The Zurich Study

XVIII. Obsessive-compulsive disorders and syndromes in the general population

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Summary. The cross-sectional and longitudinal association between obsessive-compulsive syndrome (OCS) and other psychiatric problems and the course over 11 years was examined in a Swiss cohort of young adults. As the prevalence of obsessive-compulsive disorders, defined according to the DSM-III was very low ($n = 5$), we applied a lower diagnostic threshold based on obsessive-compulsive symptoms and social impairment, to define an OCS. The weighted lifetime prevalence rate for OCS at age 30 years was 5.5%. The mean age of onset was 17.1 ± 4.9 years for males, and 19.1 ± 5.1 year for females. OCS was associated with all subtypes of depressive disorders as well as with social phobia and agoraphobia. Although the longitudinal analysis showed no stability at the diagnostical level, there was some stability on the symptom level. Perhaps subjects with OCS learned in time to cope and to live with their symptoms without suffering.

Key words: Obsessive-compulsive syndrome – Epidemiology – Prevalence rates – Comorbidity – Course

Introduction

Obsessive-compulsive symptoms frequently occur in the general population and are fundamental features of obsessive-compulsive personalities. Obsessive-compulsive disorder (OCD), characterized by high chronicity, however, is considered a rare psychiatric disorder. An extremely low prevalence rate of 0.05% is frequently and erroneously quoted (Bourgeois et al. 1989; Karno et al. 1988; Rasmussen and Tsuang 1984; Rasmussen and Ei-

sen 1990) and falsely attributed to Rüdin (1953, personal communication in 1991).

The prevalence rates are highly dependent on the definition, the type of interview used, and are probably also culture-dependent.

Based on ICD-9 diagnoses without operationalized criteria European field studies gave rather low prevalence rates for obsessive-compulsive neurosis (OCN). In the Munich follow-up study ($N = 1366$) (Wittchen and von Zerssen 1988), the 6-month prevalence rate of OCN was 0.5% and the lifetime prevalence rate 1.1%. In another field study from Upper Bavaria ($N = 1495$), only one case of OCN was found, yielding a 5-year prevalence rate of 0.07%. The point prevalences of obsessive-compulsive symptoms of two investigations varied between 2.5 and 3.9% (Fichter 1990).

On the other hand, the application of the operational diagnostic criteria of DSM-III mainly based on the Diagnostic Interview Schedule (DIS; Robins et al. 1981), yielded substantially higher prevalence rates of OCD (Table 1). The lifetime and 6-month prevalence rates of OCD are presented in Table 1. The lifetime and 6-month prevalence rates were as follows: a lifetime prevalence rate of 2.0% and 6 months prevalence rate of 1.8% in the Munich follow-up study, from 1.9 to 3.3% across 5 different catchment areas (Karno et al. 1988), in the ECA study; 1.6% 6-month prevalence in the Edmonton study (Bland et al. 1988); lifetime prevalence at 2.8% in the recent study of the St. Louis area (Henderson and Pollard 1988); 3.2% lifetime and 1.8% 6 months in Puerto Rico (Canino et al. 1987); lifetime 2.2% and 6-month of 1.0% in Wells (1989) and Oakley-Brown (1989) from the Christchurch (New Zealand) urban area; and a lifetime prevalence of 0.9% for Taipei and of 0.5% for the other townships (Yeh et al. 1985). The prevalence rate from the latter study were quite low in comparison with European and US rates.

The use of the DIS may have led to an overestimation of all the prevalence rates (Rasmussen and Eisen 1990) and the validity of the DIS diagnoses. In Baltimore psychiatrists re-interviewed patients from the initial ECA study – done by lay interviewers – 1 month later using

Table 1a and b.

				Rates (%)

a) Lifetime prevalence rates of OCD (DIS/DSM-III criteria) in epidemiological studies

Yeh et al.	1985	DIS	Two Chinese townships	0.5
Yeh et al.	1985	DIS	Taipei (Taiwan)	0.9
Wittchen, v. Zerssen	1988	DIS	Munich (D)	2.0
Stefánsson et al.	1991	DIS	Iceland	2.0
Wells et al.	1989	DIS	Christchurch (NZ)	2.2
Karno et al.	1988	DIS	ECA (USA)	2.6
Henderson and Pollard	1988	ASI	St. Louis (USA)	2.8
Canino et al.	1987	DIS	Puerto Rico	3.2

b) Six-months prevalence rates of OCD (DIS/DSM-III criteria) in epidemiological studies

Oakley-Browne et al.	1989	DIS	Christchurch (NZ)	1.0
Bland et al.	1988	DIS	Edmonton (USA)	1.6
Canino et al.	1987	DIS	Puerto Rico	1.8
Wittchen, v. Zerssen	1988	DIS	Munich (D)	1.8

DIS, Diagnostic Interview Schedule; ASI, Anxiety Symptoms Interview

the Present State Examination (Wing 1976) and found the original estimate of a 1-month prevalence rate to decrease from 1.3% to 0.3%. Using the same method in St. Louis, it was found that the prevalence rate decreased from 0.5% to 0.3%. Karno et al. (1988) stressed that the specific reasons or symptoms that led to seeking treatment were not ascertained by the DIS. Therefore "to an unknowable degree, symptoms of an associated disorder or non-specific symptoms or life stresses may have led to the health care utilization by an ECA respondent. This may lead to an overestimation of DIS-based prevalence rates of patients seeking help primarily for their OCD".

The purpose of the present study was to investigate the symptomatology, prevalence, comorbidity, and occurrence of obsessive-compulsive syndrome among a Swiss cohort of young adults over several years.

Subjects and methods

Our data were derived from four interviews of the longitudinal "Zurich Study", which started in 1978 with a screening procedure, which assessed a representative cohort of 2201 19-year-old men and 2346 20-year-old women from the Canton of Zurich in Switzerland. The stratified sample for the prospective study consisted of 591 probands in 1979, with two-thirds of the probands with high scores and one-third with low scores in the SCL-90-R (Symptom Check-List 90-R; Derogatis 1977). These probands were given a semi-structured interview in 1979 and questionnaires in 1980 and at all subsequent interviews in 1981, 1986, and 1988. Further details on methodology and results have previously been described by Angst et al. (1984). The subjects were re-interviewed in 1981, 1986 and in 1988. In 1986, at the third interview, the cohort consisted of 225 males and 232 females who were 27–28 years old. In 1988, when the cohort was age 29–30 years, 197 males and 218 females were re-interviewed. The overall drop-out rate at the third interview in 1986 was 23% and at the fourth interview − 9 years

after the first interview − 28%. Sex ratios and ratios of high versus low scorers, according to the screening with the SCL-90-R, remained stable between 1978 and 1988.

Instruments and measurements

The examinations were carried out by the interview SPIKE (Angst et al. 1984) which is semistructured. Furthermore, the SCL-90-R (Derogatis 1977) was applied and at each interviews personality was assessed by the Freiburg Personality Inventory (FPI; Fahrenberg et al. 1978) in 1988.

A probe question covering the past 12 months referred to obsessive and compulsive symptoms. If the presence of these symptoms was confirmed, a list of four symptoms (controlling, washing, obsessive thinking or obsessively repeated actions) was discussed. Some further questions referred to the diagnostic criteria mentioned in DSM-III. Finally frequency, length and re-

Table 2. DSM-III, DIS, and modified Zurich diagnostic criteria for obsessive-compulsive disorder (OCD)

DSM-III	OCD DIS	OCD Zurich	OCS[a]
A 1. Recurrent, persistent obsessions or repetitive compulsion	+	+	+
2. Duration	3 weeks	−	−
3. Continued despite attempts to get rid of them, or to ignore or suppress them	+	+	−
B 1. Significant source of distress, suffering	B2-4	B2-2	B1-2
2. Interference with social or professional role functioning	+	+	+
3. Reported to physician	+	−	−
4. Caused medication more than once	+	−	−

[a] A Dx of OCS is made if one criterion of A and B are present

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cency of obsessive-compulsive episodes were assessed. The suffering connected with obsessive-compulsive symptoms was measured on an analog scale from 0 to 100. The same scale was given for impairment at work, whereas impairment in leisure activities and human relationship was assessed (yes/no). A further question concerned eventual treatment. Age of onset, age of first treatment and the family history among first-degree releatives for untreated and treated obsessive-compulsive symptoms were also assessed.

The interview assessing obsessive-compulsive symptoms was modified over the four interviews carried out at age 21, 23, 28 and 30 years. In 1986 the interview was adapted to elicit the DSM-III criteria. Diagnoses of OCD fulfilling DSM-III criteria were therefore possible at ages 28 and 30 years. Over all four interviews, a subthreshold syndromal diagnosis OCS, based on the criteria 'significant source of distress' and 'interference with everyday life' was developed (Table 2).

Results

Prevalences on the level of OCD, OCS and OC symptoms

The prevalence rates for OCD and OCS are summarized in Table 3. An OCD diagnosis according to DSM-III was made in 1986 (age 28 years) and 1988 (age 30 years). At both interviews, only five cases were identified. This resulted in weighted 1-year prevalence rates of 0.3% and 0.8% (Table 3). None of the cases were diagnosed more than once over 3 years.

The 1-year prevalence rates for an OCS were 3% in 1979 ($n = 27$), 1.3% in 1981 ($n = 16$), 1.6% in 1986 ($n = 11$), and 1.0% in 1988 ($n = 8$). The prevalence rates for OCS were highest at age 20 years and tended to decrease over time. The weighted longitudinal prevalence for OCS at age 30 years was 5.5% for males ($n = 29$) and 5.9% for females ($n = 27$).

At the symptom level (i.e. when the probe question was answered as positive), the longitudinal prevalence rate over 10 years at age 30 years was 29.8%. (m = 31.2%, $f = 24.7\%$). Thus, obsessive-compulsive symptoms fre-

Table 3. Longitudinal rates of subjects with an obsessive-compulsive syndrome across 10 years

| | Obsessive compulsive syndrome ($n = 56$) | |
	n	%
Unweighted rates		
Males	292	9.9
Females	299	9.0
Total	591	9.5
Weighted rates[a]		
Males		5.5
Females		5.9
Total		5.7

[a] Rates weighted back to the normal population

Table 4. Frequencies of obsessive-compulsive symptoms at each interview

Interview Subjects	1979 ($n = 491$) %	1981 ($n = 456$) %	1986 ($n = 457$) %	1988 ($n = 424$) %
Compulsion to check and control	12.1	5.1	3.3	10.5
Compulsion to wash	1.2	–	0.5	0.4
Obsessive thoughts	2.7	1.1	0.8	1.2
Obsessive counting	1.6	1.1	0.6	2.0
Obsessive melodies	3.1	–	–	–
Feelings of anxiety when not giving in to compulsion	3.1	0.5	0.3	–
Other compulsions	–	2.2	2.0	3.9
OCS	($n = 39$)	($n = 27$)	($n = 15$)	($n = 39$)

quently occur in the normal population even though obsessive-compulsive disorder is rare.

The distribution of obsessive-compulsive symptoms is given in Table 4. The most prevalent symptoms were checking and controlling.

Because of the low rates of subjects with DSM-III OCD ($n = 5$), the following analyses include only 56 subjects with OCS.

Age of onset

Data on first onset of obsessive-compulsive symptoms in subjects with OCS were collected in 1986. The mean age of onset was 17.1 ± 4.9 years for males and 19.1 ± 5.1 years for females. Seventy percent of all subjects with obsessive syndromes reported the presence of symptoms before age 20 years.

Demographic characteristics

Our subjects with OCS differed significantly from controls by higher social class of origin and by higher education. Obsessionals neither differed in marital status nor in presence of a partner from controls, and were more frequently parents than were controls.

Family and childhood characteristics

The first-degree relatives of subjects with OCS did not differ from those of controls with respect to obsessive-compulsive depressive and anxiety reported by the probands.

Broken homes were rare; almost all OCS subjects came from intact families. Behavioral difficulties and antisocial tendencies in childhood were also extremely rare. As children, subjects with OCS felt significantly more often disliked than controls and had greater fear of gymnastics. There was also a clear tendency to fear the schoolmaster more than controls and to be more anxious in general. At age 19 years, they had fewer friends and complained more often about loneliness than controls.

Table 5a–c. Longitudinal association of OCS with other behavioral and emotional disorders: **a** 79–88; **b** 86–88

	Controls %	OCS %	P	
a) 79–88	(n = 535)	(n = 56)		Odds ratio 95% confidence bounds
Major depressive disorder (79–88)	23.7	35.7	0.05	1.8/1.0–3.2
Recurrent brief depression (79–88)	24.3	46.4	0.000	2.7/1.5– 4.7
Depression (79–88)	40.7	62.5	0.002	2.4/1.4– 4.3
Panic (79–88)	15.5	23.2	ns	1.6/0.8– 3.2
Social phobia (79–88)	6.7	17.9	0.003	3.0/1.4– 6.5
Agoraphobia (79–88)	6.7	14.3	0.04	2.3/1.0– 5.2
Suicide attempts (lifetime)	9.0	16.1	ns	1.9/0.9– 4.2
Cannabis weekly (79–88)	13.3	10.7	ns	0.8/0.3– 1.9
Drugs weekly (79–88)	7.3	5.4	ns	0.7/0.2– 2.4
Ever smoked > 7 cigarettes/ day (79–88)	49.0	46.4	ns	0.9/0.5– 1.6
b) 86–88	(n = 407)	(n = 50)		
Dysthymia (86–88)	4.6	12.0	0.03	2.8/1.1–7.5
General anxiety (86–88)	4.8	10.0	ns	2.2/0.8–6.1
Recurrent brief anxiety (86–88)	8.7	16.0	ns	2.0/0.9–4.6
Simple phobia (86–88)	14.5	16.0	ns	1.1/0.6–2.5
Binge eating (86–88)	8.5	14.0	ns	1.8/0.7–4.2
Hypomania (86–88)	8.5	6.0	ns	0.7/0.2–2.3
Alcohol (86–88)	4.9	2.0	ns	0.4/0.1–3.0

c) Differential gender incidence of comorbidities

Sex = male

79–88	(n = 263)	(n = 29)		
Major depressive disorder	17.5	20.7	ns	1.2/0.5–3.2
Panic	4.2	10.3	ns	2.6/0.7–9.6
Social phobia	4.2	10.3	ns	2.6/0.7–9.6
86–88	(n = 205)	(n = 24)		Odds ratio bounds
Dysthymia	4.9	16.7	0.02	3.9/1.2–2.6
Recurrent brief anxiety	10.7	12.5	ns	1.2–0.3–4.3

Sex = female

79–88	(n = 272)	(n = 27)		Odds ratio 95% confidence bounds
Major depressive disorder	29.8	51.9	0.02	2.5/1.2–5.5
Panic	7.4	18.5	0.05	2.9/1.0–8.0
Social phobia	9.2	25.9	0.007	3.5/1.4–8.6
86–88	(n = 209)	(n = 26)		Odds ratio bounds
Dysthymia	4.3	7.7	ns	1.9/0.4–8.9
Recurrent brief anxiety	6.7	19.2	0.03	3.3/1.1–9.6

Comorbidity

The 10-year longitudinal association between OCS and other disorders is shown in Table 5. Subjects with OCS had elevated rates of all sub-types of depressive disorders as well as social phobia and agoraphobia. The magnitude of the odds ratios were moderate: major depressive disorders 1.8; recurrent brief depression 2.7; dysthymia 2.8; social phobia 3.0; and agoraphobia 2.3. Subjects with OCS reported slightly more suicidal acts (16%) than controls (9%) (n.s.). If not differentiated by gender, the comorbidity of OCS with panic, generalized anxiety, and recurrent brief anxiety was non-significantly higher, as were menstrual complaints in women with OCS. Only females with OCS suffered significantly more often from panic and recurrent brief anxiety than controls. Likewise only obsessional women reported significantly more often social phobias and major depressive disorders. On the other hand, only males with OCS dif-

Table 6. SCL-90 R scores of subjects with OCS over 10 years $\bar{x}$ (SD)

SCL-90 R scores	Interview 1978			Interview 1988		
	$\bar{x}$	(SD)	P	$\bar{x}$	(SD)	P
Anger						
OCS	0.9	0.66	ns	0.6	0.63	ns
Controls	0.8	0.73		0.5	0.55	
Anxiety						
OCS	1.1	0.83	*	0.6	0.52	*
Controls	0.8	0.71		0.4	0.51	
Phobic anxiety						
OCS	0.5	0.56	*	0.4	0.49	*
Controls	0.4	0.53		0.2	0.41	
Depression						
OCS	1.3	0.82	*	0.9	0.66	*
Controls	1.0	0.76		0.7	0.63	
Interpersonal sensitivity						
OCS	1.3	0.76	*	1.0	0.77	*
Controls	0.9	0.73		0.6	0.62	
Obsessive-compulsive						
OCS	1.3	0.90	*	1.0	0.73	*
Controls	0.9	0.65		0.5	0.51	
Paranoid ideation						
OCS	1.2	0.73	*	0.8	0.58	*
Controls	0.9	0.71		0.6	0.53	
Psychoticism						
OCS	0.8	0.65	*	0.5	0.41	*
Controls	0.6	0.56		0.3	0.37	
Somatization						
OCS	0.8	0.62	*	0.5	0.33	*
Controls	0.6	0.52	0.4	0.41		

Statistics: Wilcoxon Test * $P < 0.05$
P comparison: OCS versus controls; minimum possible score: 0; maximum possible score: 4

Table 7. $\bar{x}$ (SD) scale and factor scores on the Freiburg Personality Inventory (FPI) at age 30 years of subjects with OCS

		Controls ($n = 374$)		OCS ($n = 56$)		
		$\bar{x}$	(SD)	P	$\bar{x}$	(SD)
FPI scales						
1	Nervousness	16.6	6.9	19.5	6.04	0.001
2	Spontaneous aggression	16.1	7.02	18.6	6.59	0.01
3	Depressiveness	13.8	7.36	18.6	7.76	0.000
4	Excitability	20.5	8.22	24.0	7.92	0.006
5	Sociability	20.3	7.42	18.6	8.61	ns
6	Stability	15.6	8.03	13.4	8.60	ns
7	Reactive aggression	16.1	7.43	16.9	7.21	ns
8	Inhibition	19.0	8.64	23.4	8.01	0.002
9	Frankness	17.2	7.88	19.2	7.99	ns
N	Neuroticism	15.9	7.38	20.5	8.23	0.000
M	Maculinity	17.5	8.06	13.0	7.84	0.000
S1	Aggression	17.4	7.38	20.3	6.26	0.005
S2	Extraversion II	18.7	7.81	15.1	7.02	0.003
S3	Auton. Lability	16.2	6.99	20.1	6.74	0.000

fered from controls relative to dysthymia. With respect to sexual functioning, both men and women with OCS had more "emotional problems" than controls, including feelings of inhibition, sadness, or a bad conscience.

There were absolutely no differences between subjects with OCS and controls in the frequency of simple phobia, binge eating and hypomania. Obsessional subjects consumed relatively less alcohol, cannabis, other legal and illegal drugs, and tobacco than controls.

The time sequence of OCS in relation to social phobia and recurrent brief depression (RBD) was also examined. There were ten persons with both social phobia and OCS. In six cases, OCS was the syndrome, followed by social phobia; three subjects suffered from OCS and social phobia simultaneously, and only one subject reported the onset of OCS after that of social phobia.

The onset of recurrent brief depression appeared to precede that of OCS. That is, of the 21 cases with both RBD and OCS reported that the onset of RBD occurred prior to that of OCS.

Symptom checklist 90-R

From 1978 to 1988 the SCL-90-R (Derogatis 1977) was administered six times to the sample. On each occasion,

obsessionals scored higher on anxiety, depression, interpersonal sensitivity, obsessionality, paranoid ideation and psychoticism. Subjects with OCS did not regularly differ from controls with respect to anger and somatization scores. All obsessive-compulsive symptoms of the OCD sub-scale were consistently more often reported by subjects with OCS than by controls. However, over 10 years, there was a steady decrease of obsessionality in both OCS subjects and controls (Table 6)!

Personality features at age 30 years

At age 30 years, personality features were assessed by a multidimensional personality test, the FPI (Fahrenberg et al. 1978). OCS subjects deviated remarkably from controls in higher depression and inhibition (Table 7). They were also high in nervousness, spontaneous aggression, excitability and on 'neuroticism' and 'masculinity' (low tendency to produce psychosomatic symptoms) as defined by Fahrenberg et al. The test does not include an obsessionality scale.

Mastery and self-esteem

To evaluate the coping capabilities of our subjects, two sociopsychological scales, 'self-esteem' and 'mastery', by Pearlin and Schooler (1978) were used. The scale of 'mastery' elicits feelings of helplessness in relation to one's own destiny and environment. Subjects with OCS showed lower self-esteem and lower mastery than controls in 1979 as well as in 1981 and 1986. Over 8 years, both groups showed an increase of self-esteem and mastery.

Course of OCS

Thirty-eight subjects were interviewed four times. Across four interviews, OCS was not stable. There were no subjects with OCS across all four interviews. Three of 38 subjects (7.9%) reported OCS as two interviews, and one subject at three. All other subjects met OCS criteria only once. There was, however, some stability at the level of symptoms assessed over 11 years (probe question positive), with 58.9% of all persons with OCS reporting obsessive-compulsive symptoms over more than 1 year. 41% mentioned an OC symptom only once, 12.5% twice and 16.1% three times, and about 30% over more than 3 years.

Table 8. Scale and factor scores on mastery and self-esteem of subjects with OCS

			Controls		OCS		T-test P
			$\bar{x}$	(SD)	$\bar{x}$	(SD)	
Mastery	1979	($n = 533/55$)	13.7	3.27	12.9	2.94	0.04
Mastery	1981	($n = 407/48$)	14.4	3.03	13.7	3.00	ns
Mastery	1986	($n = 407/49$)	15.1	3.17	13.9	3.34	0.01
Self-esteem	1979	($n = 530/56$)	14.3	2.76	13.0	2.89	0.001
Self-esteem	1981	($n = 405/48$)	14.4	2.62	13.3	2.73	0.005
Self-esteem	1986	($n = 405/50$)	15.4	2.21	13.8	2.35	0.000

Treatment

Of 56 subjects with OCS, only three (5.4%) were ever treated for their symptoms by psychologists or psychiatrists. Interestingly, there were also four persons who received treatment during the years between interviews, but who did not meet diagnostic criteria for OCS. It may be that the four persons who received treatment but who did not meet diagnostic criteria for OCS were treated for other psychiatric problems.

Discussion

The results are discussed separately for DSM-III OCD diagnoses and the sub-threshold OCS defined on the basis of this sample.

As shown in the introduction, the traditional ICD-9 diagnosis of a chronic obsessive-compulsive neurosis is a very rare disease, with lifetime prevalence rates of 1% or lower. It is apparent that higher prevalence rates than this result from application of operational diagnostic criteria for OCD according to DSM-III. This is especially true if the rates are based on the DIS which does not meet precisely the requirements of DSM-III. The data collected in the SPIKE interview yields weighted 1-year prevalence rates for DSM-III OCD of 0.3% at age 28 years, and 0.8% at age 30 years. These rates are comparable to the results of Faravelli (1989) in Italy (0.63%) and comparable with or lower than the 6-month prevalence rates based on the DIS interviews: Canino et al. (1987) found a 6-month prevalence rate of 1.8% for OCD; Oakley-Browne et al. (1989) found one of 1.0%; Bland (1988) reported a 6-month prevalence rate of 1.6%; and the ECA study gave 1-year prevalence rates of 1.4% for males and 1.9% for females (Karno and Golding 1991).

Our sub-threshold diagnosis of an OCS approximates DIS/DSM-III criteria to a great extent. Our 1-year prevalence rates of OCS which vary between 1.0 and 1.6% are identical to the 1-year prevalence rates for OCD of American studies mentioned above (Canino et al. 1987; Karno et al. 1988; Oakley-Browne et al. 1989). This finding supports our assumption that the sub-threshold diagnosis of OCS is close to the OCD diagnosis derived from the DIS. A genetic study by Black et al. (1992) supports the validity of a more broadly defined OCD.

However, our 10-year longitudinal prevalence rate of OCS of 5.7% is definitely higher than the lifetime prevalence rates given by the other studies in the western hemisphere, which range between 2.0 and 3.2%. Considering the difference, one has to take into account that all of these studies refer to a single interview, whereas the Zurich study accumulates information collected by four interviews across 10 years. In view of our finding that the diagnosis of DSM-III OCD or OCS is not stable over two or more interviews within 2 years or more, we have to assume that the syndrome identified by modern diagnostic criteria does not refer to a chronic condition as it was traditionally conceptionalized.

Seventy percent of the OCS probands reported an age at onset of symptoms prior to 20 years, nearly 50%

of which occurred in childhood or adolescence. The mean age of onset was 17 years for males and 19 years for females. This finding corresponds to Rasmussen and Eisen's (1990) survey: in all studies over the last 40–50 years, the average age of onset of OCD was late adolescence or early adulthood, with males having a significantly earlier onset than females. We could not find any sex difference in prevalence of the OCS, a finding which is in accord with the report of the ECA study (Karno et al. 1988). However (similar to Rüdin's finding in patients in 1953), the social class of origin of OCS subjects was above average. In patient studies, OCD runs in families (Swedo et al. 1989; Kringlen 1965). However, this was not the case for our OCS subjects.

With regard to broken homes, our data confirm those of Knölker's study (1987) of treated children and adolescents with OCD, in which he reported that the families of obsessional subjects were stable. This corresponds to the rarity of behavioral disorders in the childhood of later obsessionals. However, Knölker (1987) found that young people with OCD had problems in making friends. In subjects with OCS, we found a lack of popularity in childhood and a tendency to report more anxiety, loneliness and fewer friends than controls. One criterion of our diagnosis is problems in establishing contact with others. It is therefore not surprising that our findings concur with Henderson and Pollard (1988) and Allsopp and Verduyn (1990) with regard to this characteristic. Since one of our diagnostic criteria was interference with social or role functioning, we also confirm the findings of Henderson and Pollard (1988) and Allsopp and Verduyn (1990).

In our study, all types of depressive disorders as well as social phobia and agoraphobia were frequently associated with OCS. In this case we agree with most of the other studies based on OCD. Although OCD is classified as an anxiety disorder in DSM-III, there was only a weak association with anxiety disorders aside from phobias. This is mainly because males suffer significantly less often from anxiety disorders than females. If differentiated by gender, females with OCS differed significantly from controls on social phobia, panic and recurrent brief anxiety. There was also a differential gender incidence on major depressive disorders and dysthymia.

Like Rüdin (1953) and Henderson and Pollard (1988), we found that the intelligence of subjects with OCS was above average. However, we could not confirm Rüdin's finding of a high celibacy rate nor the low fertility which is also reported by Hare et al. (1972). In our study, obsessionals neither differed from controls in marital status nor in having a partner, for they had children more often than did controls. Because this study is of OCS rather than OCD, it is not comparable to the previous studies.

We found no diagnostic stability or chronicity of OCS either defined by DSM-III or at the syndromal level. No subjects received an OCS diagnosis at all four interviews; one person suffered from OCS at three interviews; and four persons suffered twice from OCS. All others obtained a diagnosis of OCS only once. The ECA study found a mean duration of 7.2 years among persons who suffered from OCD at some time in their life. Twenty

percent reported a duration of more than 10 years. Only 30% had the disorder for less than 1 year. Similarly, the subjects with OCS in the present study usually suffered from obsessive-compulsive symptoms for several years under the diagnostic threshold, so indicating some stability at the level of symptoms (mean: 2.7 ± 2.4). Perhaps, persons with OCS have learned in time to cope and to live with their symptoms without suffering from impairment of daily life. The decreasing score of obsessionality of the SCL-90-R and of 1-year prevalence with age is compatible with this explanation.

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