respondents estimated to have 12-month adult SEPAD experience severe role impairment if they have comorbid conditions. The fact that more than one-fourth of respondents with pure 12-month estimated SEPAD also report severe role impairment, though, suggests that SEPAD can also be impairing in itself. This being the case, the question arises whether comorbid SEPAD accounts for some of the impairment previously attributed to other anxiety (33–41), mood (42–45), or substance (46) disorders. None of the many studies that estimated the societal costs of these conditions included SEPAD as a possible contributor to impairment.

The finding that less than one-fourth of children with estimated SEPAD receive treatment is consistent with research that documents substantial under-treatment of childhood internalizing disorders (47). Treatment of adults with estimated SEPAD is dramatically higher (74.7%). However, the vast majority of patients reported that they were treated for comorbid conditions rather than for SEPAD. These results suggest that treatment providers often fail to recognize SEPAD in the context of other comorbid conditions. The absence of research on the treatment of adult SEPAD suggests that researchers have also largely overlooked this disorder.

The NCS-R profile of nontrivial prevalence and impairment in the context of low treatment raises the question of whether detection and treatment of SEPAD in usual clinical practice is adequate. However, given that there was no clinical validation of the NCS-R SEPAD interview, it is possible that these data include false positives. Thus, before drawing firm conclusions or embarking on treatment studies, it would be important to carry out phenomenological and psychometric studies to refine the criteria for adult SEPAD and confirm its prevalence and consequences. As noted in the introduction, the current DSM criteria focus on children. It might be that the criteria could be usefully modified for adults, especially as we have evidence that most lifetime cases have first onsets in adulthood.

In considering the possible revision of diagnostic criteria for adults, it would be useful to focus on issues of symptom overlap and differential diagnosis with a number of the disorders included in this paper, as well as with several other potentially related conditions (e.g., adjustment disorder, cluster C personality disorders). This is especially important in light of the fact that the vast majority of NCS-R respondents with 12-month estimated adult SEPAD (91.1%) were classified as meeting criteria for at least one other 12-month DSM-IV disorder. In doing this, it would be important to explore the boundaries between normal response to loss of an attachment figure, separation anxiety as an adjustment reaction, and syndromal separation anxiety disorder. Given that infant separation anxiety is one of the most strongly conserved behaviors in evolution (48–50), and given the importance of attachment relationships in adulthood, separation anxiety may be more easily elicited in adults than is commonly

recognized and might be the norm under certain extreme life circumstances. Thus, it would make sense that diagnostic criteria take into consideration the possibility of expected reactions to extreme life stressors that create unusual but realistic interpersonal threat (e.g., living in a very dangerous neighborhood or a war zone, caring for a seriously ill child). In addition, as adult SEPAD becomes better understood it would be valuable for the text of the DSM criteria to provide assistance in distinguishing transient context-dependent separation anxiety symptoms or mild adaptive forms related to culturally accepted familial interdependence from a full-fledged pathological separation anxiety syndrome in need of treatment. The diagnosis of adjustment disorder with anxious mood is currently used in children when there are subthreshold, transient symptoms of separation anxiety. Consideration should be given as to when this should apply to adults as well.

Once diagnostic criteria are clarified, it would be useful to carry out analytic epidemiological investigations to examine the many risk factors that might differ in predicting first onset in childhood versus adulthood and persistence of childhood cases into adulthood. Our superficial analysis of socio-demographic correlates already turned up potentially interesting specifications (e.g., stronger associations of SES with adult than childhood estimated cases). A thorough investigation of similarities and differences across a wide range of risk factors would be enlightening. Comorbidity might also be a focus of risk factor analysis. For example, a growing literature documents that parental overprotection and control are risk factors for a wide range of childhood anxiety disorders (51,52). It would be useful to investigate the extent to which these parenting styles account for comorbidity of SEPAD with other anxiety and mood disorders as well as the specific role of parental behavior in contributing to vulnerability to SEPAD. Such risk factor research could play a role in elaborating a conceptual model of SEPAD in relation to other internalizing disorders and might help elucidate factors that contribute to adult onsets and/or persistence of syndromal or subthreshold SEPAD from childhood into adulthood. Insights such as these would inform the treatment development work needed to establish effective preventive and clinical interventions for this disorder.

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Table 1
Prevalence of childhood and adult SAD among Part II NCS-R respondents (n=5692)

	%	(95% CI)
I. Unconditional lifetime prevalence		
Childhood SAD	4.1	(3.5–4.7)
Adult SAD	6.6	(6.0–7.2)
II. Conditional lifetime prevalence		
Adult SAD given a history of childhood SAD	36.1	(31.7–40.5)
Adult SAD given no history of childhood SAD	5.3	(4.7–5.9)
Childhood SAD given adult SAD	22.5	(18.9–26.1)
III. Twelve-month prevalence of adult SAD		
In the total sample	1.9	(1.5–2.3)
Among lifetime adult cases given childhood SAD	11.5	(7.3–15.7)
Among lifetime adult cases given no childhood SAD	1.5	(1.3–1.7)

Table 2
Socio-demographic correlates of lifetime childhood and adult SAD among Part II NCS-R respondents (n=5692)

	Childhood SAD		Adult SAD	
	OR	(95% CI)	OR	(95% CI)
Sex				
Male	1.0	...	1.0	...
Female	2.2	(1.5–3.3)	1.4	(1.2–1.7)
χ^2_1	17.0*		12.7*	
Age				
18–29	4.7	(2.4–9.1)	5.4	(2.8–10.5)
30–44	4.9	(2.5–9.7)	5.4	(2.8–10.5)
45–59	4.2	(2.3–7.4)	3.9	(2.1–7.4)
60+	1.0	...	1.0	...
χ^2_3	30.1*		31.9*	
Race				
Hispanic	0.7	(0.4–1.4)	0.8	(0.5–1.1)
Black	0.8	(0.5–1.2)	0.7	(0.4–1.0)
Other	1.4	(0.7–2.9)	1.5	(0.9–2.5)
White	1.0	...	1.0	...
χ^2_3	2.2		9.5*	
Marital Status				
Married/Cohabiting	1.0	...	1.0	...
Sep./Widowed/Divorced	1.6	(1.1–2.4)	1.8	(1.2–2.5)
Never Married	1.5	(1.0–2.1)	1.4	(1.0–1.9)
χ^2_3	9.9*		12.0*	
Education				
0–11 years	1.7	(0.9–3.2)	2.3	(1.5–3.6)
12 years	1.2	(0.9–1.6)	1.9	(1.5–2.5)
13–15 years	1.0	(0.6–1.5)	1.2	(0.9–1.6)
16 or more years	1.0	...	1.0	...
χ^2_3	5.1		30.2*	
Employment Status				
Working	1.0	...	1.0	...
Student	0.6	(0.2–2.3)	1.1	(0.5–2.4)
Homemaker	0.7	(0.4–1.2)	0.5	(0.3–1.1)
Retired	0.7	(0.3–1.5)	1.1	(0.5–2.7)
Other	1.4	(1.0–1.9)	1.9	(1.4–2.8)
χ^2_4	8.1		35.7*	

* Significant at the .05 level, two-sided test

Table 3
Comorbidities of childhood and adult SAD with other DSM-IV CIDI disorders among Part II NCS-R respondents (n=5692)

	Lifetime				12 month			
	%	Childhood SAD (95% CI)	OR	% (95% CI)	Adult SAD (95% CI)	OR	% (95% CI)	Adult SAD (95% CI)
I. Other Anxiety Disorders								
Panic Disorder	15.9	(11.9– 19.9)	3.9	(2.9– 5.4)	14.8	(12.0– 17.6)	3.9	(3.0– 5.0)
Agoraphobia without panic disorder	3.8	(1.4–6.2)	2.9	(1.4– 6.2)	5.8	(3.8–7.8)	5.8	(3.7– 9.0)
Generalized anxiety disorder	17.1	(12.3– 21.9)	3.7	(2.5– 5.5)	16.1	(12.7– 19.5)	3.7	(2.7– 5.1)
Specific phobia	37.6	(31.8– 43.4)	4.3	(3.3– 5.5)	35.8	(32.6– 39.0)	4.2	(3.6– 5.0)
Social phobia	33.4	(27.4– 39.4)	3.6	(2.7– 4.8)	34.5	(30.7– 38.3)	4.1	(3.4– 5.0)
Post-traumatic stress disorder	23.0	(19.0– 27.0)	4.2	(3.1– 5.6)	23.7	(20.3– 27.1)	4.9	(3.8– 6.3)
Obsessive- compulsive disorder ¹	4.3	(0.7–7.9)	2.4	(0.8– 7.6)	9.9	(3.5– 16.3)	8.1	(3.8– 17.0)
Any other anxiety disorder	65.3	(60.1– 70.5)	4.9	(3.8– 6.2)	65.6	(61.0– 70.2)	5.3	(4.1– 6.9)
II. Mood Disorders								
Major depressive disorder	37.0	(30.2– 43.8)	2.9	(2.2– 3.9)	40.8	(36.0– 45.6)	3.8	(3.0– 4.8)
Dysthymia	8.5	(5.3– 11.7)	4.0	(2.8– 5.6)	8.9	(6.7– 11.1)	4.7	(3.6– 6.2)
BipolarI or II disorders	15.1	(10.5– 19.7)	4.3	(2.9– 6.4)	19.4	(16.2– 22.6)	7.1	(5.6– 9.2)
Any mood disorder	53.1	(47.1– 59.1)	4.3	(3.4– 5.3)	61.7	(56.9– 66.5)	6.9	(5.5– 8.8)
III. Impulse-control Disorders								
Attention-deficit/ hyperactivity disorder ²	21.3	(13.7– 28.9)	3.4	(2.1– 5.7)	22.1	(16.9– 27.3)	3.9	(2.8– 5.5)
Oppositional-defiant disorder ²	19.6	(14.2– 25.0)	2.8	(1.9– 4.3)	20.7	(17.3– 24.1)	3.2	(2.5– 4.2)
Conduct disorder ²	21.4	(15.4– 27.4)	2.8	(2.1– 3.7)	23.9	(18.9– 28.9)	3.5	(2.6– 4.7)
Intermittent explosive disorder	8.9	(5.1– 12.7)	1.7	(1.1– 2.7)	10.4	(7.4– 13.4)	2.1	(1.5– 3.1)
Any impulse-control disorder	48.3	(40.3– 56.3)	3.0	(2.2– 4.1)	54.7	(49.5– 59.9)	4.3	(3.4– 5.3)
IV. Substance Use Disorders								
Alcohol abuse or dependence	26.7	(21.3– 32.1)	2.2	(1.7– 2.9)	33.1	(27.3– 38.9)	3.4	(2.5– 4.5)
Alcohol dependence	14.3	(8.9– 19.7)	2.8	(1.9– 4.3)	20.1	(16.5– 23.7)	5.0	(3.7– 6.8)
Illicit drug abuse or dependence	16.7	(12.3– 21.1)	1.9	(1.4– 2.7)	22.5	(19.1– 25.9)	3.2	(2.4– 4.1)
Illicit drug dependence	9.0	(5.2– 12.8)	2.8	(1.6– 4.7)	12.6	(10.0– 15.2)	4.8	(3.6– 6.5)
Any substance use disorder	28.8	(23.4– 34.2)	2.2	(1.7– 2.7)	35.9	(30.3– 41.5)	3.3	(2.5– 4.4)

	Lifetime				12 month			
	%	Childhood SAD (95% CI)	OR	%	Adult SAD (95% CI)	OR	%	Adult SAD (95% CI)
V. Any Disorder	86.1	(80.1– 92.1)	6.9	(4.2– 11.3)	88.5	(84.9– 92.1)	9.2	(6.3– 13.5)
					91.1	(84.1– 98.1)	10.2	(4.3– 24.3)

¹ Sample restricted to those who received OCD module (n=2073)

² Sample restricted to age 18–44 (n=3197)

Table 4
Percentage of impairment among 12-month adult SAD in the Sheehan Disability Scales separately for comorbid (n=132) and pure (n=24) Part II NCS-R cases

Twelve-month comorbidity							
Yes		No		Total		OR	(95% CI)
%	(95% CI)	%	(95% CI)	%	(95% CI)		
I. Impaired role performance doing housework							
Any	56.1 (46.7–65.5)	42.2 (19.0–65.4)	53.7 (43.9–63.5)	1.7 (0.7–4.5)			
Severe	21.1 (15.1–27.1)	13.0 (0.0–27.8)	19.7 (14.1–25.3)	1.8 (0.5–7.0)			
II. Impaired role performance at work							
Any	51.6 (41.8–61.4)	34.6 (12.6–56.6)	48.6 (39.6–57.6)	2.0 (0.7–5.9)			
Severe	21.7 (11.7–31.7)	10.6 (0.0–24.8)	19.7 (11.1–28.3)	2.3 (0.4–12.1)			
III. Impaired performance in personal relationships							
Any	66.6 (56.4–76.8)	55.8 (32.6–79.0)	64.7 (55.7–73.7)	1.6 (0.5–4.7)			
Severe	28.0 (19.2–36.8)	15.1 (0.0–31.5)	25.7 (18.3–33.1)	2.2 (0.5–8.7)			
IV. Impaired performance in social relationships							
Any	66.4 (56.0–76.8)	59.7 (35.5–83.9)	65.2 (56.0–74.4)	1.3 (0.4–4.3)			
Severe	31.5 (22.7–40.3)	19.7 (1.9–37.5)	29.5 (21.9–37.1)	1.9 (0.5–6.5)			
V. Maximum impaired performance in any role area							
Any	73.4 (62.8–84.0)	63.2 (40.0–86.4)	71.6 (61.8–81.4)	1.6 (0.5–4.9)			
Severe	45.0 (35.0–55.0)	29.8 (8.8–50.8)	42.3 (33.5–51.1)	1.9 (0.6–6.0)			

Table 5

Lifetime and 12-month treatment among Part-II NCS-R with lifetime history of childhood SAD (n=331), lifetime history of adult SAD (n=558), and 12-month adult SAD (n=156)

	Lifetime treatment				12 month treatment	
	Childhood SAD		Adult SAD		%	(95% CI)
	%	(95% CI)	%	(95% CI)		
I. Treatment of any emotional problem						
Psychiatrist	11.9	(8.5–15.3)	39.2	(34.8–43.6)	20.2	(12.8–27.6)
Other mental health specialty	11.9	(8.1–5.7)	40.0	(36.0–44.0)	22.1	(15.1–29.1)
General medical	8.0	(4.8–11.2)	40.7	(34.7–46.7)	22.4	(15.2–29.6)
Human services	5.6	(3.2–8.0)	23.0	(19.4–26.6)	11.8	(6.2–17.4)
CAM	3.4	(1.8–5.0)	24.3	(21.1–27.5)	9.3	(4.5–14.1)
Any treatment	21.8	(17.0–26.6)	74.7	(68.9–80.5)	50.3	(40.1–60.5)
II. Treatment of SAD among those who received treatment of any emotional problem						
Any treatment (n)	24.3	(17.5–31.1)	31.9	(25.3–38.5)	28.5	(16.7–40.3)
		(n=331)		(n=558)		(n=156)