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ORIGINAL PAPER

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Social phobia and number of social fears, and their association with comorbidity, health-related quality of life and help seeking

A population-based study

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Abstract *Objectives* Community based data were used to examine the association between social phobia and comorbidity, quality of life and service utilization. In addition, the correlations of the number of social fears with these domains were studied. *Method* Data are from the Netherlands Mental Health Survey and Incidence Study (NEMESIS) (N = 7,076). Social phobia was assessed according to DSM-III-R with the Composite International Diagnostic Interview (CIDI); quality of life was assessed according to the Short-Form-36 Health Survey (SF-36). *Results* The 12-month prevalence of social phobia was 4.8%. Being female, young, low educated, a single parent, living alone, not having a paid job and having a somatic disorder are associated with 12-month social phobia. Mean and median ages of onset of social phobia were 19.1 and 16.0 years, respectively, and mean and median duration were 16.8 and 14.0 years, respectively. 66% of respondents with social phobia had at least one comorbid condition. 12-month social phobia was significantly related to lower quality of life and higher service utilization. The mean number of feared social situations was 2.73 out of the 6 assessed. As the number of social fears increases, comorbidity and service utilization increases, and the quality of life decreases. *Conclusions* These findings suggest as the number of feared social situations increases, the burden of social phobia rises. In other words, like comorbidity or decreased quality of life, the number of social fears is also an important indicator of the severity of social phobia. We conclude that from a public health perspective, mental health care givers should pay attention to the number of social fears in order to check the severity of social phobia.

Key words social phobia – number of social fears – help-seeking behaviour – quality of life – comorbidity

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Introduction

Social phobia is a highly prevalent disorder [8, 10, 11, 13, 16, 17, 20, 24], which is associated with huge loss in quality of life, [34, 39] enormous economic costs, [25] high levels of service use, [23, 28, 33], serious functional impairments in the areas of education, social and occupational domains [8, 19, 28], and high comorbidity rates with other anxiety and mood disorders [7, 18].

It is not yet clear whether specific subtypes of social phobia can be distinguished. In clinical samples, several types of social phobias have been found, with one group of patients suffering exclusively from performance fears (such as speaking in public), while others suffer from a broader range of fears, including both performance fears and interactional fears (such as meeting new people). [19, 35] Generalized social phobia has been defined as a social phobia in which both performance fears and interactional fears occur together. [27] However, it has also been defined as a social phobia in which multiple social fears occur together.

Although there is some evidence that different types of social phobia do indeed exist, it has also been suggested that there is stronger evidence that social phobia should be seen as a unidimensional condition, [22, 27, 34] in which an increasing number of feared

situations is related to increased functional impairments and psychological problems [4, 12, 32, 34]. This would suggest that social phobia exists on a continuum of severity.

Whether social phobia exists on a continuum of increasing severity with the numbers of fears, however, has not been studied conclusively yet. Some studies have examined whether evidence could be found for such a continuum by examining the relationship between severity and functional impairment [4, 27, 34]. However, most of these studies used clinical samples, and have not examined other relevant indicators of severity, such as service utilization, overall quality of life, and comorbidity.

We examined these issues in the data of the *Netherlands Mental Health Survey and Incidence Study (NEMESIS)*, a large, representative, population-based study in which the presence of social phobia and other mental disorders was determined by well-validated diagnostic interviews. More specifically, we examined whether we can find support for the hypothesis that social phobia exists on a continuum of increasing severity with the numbers of fears ranging from one social fear to multiple social fears, and whether this number of social fears is related to quality of life, comorbidity with other DSM-III-R Axis I disorders and service utilization.

Methods

Sample

NEMESIS was based on a multistage, stratified, random sampling procedure [5]. Initially, a sample was drawn of 90 Dutch municipalities stratified on the basis of urbanization and adequate dispersion over the 12 provinces in the Netherlands. Secondly, a sample of private households (addresses) from post office registers was gathered. The number of households selected in each municipality was determined by the size of its population. The third step was to choose which individuals to interview. The residents of the selected households were sent a letter of introduction signed by the Minister of Public Health requesting them to take part. Afterwards, the interviewers contacted the residents by telephone. Households with no telephone or with ex-directory numbers (18%) were visited in person. One respondent with the most recent birthday was randomly selected in each household, on condition that s(he) was between 18 and 64 years of age and sufficiently fluent in Dutch to be interviewed. Persons who were not immediately available because of circumstances such as hospitalization, travel or imprisonment were contacted later in the year. If necessary, to make a contact, the interviewers made a minimum of ten calls or visits at a given address at different times of the day and week. In the first round of the data collection, from February through December 1996, a total of 7,076 persons were interviewed (response rate of 69.7%). Refusal was the most important reason for non-response. The sample reflected adequately the Dutch population in terms of gender, civil status and urbanization level [5]. The data was collected by 90 experienced interviewers. All of the interviewers went through a 3-day training course in recruiting respondents and computer assisted interviewing. After that, a 4-day course of training focused specifically on the content of NEMESIS and the use of CIDI at the WHO-CIDI training center of the Academic Medical Center in Amsterdam was given.

Measures

Diagnoses of mental disorders

The diagnoses were based on DSM-III-R Axis I [2, 26]. The Composite International Diagnostic Interview (CIDI) version 1.1 (computerised version) was used to determine the diagnoses [41]. The CIDI is a structured interview developed by the World Health Organization [30, 40] on the basis of Diagnostic Interview Schedule (DIS) and the Present State Examination (PSE). It was designed for use by trained interviewers who are not clinicians. The CIDI is now being used worldwide, and WHO field trials have documented acceptable reliability and validity for nearly all diagnoses [26, 31, 40] with the exception of acute psychotic presentations. Whenever psychotic symptoms were detected, subjects were reinterviewed by trained interviewers with the Structured Clinical Interview for DSM-III-R, an instrument that is reliable and valid for diagnosing schizophrenia [31].

The CIDI was used to determine the lifetime, 12-month, and one-month prevalence of mood, anxiety, substance-related and eating disorders. In the current study, we used the 12-month data of social phobia, as well as the 12-month data of comorbid anxiety disorders (panic disorder, agoraphobia, simple phobia, obsessive compulsive disorder, generalized anxiety disorder), mood disorders (depression, dysthymia, bipolar disorder), and substance use disorders (alcohol, drug, or any substance abuse or dependence). Because of the low prevalence of eating disorders and psychotic disorders, these disorders were not examined in this study. For comorbidity patterns, the hierarchical rules of DSM-III-R were ignored. Applying the hierarchical rules would have resulted in social phobia subjects being missed if they also had another DSM-III-R disorder which has the hierarchical precedence [3].

Number of social fears

Consistent with the DSM-III-R, respondents were asked if they had excessive or unreasonable fear in six social situations (speaking in public, talking to people when you might have nothing to say or might sound foolish, talking in front of a small group, using public toilets, eating or drinking in public places and writing while being observed), and tried to avoid it or felt intensely anxious, in the past 12 months. For each subject with a 12-month social phobia, we calculated the total number of social fears he or she had.

Quality of life

Was assessed with the 36 item Short Form-36 Health Survey (SF-36, $\alpha = 0.88$) [36, 37]. A higher score indicates better functioning. The SF-36 has eight subscales. The 'physical functioning' scale (10 items) measures the health related limitations regarding daily activities such as bathing, getting dressed and going up and down stairs. The 'role limitations due to physical problems' (four items) and 'role limitations due to emotional problems' (three items) scales assess problems occurring in the previous 4 weeks that arose from physical health symptoms or emotional difficulties. The 'vitality' scale (four items) measures lack of energy and fatigue. 'Social functioning' scale (two items) records limitations regarding social activities such as visiting friends and relatives. The 'pain' scale (two items) pertains to the amount of bodily pain and its limiting effect. The 'general health perception' scale (five items) measures the individual's own assessment of his or her general health. The last scale 'mental health' (five items) measures the feelings of depression or nervousness.

Service utilization

Questions were asked about help from primary care (general practitioner, company physician, crisis care, general social worker, home care/district nursing), informal care (alternative care provider, self-help group, traditional healer, telephone help line, physiotherapist/haptonomist) and from mental health care (community mental health care institute, psychiatric outpatient clinic of a psychiatric or general hospital, independent psychiatrist or

psychotherapist) within the past 12 months, in order to assess whether the respondents had sought help for their psychological or drug/alcohol related problems.

Demographic variables

Gender, age, level of education (low, medium, high), and cohabitation status (living alone or not).

Analyses

We examined the relationship between the number of social fears and comorbidity with logistic regression analyses in which the presence (yes/no) of the comorbid disorder was used as dependent variable, and the number of social fears was entered as predictor while controlling for demographic variables.

In order to examine the effect of the presence of social phobia and the number of social fears on the domains of quality of life, we conducted two separate series of linear regression analyses in which the domains of quality of life were used as the dependent variable. In the first analyses, the presence of social phobia was entered after controlling for sociodemographic variables. Then, in the second analyses, the number of social fears was entered as a continuous predictor, while controlling for demographic variables.

The relationship with help-seeking was examined with a logistic regression analysis in which help-seeking (yes/no) was used as dependent variable, and the number of social fears was entered as predictor.

The data were weighted in all analyses to adjust for different response rates in different population groups for the characteristics that are associated with the occurrence of psychiatric disorders such as gender, age, marital status (two categories: married, not married) and urbanization (seven categories). The weighting procedures have been described in more detail elsewhere [5]. Furthermore, because earlier research has shown that several demographic variables are associated with social phobia, we adjusted for demographics in all analyses [8, 11, 16].

Results

Prevalence of social phobia and number of social fears

The 12-month prevalence of social phobia was 4.8%, while the mean age of onset was 19.3 years (SD = 11.7). The mean duration of lifetime social phobia was 19.2 years (SD = 13.5). The 12-month prevalence of social phobia was significantly associated with being female, of a younger age, being less well educated, and living alone (Table 1).

Among the respondents with 12-month social phobia, the mean number of feared social situations was 2.73 (SD = 1.35) out of six situations. Twenty-one point zero percent of social phobics feared only one social situation, while 25.9% feared two situations, 26.8% feared three situations, and 25.9% feared four to six social situations.

For respondents with social phobia, public speaking was the most common fear (82.0%). The second most common fear was also a speaking fear, "fear of speaking when you might have nothing to say or might sound foolish" (61.1%). Third was talking in front of a small group (55.0%), followed by writing while being observed (29.7%), eating and drinking in public (21.6%), and using public toilets (18.0 %).

Association between social phobia and number of social fears, and comorbidity

As can be seen in Table 2, subjects with social phobia have a significantly increased chance of having one or more of the studied comorbid mental disorders, with the exception of alcohol and drug abuse. About two-thirds (66.2%) of the respondents with social phobia reported at least one other mental health disorder. Social phobia is especially strongly associated with obsessive compulsive disorder (OR: 14.26, 95% CI: 6.95–29.26), bipolar disorder (OR: 13.09, 95% CI: 8.49–19.99), agoraphobia without panic disorder (OR: 12.76, 95% CI: 8.51–19.14), and panic disorder (OR: 12.74, 95% CI: 8.95–18.13).

Table 2 shows that the level of comorbidity with mood and anxiety disorders increases significantly with the number of social fears. About 38% of the socially phobic subjects with one social fear have a comorbid anxiety disorder, and this percentage increases steadily with an increasing number of social fears. About 92% of the subjects with five or six fears have a comorbid anxiety disorder. About 27% of the socially phobic subjects with one social fear have a comorbid mood disorder, while 56% of the subjects with five or six fears have a mood disorder. For the separate anxiety and mood disorders significant linear trends were found, with the exception of generalized anxiety disorders, and bipolar disorders. We also found few indications that the number of social fears was associated with comorbid substance-related disorders. For illustrative purposes, we have graphically presented the association between number of social

Table 1 Association (odds ratios) between demographic variables and 12-month social phobia

Demographics	Social phobia (%)	No Social phobia (%)	OR (unadj)	95% CI	OR* (adj)	95% CI
Female gender	63.2	48.7	1.81	1.45–2.28	1.74	1.39–2.19
Level of education						
Low	12.1	6.0	1 (ref)		1 (ref)	
Medium	47.8	35.9	0.66	0.46–0.94	0.60	0.42–0.87
High	40.0	58.1	0.34	0.24–0.49	0.28	0.19–0.42
Living alone	25.1	17.3	1.60	1.24–2.06	1.81	1.40–2.35
Age: M (SD)	40.2 (11.6)	41.2 (12.2)	0.99	0.99–1.00	0.99	0.98–0.99

*Odds ratios have been controlled for gender, age, level of education, and cohabitation status

Table 2 Proportion of subjects with 12-month social phobia with comorbid mental disorders, according to number of social fears

	SPPresent or not				Number of fears						
	SP	No SP	OR[a]	95% CI	1	2	3	4	5/6	OR [a]	95% CI
Any disorder	%	%			%	%	%	%	%		
>1 DSM III-R disorder	66.2	19.7	6.91***	5.40–8.85	58	61.9	75.9	92	96.6	1.88***	1.49–2.37
Anxiety disorders											
Panic disorder	17.8	1.4	12.74***	8.95–18.13	4.5	12.6	22.7	17.2	43.3	1.75***	1.39–2.20
Agoraphobia	12.4	1.0	12.76***	8.51–19.14	4.2	9.6	10.3	11.0	40.0	1.84***	1.41–2.40
Simple phobia	37	5.6	8.63***	6.72–11.09	23.5	29.8	41.8	54.4	49.0	1.37***	1.14–1.65
GAD	16.7	1.8	8.94***	6.34–12.62	10.0	22.8	8.0	24.8	27.6	NS	
OCD	4.3	0.3	14.26***	6.95–29.26	0.7	1.2	4.0	10.8	11.7	2.43***	1.48–4.00
Any anxiety disorder	61.8	15.7	8.39***	6.62–10.62	38.1	55.4	68.4	77.7	92.4	1.87***	1.51–2.31
Mood disorders											
Major depression	29.3	4.7	7.32***	5.62–9.55	18.5	27.2	30.1	31.4	49.9	1.37***	1.14–1.64
Dysthymia	20.3	2.2	9.11***	6.62–12.53	7.0	14.7	26.0	20.1	44.9	1.65***	1.33–2.05
Bipolar disorder	11	0.9	13.09***	8.49–19.99	5.0	10.1	16.7	9.8	12.9	NS	
Any Mood disorder	40.6	6.4	8.76***	6.87–10.92	26.6	37.9	45.9	45.2	56.4	1.35***	1.13–1.61
Substance related disorders											
Alcohol abuse	4.6	4.6	NS		6.5	2	5.8	6.4	1.7	NS	
Alcohol dependence	7.5	3.5	2.67***	1.72–4.17	10.0	1.2	10.6	6.6	10.1	NS	
Drug abuse	0.6	0.5	NS		–	–	–	2.4	2.5	4.12	0.73–23.32
Drug dependence	5	0.6	7.63	4.23–13.76	4.3	3.3	5.4	10.1	3.9	NS	
Any substance related disorder	15.2	8.6	2.43***	1.75–3.37	16.5	6.5	18.4	23.1	16.5	NS	

[a]Odds ratios have been controlled for sex, age, level of education, and cohabitation
*$P \leq 0.05$
**$P \leq 0.01$
***$P \leq 0.001$

fears and comorbid mood, anxiety and substance-related disorders in Fig. 1.

Association between social phobia and number of social fears, and health-related quality of life

When we compared subjects with a social phobia to those without, we found that social phobics had significantly lower scores in all eight dimensions of functioning (Table 3).

As expected, an increasing number of social fears was associated with a decreased level of health-related quality of life. However, from Table 3, it can be seen that social phobics with only one social fear have no dramatically different scores than the subjects without social phobia.

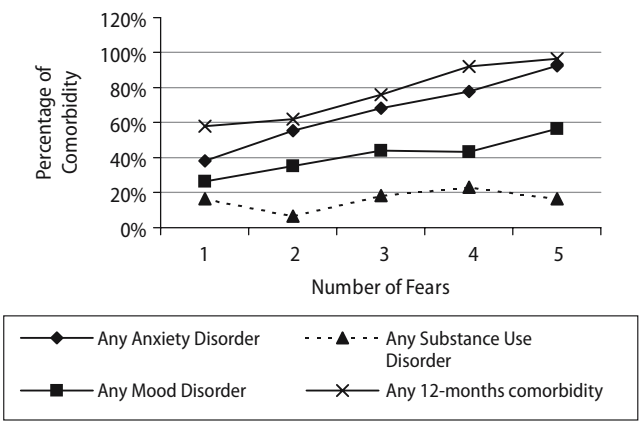

Fig. 1 Comorbidity related to the number of social fears

Association between social phobia and number of social fears and service utilization

The association between social phobia and help-seeking is presented in Table 4. As could have been expected, subjects with a social phobia have sought treatment more often than subjects without social phobia, and this is true for help from primary care, mental health care, and informal care.

A higher number of social fears was significantly associated with more help-seeking behaviour. A total of 52% of subjects with one social fear sought help, while 93% of the subjects with five or six social fears sought help. For illustrative purposes, we have graphically presented the number of social fears and the percentage of subjects who sought help (Fig. 2).

Discussion

Epidemiological results

The 12-month prevalence rate (4.8%) in the present study was rather lower than the previous findings (6.7–7.9%) conducted in Norway, Canada and United States of America which used DSM-III-R criteria and the CIDI [11, 17, 21, 24]. This may be clarified by two explanations. First, there might be cultural differences

Table 3 Quality of life, as measured with the MOS-SF-36, in subjects with 12-month social phobia, according to number of social fears

		SP present or not				Number of fears						
		SP	No SP	Beta[a]	R^2 Change[a, b]	1	2	3	4	5/6	Beta[a]	R^2 Change[a, b]
Physical func.	Mean (SD)	86.1 (20.5)	92.3 (15.3)	−0.050**	0.002	92.3 (12.8)	83.6 (22.5)	88.1 (18.1)	82.7 (26.3)	78.7 (23.4)	−0.113*	0.011
Physical role func.	Mean (SD)	73.1 (38.3)	86.4 (29.2)	−0.058**	0.003	86.2 (27.4)	73.0 (39.6)	76.5 (34.2)	54.7 (45.4)	59.8 (44.6)	−0.193**	0.033
Psych. role func.	Mean (SD)	71.1 (40.6)	93.1 (21.6)	−0.152**	0.022	82.8 (33.7)	72.9 (38.8)	76.0 (36.7)	61.1 (45.2)	44.2 (47.4)	−0.205**	0.037
Vitality	Mean (SD)	55.6 (21.8)	72.2 (17.7)	−0.133**	0.017	63.4 (18.1)	54.9 (23.7)	57.8 (18.9)	51.6 (19.2)	41.7 (26.0)	−0.179**	0.029
Psych. health	Mean (SD)	63.9 (21.1)	82.7 (14.0)	−0.189**	0.034	72.3 (15.7)	65.4 (21.4)	64.5 (19.2)	61.1 (21.5)	46.4 (23.3)	−0.237**	0.05
Social functioning	Mean (SD)	75.6 (25.2)	90.3 (17.1)	−0.123**	0.014	87.1 (17.1)	76.8 (26.0)	75.8 (25.4)	67.2 (24.6)	59.7 (27.2)	−0.267**	0.063
Pain	Mean (SD)	75.3 (26.1)	85.8 (21.2)	−0.059**	0.003	86.2 (18.2)	75.4 (26.2)	75.4 (24.8)	66.5 (32.8)	63.6 (26.9)	−0.205**	0.037
General health	Mean (SD)	61.5 (21.1)	75.0 (17.4)	−0.113**	0.012	67.2 (18.1)	61.4 (20.1)	63.5 (19.3)	57.6 (23.9)	50.8 (25.3)	−0.147**	0.019

[a] R^2 Change and beta-coefficients have been controlled for sex, age, level of education, cohabitation and comorbidity with any other DSM III-R disorder
[b] R^2 Change indicates how much of the overall variance is explained by the presence of social phobia or the number of social fears after the effects of sociodemographics and other DSM-III-R disorders are removed
*$P \leq 0.05$
**$P \leq 0.01$

Table 4 Service use in subjects with 12-month social phobia, according to number of social fears

	SP present or not				Number of fears						
	SP	No SP	OR 1[a] 95% CI	OR 2[b] 95% CI	1	2	3	4	5/6	OR 1[a] 95% CI	OR 2[b] 95% CI
	%	%			%	%	%	%	%		
Primary care	65.4	27	4.81* (3.81–6.08)	2.70* (2.11–3.46)	45.4	64.6	64.6	80.8	91.0	1.68* (1.37–2.05)	1.49* (1.18–1.88)
Informal care	33.8	9.8	4.21* (3.30–5.37)	2.44* (1.88–3.16)	21.4	33.1	30.2	37.7	63	1.44* (1.20–1.72)	1.47* (1.18–1.82)
Mental health care	49	16.6	4.88* (3.88–6.14)	2.54* (1.96–3.29)	27.9	46.5	44	70.6	83.7	1.77* (1.46–2.14)	1.28* (1.06–1.55)
Any help	71	31.2	5.06* (3.96–6.46)	2.81* (2.15–3.67)	52.0	68.4	73.7	84.7	92.8	1.72* (1.39–2.14)	1.62* (1.33–1.97)

[a] Odds ratios have been controlled for gender, age, level of education, and cohabitation
[b] Odds ratios have been controlled for gender, age, level of education, cohabitation and comorbidity with any other DSM-III-R disorder
*$P \leq 0.01$

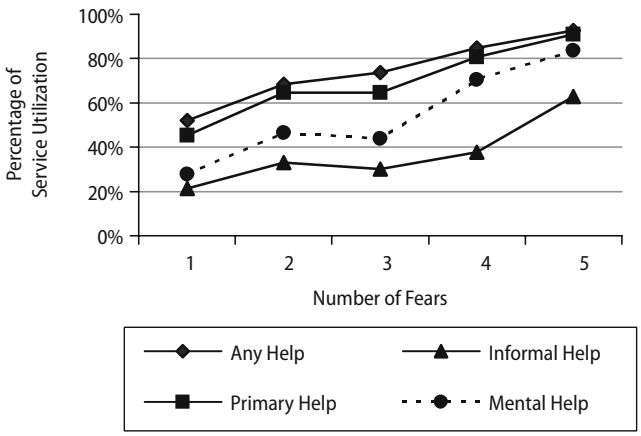

Fig. 2 Service utilization related to the social fears

in psychiatric disorders also between the western countries. Second, the diagnostic instruments might be translated and administered in a somewhat different method in each country [25]. In addition, other explanations could be the differences in sampling and research methods used. Our result for mean age of onset (19.3 years) is consistent with earlier community based studies (14.6–24.3 years) [8, 13, 22, 23, 38]. Similar to the previous results [4, 8, 9], social phobia lasts a long time with a mean duration of 19.2 years in our sample.

The demographic results of the present study are mainly consistent with the majority of the previous studies. Respondents who are female, younger, less well educated and not working are more likely to have social phobia [6, 8, 11, 13, 15, 22, 23]. Furthermore, social phobia was found to occur more in single parents and those who live alone [9, 28].

Our findings showed that social phobics were using primary care, informal care and mental health care to a greater extent compared to people without social phobia. Consistent with the previous research [8], we also found that they were using those care services not for phobic anxiety but for other complaints. It is possible that they fear scrutiny even in health care locations and prefer to present with physical complaints or other problems that are different from social phobia. Thus, we can suggest to health care professionals to check for underlying social phobia in those cases where they may have suspicions.

The number of social fears

We found clear indications that the number of social fears in subjects with social phobia is related to levels

of comorbidity, to domains of health-related quality of life, and to help-seeking behaviour. The larger the number of social fears, the higher the chance of having a comorbid anxiety or mood disorder, poorer quality of life and an increased likelihood of help-seeking. This indicates that the number of social fears is clearly associated with indicators of disability.

Earlier research already demonstrated that the number of fears is associated with a decreased level of quality of life [14, 27, 34] and increased chance of comorbidity [35], but this study is the first general population-based study that shows the number of fears is also related to higher levels of help-seeking in terms of primary, informal and mental health care services.

The 'category versus dimension' issue has been examined in many mental health disorders such as mood and personality disorders. Although this debate still continues, there is some evidence indicating that depression [14], bipolar disorder II [1], and personality disorders [29] may possibly be better understood as existing on a continuum, rather than as discrete categorical disorders. Moreover, in the definition of 'generalized social phobia', DSM-IV-R requires fears of most social situations which emphasizes the continuum of the disorder. Although, the present findings indicate that as the number of social fears increases, the burden of social phobia also increases, it is not enough to conclude that social phobia lies on a continuum with the present data. In order to claim that, the data needs to include also the subjects under the diagnostic threshold of social phobia.

The present findings show that there might be thresholds in number of social fears in terms of severity of the disorder. For example, in service utilization there could be a threshold between having three or four social fears. From the results it seems that while social phobics with three fears try to manage their problems by primary or informal care, those with four or more fears take mental health care. Whether there is a clear threshold between number of fears could be examined in future studies. Moreover, it seems as if having only one social fear has not much negative influence on quality of life, while with increasing number of social fears quality of life dramatically decreases. However, the explained variance by the number of fears is relatively low. Thus, future studies are needed to examine the impact of the factors of social phobia also other than the number of social fears on quality of life.

From a public health perspective, we can suggest that mental health care givers should pay attention to the number of social fears in order to check the severity of social phobia. The information may be helpful to prepare the most appropriate treatment plans according to the severity of the social phobia. For instance, with comprehensive interventions that target the different domains of life, social phobics could learn to manage better with the difficulties at work, school or in other areas.

The present study should be considered in the light of several limitations. First, the results have been gathered from just one wave, so it is not possible to make causal relationships between the severity of the social phobia in terms of comorbidity, help-seeking behaviour, quality of life and the number of social fears. Second, our study assessed only six social fears. A broader range of social situations would make the current results more confident. Finally, comorbidity is limited to DSM-III-R Axis I disorders. Personality disorders, which might give a broader view about the respondents with social phobia, were not included.

Despite these limitations, however, this study has made it clear that the number of social fears is an important variable in determining the severity of social phobia. These results indicate that as the number of social fears increases social phobia becomes more severe and the burden of the disorder, in terms of comorbidity and quality of life, turn out to be heavier.

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