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Journal of Anxiety Disorders 21 (2007) 320–337

Journal of Anxiety Disorders

Recovery from social phobia in the community and its predictors: Data from a longitudinal epidemiological study

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Received 3 January 2006; received in revised form 27 March 2006; accepted 23 June 2006

Abstract

The present longitudinal study aimed to determine rate of natural recovery from DSM-IV social phobia in the community and to examine predictors of recovery. Data were derived from the Dresden Predictor Study of a representative sample of 1396 young German women. The participants completed a diagnostic interview and self-report questionnaires at two survey points approximately 1.5 years apart. Of the 91 women with social phobia at baseline 64% were at least partially recovered and 36% showed full recovery from social phobia at follow-up, defined as absence of any of the DSM-IV criteria of social phobia. Predictors of recovery from social phobia were: being employed, no lifetime depression, fewer than three lifetime psychiatric disorders, less psychopathology, less anxiety sensitivity, fewer daily hassles, and better mental health. These results show that rates of recovery from social phobia are relatively high in community and that less stress and internal psychological problems play an important role in recovery from social phobia.

Keywords: Social phobia; Recovery; Epidemiology; Social anxiety; Risk factors; Remission

1. Introduction

People with social phobia (social anxiety disorder) suffer from a marked and persistent fear of one or more social or performance situations in which he or she is exposed to unfamiliar people or

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0887-6185/$ – see front matter
doi:10.1016/j.janxdis.2006.06.005

to possible scrutiny by others (APA, 1994). Social phobia is a common disorder with lifetime prevalence rates for DSM-III-R or DSM-IV criteria in the range from 7 to 13% (Becker, Türke, Neumer, Soeder, & Margraf, 2002; Kessler et al., 2005; Kessler et al., 1994; Stein, Torgrud, & Walker, 2000; Wittchen, Stein, & Kessler, 1999). This mental disorder is more prevalent among females and typically begins during childhood or in early to middle adolescence (Kessler et al., 2005; Kessler et al., 1994; Stein et al., 2000; Wittchen et al., 1999).

Whereas research on the characteristics, determinants and treatment of social phobia has been expanding in the last two decades, research on its natural course and the predictors of recovery is scarce. Such research is desirable in light of epidemiological findings indicating that individuals afflicted with social phobia endure a heavy burden of suffering. Untreated social phobia is associated with co-morbid psychiatric disorders, chronic health problems, financial dependence, suicidal ideation, family problems, and low social functioning (Davidson, Hughes, George, & Blazer, 1993; Kessler et al., 1994; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Stein & Kean, 2000). Moreover, individuals with social phobia live with these problems several years before contacting mental health services. And when they do, the proportion of patients correctly diagnosed and treated is low (Wagner, Silove, Marnane, & Rouen, 2006; Weiller, Bisserbe, Boyer, Lepine, & Lecrubier, 1996).

In 1952 Eysenck famously concluded that almost two-thirds of all neurotic disorders recover or improve to a marked extent within about two years of their onset, whether they are treated by psychotherapy or not (Eysenck, 1952, 1992). More recent findings on recovery from social phobia offer only mixed support for Eysenck's conclusion. On the one hand, prospective community studies find that for more than half of the persons with social phobia this disorder is indeed not chronic (Degonda & Angst, 1993; Müller, 2002). On the other hand, social phobia commonly has been found to be chronic in retrospective studies with current patients, who report they have been social phobic on average between 10 and 24 years (Gelernter et al., 1991; Hazen & Stein, 1995; Lelliott, McNamee, & Marks, 1991; Perugi et al., 1990; Rapee, Sanderson, & Barlow, 1988). The Harvard/Brown Anxiety Research Project followed the natural course of social phobia patients prospectively over eight years. After one year, only 13% of the patients with social phobia had recovered fully, defined as not fulfilling the DSM-III-R criteria for social phobia and experiencing no to little fear in social situations. After eight years of prospective follow-up, 38% of the female patients and 32% of male patients had recovered from social phobia. If the definition of recovery was broadened (excessive social fears, but the DSM-III-R criteria for social phobia not fullfilled), recovery rates after eight years hovered around 50% (Yonkers, Dyck, & Keller, 2001). For young patients the course of social phobia seems to be more favorable. In a prospective study of anxiety-disordered children who seek treatment, Last, Perrin, Hersen, and Kazdin (1996) found that most recovered within four years.

Cross-sectional studies in community populations also highlight a stable course of social phobia. These studies reported an average duration of illness between 19 and 30 years and recovery rates that range from 27 to 52% (Chartier, Hazen, & Stein, 1998; Davidson et al., 1993; DeWit, Ogborne, Offord, & McDonald, 1999; Kessler, Stein, & Berglund, 1998). Unfortunately, these results rely on retrospective data.

Better understanding of recovery from social phobia requires detailed prospective studies with a community-based population. As far as we know only two studies investigated the course of social phobia within a general population sample prospectively. In the 10-year epidemiological Zürich Study with four survey points, only 15% of ones that met DSM-III criteria for social phobia at one time point, met these criteria twice. All other subjects with a social phobia reported this phobia on the diagnostic level only once (Degonda & Angst, 1993). The Early

Developmental Stages of Psychopathology-Study (EDSP-Study), in which 3021 adolescents (14–24 years) were followed up prospectively over four years, found that of 183 individuals who met the criteria at baseline for DSM-IV social phobia 89% did not fulfill these criteria at the four-year follow-up any longer. Using a more stringent definition of recovery (no social fears at follow-up) 53% recovered (Müller, 2002).

In sum, recovery rates vary in relation to the definition of recovery (partial recovery vs. full recovery) and the sample (patient vs. community) that was studied. Prospective designs tell us that if recovery is defined as no longer fulfilling the DSM social phobia criteria, at least half of the patients and nearly 90% of individuals in community with social phobia recover. With a more stringent definition (having no social fears), recovery rates decline, but still one-third of the patients and one-half of the non-patients recover from social phobia.

Antecedents of recovery from social phobia were studied prospectively in community samples (Müller, 2002) and in patients (Bruce et al., 2005; Massion et al., 2002; Reich, Goldenberg, Goisman, Vasile, & Keller, 1994; Yonkers et al., 2001) and cross-sectionally in community samples (Davidson et al., 1993; DeWit et al., 1999; Kessler et al., 1998). These studies found rather inconsistent results that might for the most part be due to methodological variations. Cross-sectional studies, which gathered the majority of the data retrospectively, found that the characteristics of social phobia were associated with recovery (later onset, fewer social fears, pure public speaking fear, seeking less help for social phobia), as were socio-demographic factors (being younger, having no or one sibling and growing up in a small town place of residence), the absence of psychiatric co-morbid disorders (particularly depression), the absence of chronic health problems, and the absence of physical abuse in childhood (Davidson et al., 1993; DeWit et al., 1999; Kessler et al., 1998). However, prospective studies have not consistently corroborated any of these associations. In fact, while the EDSP-study and the HARP-study both prospectively investigated a broad scope of possible determinants of the recovery from social phobia (characteristics of social phobia, socio-demographic factors, co-morbid disorders, familial factors, stress and life events), most of these factors do not predict recovery. Actually, in these prospective studies recovery was predicted by the absence of suicide attempts (and then only for women, Yonkers et al., 2001), absence of a co-morbid generalized anxiety disorder or avoidant personality disorder (Massion et al., 2002), being employed, absence of critical life event(s) at school and less behavioral inhibition (Müller, 2002). Unfortunately, no other studies tried to replicate these findings. Furthermore, in spite of the assumption that men and women show different courses of social phobia, determinants of recovery have never been investigated for women or men separately.

These findings stress the need to complete the picture of recovery from social phobia. Moreover, because most findings of the aforementioned studies were either inconsistent or investigated once only, predictors of recovery from social phobia must be investigated. Rates of recovery are important from theoretical consideration (etiology, prognosis, etc.). From a therapeutic point of view, knowledge about recovery and its determinants is important for treatment indication and treatment planning.

In order to study the natural rates of recovery from social phobia, a representative community sample must be followed up. Antecedents that predict recovery from social phobia must be investigated before the recovery from social phobia takes place.

The present study, which is based on the Dresden Prediction Study (DPS), evaluated the psychiatric status of a large representative community-based cohort of women over time. There are two main objectives to this study. The first is to describe the rate of recovery from social phobia in the Dresden Prediction Study sample that initially suffered from a DSM-IV social

phobia. It will compare recovery rates using two different definitions of recovery from social phobia, namely not fulfilling the DSM-IV criteria with and without being allowed to still have social fears. The second objective is to investigate predictors of recovery from social phobia. Both risk factors and protective predictors of recovery will be examined. Moreover, this is the first investigation of a broad scope of psychological and socio-environmental predictors of the recovery from social phobia that could be the focus of therapy interventions.

2. Method

2.1. Participants

The sample for the present study was derived from the Dresden Prediction Study, a prospective epidemiological study designed to collect data on the prevalence, incidence, recovery, course, and risk factors of psychiatric disorders in Dresden. Dresden is a city of 480,000 people located in the former German Democratic Republic (DDR, or East Germany). As detailed elsewhere, (see Becker et al., 2002; Hoyer, Becker, Neumer, Soeder, & Margraf, 2002) the DPS sample was drawn randomly from the Dresden government registry of residents in 1996. In Germany the register normally includes all residents, because every person is obliged to register. Participants were German women age 18–24 years at the time of selection from registry. At baseline a representative sample of 1877 young women in Dresden completed an individual diagnostic interview and self-report questionnaires. The response rate at this first wave was 59%. Of the non-responders 24% had ‘‘lack of time,’’ 7% did not appear to the interview and 68% refused to participate. This relatively high rate of non-responders must be seen in the light of time and place of the survey. In the former DDR there was distrust to governmental issues. Further, no gifts or payment for joining the survey could be given at baseline, which was the case at follow-up. At the follow-up survey an average of one and a half years later (M = 15.6 months; S.D. = 3.3; range = 7–30 months) 1396 took part, indicating a response rate of 76%.

As the prevalence rates of anxiety disorders in this Dresden sample (Becker et al., 2002) are higher than in other German populations (e.g., Wittchen, Nelson, & Lachner, 1998), it can be abandoned that those with severe disorders would have actively or passively declined to participate.

The present study sample consisted of the 91 women that were diagnosed with a DSM-IV social phobia at baseline and that took part at follow-up. There were no significant differences in severity and impairment of social phobia between the responders and the non-responders at follow-up ($t(126) = .992$, $P > .05$; $t(126) = .990$, $P > .05$). Socio-demographic details of the present study sample and the original DPS sample are presented in Table 1. Their average age at baseline was 22 years. The majority (66%) successfully completed their A-levels (‘‘Abitur’’), whereas 10% still went to school at baseline. Almost two-third (64%) were not employed. High socio-economic status (SES) was reported by only 13%, middle SES by 62% and low SES by 25%. When considering these socio-economic status data it should be noted that 56% still lived with their parents. Finally, 4% were married, 62% were unmarried with romantic partner and 34% had no partner. One-fourth (23%) lived together with their partner.

The only significant differences between the social phobia study sample and the original DPS sample are ‘‘going to school’’ and ‘‘employment’’ ($\chi^2 = 5.74$, $P < .05$; $\chi^2 = 7.85$, $P < .05$). Of the present sample a higher percentage were still going to school. Also relatively more women were working part time than full time compared to the original DPS sample. This is representative for

Table 1
Socio-demographic details of the study sample and the Dresden Predictor Study (DPS)

Baseline characteristic	DPS-sample[a] ($N = 1396$)	Study sample "social phobia at baseline" ($N = 91$)
Age (M, S.D.)	22.7 (1.8)	22.4 (1.8)
Going to school (%)	5	10
Education (%)		
No certificate	4	7
Secondary modern	2	1
Comprehensive and technical college	30	26
A-levels	64	66
Employment		
Not employed	51	64
Part time	20	18
Full time	29	18
Socio-economic status (SES)		
Low SES	28	25
Middle SES	63	62
High SES	9	13
Living with parents (%)	55	56
Marital status (%)		
Married with partner	5	4
Unmarried with partner	59	62
No partner	36	34
Living together with partner (%)	24	23

[a] DPS-sample = Dresden Predictor Study sample.

social phobia, as it is associated with unemployment and education problems (e.g., Fehm, Pelissolo, Furmark, & Wittchen, 2005).

2.2. Procedure

The sample that was selected from the government registry received a letter with detailed information about the DPS and a stamped reply card to confirm participation. The interviewers then invited the interested participants for the diagnostic interview by telephone, letter or personal contact. The participants could choose the location (the university, the home of the participant or a neutral place such as restaurant) where the interview would take place. The mean duration of this interview was 114 min (range: 30–330 min). The participants filled out the self-report questionnaires directly after the interview. If the interview took a lot of time, the participant could fill out the questionnaires at home and send it to us.

At the end of first diagnostic interview the participant could decide to join the second diagnostic interview 1.5 years later. These participants were asked to inform the organization in case of moving or changing addresses.

After 1.5 years another interviewer that was blind to the outcome of the first interview invited the participants for the second interview by telephone, letter or personal contact. The mean duration of this interview was 76 min (range: 15–270 min). The participants filled out the questionnaires directly after the interview.

2.3. Measures

In this study we used different definitions of recovery from social phobia, namely ''recovery'' and the more stringent definition ''full recovery.'' Subjects were classified as ''recovered'' if they met all eight DSM-IV criteria for social phobia at baseline and met less than eight criteria for social phobia at follow-up, thus if they did not fulfill the diagnosis of social phobia anymore. The definition of ''full recovery'' was used for those individuals that met all DMS-IV criteria at baseline and no longer met any DSM-IV criteria at follow-up. Those who still fulfilled all DSM-IV criteria at follow-up were classified as ''stable social phobia.'' We compared recovery from social phobia and full recovery from social phobia with stable social phobia. In our study ''partial recovery'' refers to those women, who recovered from social phobia, but did not meet our criteria of ''full recovery.''

We predict recovery from social phobia from four kinds of variables: (1) social phobia characteristics (e.g., number of avoided social situations, duration), (2) socio-demographic factors (e.g., age, education), (3) co-morbid psychiatric disorders and (4) individual and environmental factors (e.g., psychopathology and social support).

2.3.1. DSM-IV diagnoses

The diagnostic assessments at baseline and follow-up were based on the ''Diagnostisches Interview für Psychische Störungen – Forschungsversion'' (F-DIPS, translation: Diagnostic Interview for Psychiatric Disorders – Research version) (Margraf, Schneider, Soeder, Neumer, & Becker, 1996). The F-DIPS is a structured interview allowing the assessment of symptoms, syndromes, and diagnoses of clinical disorders (axis I) according to DSM-IV (APA, 1994). It is based on the Anxiety Disorders Interview Schedule (ADIS-IV-L; Di Nardo, Brown, & Barlow, 1995) and is also a revision of an earlier diagnostic interview according to DSM-III-R (DIPS; Margraf, Schneider, & Ehlers, 1991). Unlike its previous versions F-DIPS contains also sections for substance abuse and dependence as well as for children's disorders. It yields lifetime-, period-, and point-prevalence rates for the following psychiatric disorders: all anxiety disorders, all affective disorders, the research-diagnosis mixed anxiety-depression, hypochondrias, somatization disorder, conversion disorder and pain disorder, substance abuse and dependence, bulimia nervosa, anorexia nervosa, and some children's disorders (separations anxiety, attention-deficit/hyperactivity and disruptive behavior disorders, elimination disorders). Furthermore, there is a socio-demographic section, a screening for psychosis, a screening for the general medical condition and medication, a short section of family history of psychiatric disorders and a section about treatment for psychiatric disorders. Axis IV (psychosocial and environmental problems) and axis V (global assessment of functioning) are also registered or rated.

The retest and interrater reliability of the F-DIPS was tested in an unselected sample of 191 patients from a psychosomatic clinic (Keller, 2000). The retest-reliabilities across the groups of disorders were between .65 and .89 (κ-coefficient) and .65 and .94 (Yule's Y-coefficient). For social phobia retest-reliability was modest ($\kappa = .53$, $Y = .61$). In general the study proved the F-DIPS a valid instrument for the diagnosis of psychiatric disorders (Keller, 2000).

Interviewers were either psychology students in their last year of training or medical doctors. All underwent an intensive training of about one week and subsequently attended a supervision meeting every two weeks. Doctoral-levels psychologists proofread every interview. Unclear cases were discussed and a consensus diagnosis was given. A diagnosis of a psychological disorder measured by F-DIPS was assigned if all criteria for a DSM-IV diagnosis were satisfied.

2.3.2. Social phobia characteristics

2.3.2.1. Number of feared and/or avoided situations. In the social phobia section of the F-DIPS the interviewer asked the participants about the degree of their own fear and frequency of avoidance of 13 social situations. First the interviewer said, ''Now I will specify a list of social situations. Please indicate if you get anxious or nervous in these situations or if you avoid these situations as far as possible?'' Then the interviewer stated each situation and the participant reported if she/he feared and/or avoided that situation. If the answer was ''yes'' the interviewer asked ''how much do you fear/avoid this situation?'' Finally, the interviewer rated the answer on a scale from 0 (never avoid/no anxiety) to 8 (always avoid/very strong fear). Fear or avoidance of a situation is rated as clinically relevant if the score was four or higher.

2.3.2.2. Impairment. If the participant avoided one or more social situations at a clinically relevant level, the interviewer asked how much the participant felt impaired with the following question: (translation) are you impaired by these fears in your life? How much impairment do you experience in your life (for example in your daily routine, work, social activities)? Is your actual work or education influenced by your social fears?'' The interviewer then rated the answer at a scale from 0 (not at all) to 8 (very much) impairment.

2.3.2.3. Age at onset. The interviewer asked the participant (translation) when did your fear of _ _ start to be a problem, so that it impaired or stressed you?'' If the subject could not give an exact time point, the interviewer tried to get more detailed information by asking about the life situation (e.g., ''did you go to kindergarten or to school already'') at the beginning of the disorder.

2.3.2.4. Severity of social phobia relied on the symptoms and impairment. The interviewer judged how severe the social phobia was on a scale ranging from 0 (not severe at all) to 8 (very severe).

2.3.2.5. Use of psychotherapy. At follow-up the participant filled out the question ''Did you consult a psychotherapist for a social or psychological problem within the last 12 months?'' The possible answers were yes and no.

2.3.3. Individual social and psychological measures

2.3.3.1. Psychopathology. We used the German version of the Symptom Checklist 90-Revised (SCL-90-R; Derogatis & Cleary, 1977; German version by Franke, 1995) as a measure of general psychopathology. This questionnaire consists of 90 items with a 5-point Likert scale. For our study we used the GSI score: sum score/(90 − number of missing data). The German version of the SCL-90-R has good internal consistency ($\alpha = .74$–.97) and good test-retest reliability (rtt = .69–.92) (Franke, 2002a, 2002b).

2.3.3.2. Mental health. This 14 items questionnaire ''seelische Gesundheit'' (translation: mental health, of the Marburger Health Study (Lutz, Heyn, Schmid, Sick, & Steinl, unpublished-b) measures positive affect (for example; (translation) ''I come to grips with the things in my life that are not changeable,'' ''I feel loved and understood by people that I find important,'' and ''I believe that my life has meaning''). The participant scored the items on a 4-point Likert scale.

2.3.3.3. Anxiety sensitivity. The 16-item Anxiety Sensitivity Index (ASI, Reiss, Peterson, Gursky, & McNally, 1986) is a dispositional measure of fear of anxiety symptoms (including both

cognitive and somatic sensations) arising from the belief that they will have consequences that are socially, physically, or psychologically harmful. The respondents indicated on a 5-point Likert-type scale (0 = very little to 4 = very much) the degree to which they expect negative consequences to arise from anxiety-related sensations. The ASI has good internal consistency in clinical and non-clinical populations and good test-retest reliability (e.g., Ehlers & Margraf, 1993; Peterson & Reiss, 1992).

2.3.3.4. Avoidance behavior. The "social phobia" subscale of the Fear Questionnaire (Marks & Mathews, 1979) measures avoidance behavior in social situations. The participant rated for 5 social situations at a scale from 0 "I never avoid this situation" to 8 "I always avoid this situation." The Fear Questionnaire has good internal consistency and test-retest reliability (e.g., Marks & Mathews, 1979; Oei, Moylan, Evans, 1991).

2.3.3.5. Dysfunctional attitudes. The Dysfunctional Attitudes Scale (DAS; Beck, Brown, Steer, & Weissman, 1991; Weissman, 1979; Weissman & Beck, 1978) measures with 40 items those stable cognitive schemas associated with depression (Beck et al., 1991). For example, "I should be happy all the time" and "my life is wasted unless I am a success." Responses vary from "total agreement" to "total disagreement." For this study we used the total sum score. The DAS has good internal consistency for females and males and good test-retest reliability (e.g., Dobson & Breiter, 1983).

2.3.3.6. Self-efficacy. The questionnaire with 10 items measures optimistic beliefs that are based on the concept of self-efficacy, a sense of ability to carry out particular actions of a sense of ability to carry out particular actions (Bandura, 1977, e.g., "I will find a solution for every problem"). Scores vary from 0 "low self-efficacy" to 30 "high self-efficacy." This questionnaire has a good internal consistency (α = .74–.92) and test-retest reliability (rtt = .47 (for men), rtt = .63 (for women)) (Schwarzer, 1994).

2.3.3.7. Life satisfaction. A questionnaire with 12 items measured life satisfaction in important life areas (Lutz, Heyn, Schmid, Sick, & Steinl, unpublished-a). The participant rated at a scale from 0 "very unsatisfied" to 4 "very satisfied."

2.3.3.8. Social support. The German Social Support Scale, short version (SOZU-K-22, Soziale Unterstützung, Kurzform (Fydrich, Sommer, Menzel, & Höll, 1987)) measures social support. This questionnaire includes items about emotional support, instrumental support and social integration, e.g., "I often feel I am an outsider," "There are persons to whom I can show all my feelings without feeling embarrassed." The participant scored his or her agreement at scale from 0 "that does not apply to me" to 4 "that does exactly apply to me." The SOZU-K-22 has a good internal consistency (α = .79–.92) and a moderate test-retest reliability (rtt = .52–.65) (Fydrich et al., 1987).

2.3.3.9. Daily hassles. Daily hassles were measured with a standardized instrument that asks subjects if 16 possible daily hassles (e.g., health problems, stress at work, financial problems) were present within the last 12 months in their life or in the life of a significant other person and how much stress (from 0 to 4) was experienced because of this hassle. The present paper used only on the rating participants gave of the daily hassles in their own lives.

2.4. Statistical analyses

The aim of this study was to assess how often young women recovered from social phobia, and what factors predict that recovery.

Logistic regression analyses were used to identify predictors. Logistic regression coefficients and derived odds ratios (including 95% confidence intervals) are presented for each predictor variable in the model. We treated the nominal variables ‘‘education,’’ ‘‘employment,’’ and ‘‘socio-economic status’’ as interval variables.

For every predictor we performed two regression analyses: one with the dependent variable ‘‘recovery from social phobia’’ and one with ‘‘full recovery from social phobia.’’ The results of the regression analyses for ‘‘full recovery from social phobia’’ are however presented if these results were different at the significance level from the regression analysis with ‘‘recovery of social phobia.’’ For example, if social support significantly predicted recovery of social phobia and did not significantly predict full recovery, then we reported this difference. Otherwise results for full recovery are not separately presented.

We performed Bonferonni correction for the multiple socio-environmental predictors to avoid the Type I error. For those analyses the Bonferoni correction allowed an α-level of .005.

3. Results

3.1. Recovery from social phobia

Fig. 1 represents the percentages of recovery from DSM-IV social phobia and the percentage of stable social phobia within individuals with a social phobia at baseline. As can be seen, 36% still fulfilled all eight criteria for a DSM-IV social phobia at follow-up, indicating a stable social phobia. The percentage of individuals that recovered from social phobia was 64%, defined as no longer fulfilling the DSM-IV criteria for social phobia. Using a more stringent definition ‘‘full recovery from social phobia’’ (fulfilling no DSM-IV criteria at follow-up) 36% showed recovery. Thus, more than half of those subjects who recovered had a full recovery from social phobia. Of those who recovered from social phobia at follow-up 70% did not satisfy any psychiatric diagnosis, 23% had another anxiety disorder, 7% an affective disorder, 4% a somatization disorder, 4% a dependence-related disorder and 4% an eating disorder.

3.2. Social phobia characteristics as predictors of recovery from social phobia

Recovery from social phobia was not significantly predicted by any social phobia characteristic. Univariate logistic regression analyses revealed that social and functional impairment, severity of social phobia, number of feared and avoided social situations, and age at onset did not predict recovery from social phobia (see odds ratios in Table 2). These results indicate that the course of social phobia seems to be independent from its form, severity and duration within young women. We also investigated if psychotherapy had a positive outcome on recovery. In fact, the percentage of women with a stable social phobia that consulted a psychotherapist in the last twelve months was higher than that of women, who recovered from social phobia (12.1% vs. 3.4%). Though, less therapy usage did not significantly predict recovery from social phobia (OR = .26, CI = .05–1.50).

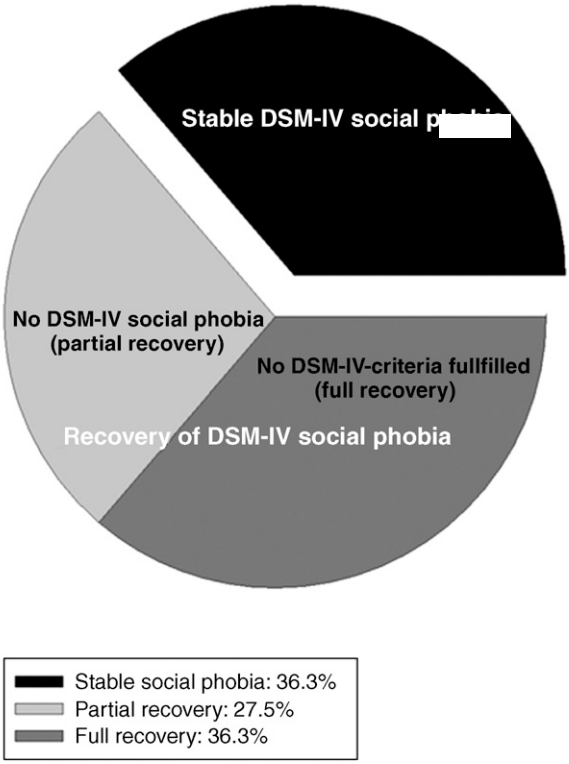

Fig. 1. Percentages of recovery from social phobia.

3.3. Socio-demographic predictors of recovery from social phobia

Subjects who had a full time job more often recovered from social phobia than subjects who did not have a full time job (OR = .52, CI = .27–.98). As can be seen from Table 3 univariate logistic regression analyses did not reveal significant odds ratios for having a partner, educational, or socio-economic status.

Table 2
Social phobia characteristics as predictors of recovery from social phobia

Variable	Stable SP[a]	Recovery SP[b]	Stable SP versus recovery SP
	M (S.D.)	*M* (S.D.)	OR, 95%-CI
Impairment	3.58 (1.60)	3.40 (1.77)	.94, .73–1.21
Severity	4.18 (1.10)	3.98 (1.09)	.84, .57–1.26
Number of feared situations	2.67 (2.07)	2.47 (1.96)	.95, .77–1.18
Number of avoided situations	2.26 (1.97)	1.85 (2.01)	.90, .71–1.14
Age at onset	11.97 (5.60)	11.34 (5.86)	.98, .91–1.06

Note. SP: social phobia; *M*: mean; S.D.: standard deviation; OR: odds ratio; CI: confidence interval.
[a] $N = 33$.
[b] $N = 58$.

Table 3
Socio-demographic predictors of recovery from social phobia

Variable	Stable SP[a]	Recovery SP[b]	Recovery SP (inclusive partial recovery SP) versus stable SP OR, 95% CI
	N (%)	*N* (%)	
No partner	11 (33.3)	20 (34.5)	.95, .39–2.35
Education			1.15, .69–1.92
No certificate	4 (12.1)	2 (3.4)	
Secondary modern	0	1 (1.7)	
Comprehensive and technical college	6 (18.2)	18 (31.0)	
A-levels	23 (69.7)	37 (63.8)	
Employment			**1.94, 1.02–3.70**
Not employed	25 (75.8)	34 (58.6)	
Part time	6 (18.2)	10 (17.2)	
Full time	2 (6.1)	14 (24.1)	
Socio-economic status (SES)			.88, .44–1.78
Low SES	10 (30.3)	13 (22.4)	
Middle SES	16 (48.5)	40 (69.0)	
High SES	7 (21.2)	5 (8.6)	

Note. SP = social phobia; OR = odds ratio; CI = confidence interval; odds ratios that are significant ($P = <.05$) are denoted by bold typeface odds ratios and confidence intervals.
[a] $N = 33$.
[b] $N = 58$.

3.4. Other psychiatric disorders predicting recovery from social phobia

In Table 4 the odds ratio of the associations between the lifetime and baseline diagnoses of psychiatric disorder subgroups at baseline and recovery from social phobia at follow-up are presented. Taking lifetime prevalence of diagnostic subgroups as predictors we found a significant association between lifetime affective disorders and recovery from social phobia. The absence of an affective disorder up to and including baseline predicted recovery from a social phobia (OR = .19, CI = .07–.53). Lifetime prevalence rates of other anxiety disorders, somatization disorders, dependence-related disorders, eating disorders and child disorders did not significantly predict recovery from social phobia. Neither could co-morbid disorders to social phobia at baseline predict the course of social phobia (Odds ratios in Table 4). However, the absence of more than two psychiatric disorders by baseline predicted a recovery from social phobia marginally (OR = .28, CI = .07–1.03). Hence, the absence of affective disorders and the absence of more than two other psychiatric disorders up to baseline are predictors of recovery from social phobia.

3.5. Individual environmental predictors of recovery from social phobia

The results of univariate logistic regression analyses for the individual environmental factors as predictors of recovery from social phobia are presented in Table 5. As can been seen recovery from social phobia was significantly predicted by less psychopathology (OR = .59, CI = .37–.92), less anxiety sensitivity (OR = .58, CI = .36–.92), fewer number and less stress of daily hassles (respectively OR = .53, CI = .34–.85; OR = .49, CI = .30–.80) and better mental health

Table 4
Psychiatric lifetime prevalence rates and co-morbidity rates as predictors of recovery from social phobia

Variable	Life time			Baseline		
	Stable SP[a] *N* (%)	Recovery SP[b] *N* (%)	Stable SP versus recovery SP OR, 95% CI	Stable SP[a] *N* (%)	Recovery SP[b] *N* (%)	Stable SP versus recovery SP OR, 95% CI
Any psychiatric disorder	24 (73)	39 (67)	.77, .30–1.98	13 (39)	26 (45)	1.25, .52–2.98
Anxiety disorders	13 (39)	32 (55)	1.89, .79–4.52	9 (27)	22 (38)	1.63, .64–4.14
Affective disorders	15 (46)	8 (14)	**.19**, **.07–.53**	1 (3)	2 (3)	*1.14*, *.10–13.10*
Somatoform disorders	2 (6)	2 (3)	*.55*, *.07–4.13*	0 (0)	0 (0)	–
Substance-related disorders	4 (12)	2 (3)	*.26*, *.05–1.50*	2 (6)	2 (3)	*.55, .07–4.13*
Eating disorders	5 (15)	2 (3)	*.20*, *.04–1.10*	3 (9)	1 (2)	*.18, .02–1.76*
Child disorders	6 (18)	11 (19)	1.05, .35–3.17	–	–	–
Number of co-morbid disorder	–	–	–	13 (39)	26 (45)	1.25, .52–2.98
>2 lifetime psych. disorders	7 (21)	4 (7)	*.28*, *.07–1.03*	–	–	–

Note. SP = social phobia; *M* = mean; S.D. = standard deviation; OR = odds ratio; CI = confidence interval; Odds ratios that are significant (*P* = <.05) are denoted by bold typeface odds ratios and confidence intervals. Odds ratios that are based on cell frequencies (*N* = <5) are denoted by italic typeface odds ratios.

[a] *N* = 33.

[b] *N* = 58.

Table 5
Individual and environmental predictors of recovery from social phobia

Variable	Stable SP[a]	Recovery SP[b]	Stable SP versus recovery SP		Stable SP versus full recovery SP[c]	
	M (S.D.)	*M* (S.D.)	OR, 95%-CI	*P*	OR, 95%-CI	*P*
Psychopathology	.74 (.57)	.51 (.33)	**.59**, **.37–.92**	**.020**	.61, .36–1.05	n.s.
Avoidance of social situations	14.00 (6.69)	12.48 (5.82)	.78, .50–1.21	n.s.	**.56**, **.32–.97**	**.038**
Anxiety sensitivity	17.67 (8.72)	13.72 (6.35)	**.58**, **.36–.92**	**.022**	**.45**, **.23–.87**	**.018**
Dysfunctional attitudes	138.79 (31.87)	128.08 (26.43)	.70, .45–1.10	n.s.	.64, .38–1.07	n.s.
Mental health	37.64 (7.79)	43.36 (7.03)	**2.25**[d], **1.37–3.71**	**.001**	**2.04**, **1.17–3.54**	**.012**
Self-efficacy	24.52 (6.62)	26.14 (4.76)	1.35, .87–2.10	n.s.	1.38, .83–2.28	n.s.
Life satisfaction	3.25 (.65)	3.47 (.42)	1.54, .99–2.43	n.s.	1.34, .81–2.22	n.s.
Social support	4.06 (.63)	4.17 (.62)	1.19, .77–1.81	n.s.	1.06, .65–1.73	n.s.
Number of daily hassles	5.97 (3.40)	4.14 (2.50)	**.53**, **.34–.85**	**.008**	**.54**, **.31–.93**	**.027**
Stress of daily hassles	14.34 (9.81)	8.80 (6.34)	**.49**[d], **.30–.80**	**.004**	**.45**, **.25–.83**	**.010**

Note. SP = social phobia; *M* = mean; S.D. = standard deviation; OR = odds ratio; CI = confidence interval; odds ratios that are significant (*P* = <.05) are denoted by bold typeface odds ratios and confidence intervals.

[a] *N* = 33.

[b] *N* = 58.

[c] *N* (full recovery) = 33.

[d] Odds ratio that are significant after Bonferoni correction ($P < .005$).

(OR = 2.25, CI = 1.37–3.71). The predictors ‘‘mental health’’ and ‘‘stress of daily hassles’’ remained significant even after Bonferroni correction.

We reran these analyses to also predict full recovery. As expected these analyses showed that full recovery was predicted predominantly by the same variables as recovery was. In addition less avoidance of social situations also predicted a full recovery (see Table 5 for the odds ratios). Furthermore the odds ratio of psychopathology was marginally not significant. None of these predictors survived the Bonferroni test, which is probably due to the small sample.

Finally, in a multivariate regression model mental health showed to be the strongest predictor of recovery from social phobia. Namely, after adjustment of the other salient predictors of recovery mental health remaining significant (OR = 1.87, CI = 1.04–3.38).

4. Discussion

The present longitudinal study aimed to describe rates of recovery from social phobia in a representative population and to examine predictors of a recovery from social phobia. In line with other prospective community studies, the majority of young adult women with a DSM-IV social phobia recovered within the following sixteen months. As expected, our results confirm once more that rates of recovery from social phobia depend in a large part on the definition of recovery. With a more stringent definition of recovery from social phobia (not fulfilling any DSM-IV criteria for social phobia at follow-up) the rate of recovery from social phobia declines from 64 to 33%. Similar variation in recovery rates was also found in other studies that compared different definitions of recovery (Müller, 2002; Yonkers et al., 2001).

According to the existing literature, the recovery rates of social phobia in the present study are higher than recovery rates in patient samples (Yonkers et al., 2001). In studies with clinical samples social phobia is a chronic condition if untreated (Gelernter et al., 1991; Hazen & Stein, 1995; Lelliott et al., 1991; Perugi et al., 1990; Rapee et al., 1988). Probably treatment-seeking social phobics are likely to be a more severe subset of the population of persons with social phobia and a stable course may be a factor that leads to seeking treatment. As such, patients are likely to be unrepresentative of most persons with this disorder.

The present recovery rates are somewhat lower than recovery rates of other community-based prospective studies. One reason for this discrepancy might be that our sample was surveyed after a shorter time interval than the Zürich Study (Degonda & Angst, 1993) and the Early Developmental Stages of Psychopathology-Study (EDPS, Müller, 2002). Another reason for our lower recovery rates probably is that our population sample was older than the sample of the EDPS (18 to 25 instead 14 to 24) and it has been suggested that recovery rates are higher in younger children with social phobia than in adults (Agras, Chapin, & Oliveau, 1972; Last et al., 1996).

A particular strength of this study is its prospectively examination of a broad scope of determinants of recovery from social phobia. We found that psychological factors especially predict recovery. Less psychopathology, less anxiety sensitivity, fewer daily hassles and better mental health significantly predict recovery from social phobia. Moreover, being employed and the absence of a lifetime depression predict a recovery from social phobia. Full recovery is predicted by the same factors, except psychopathology. In addition, less avoidance of social situations predicts full recovery.

The protective factor ‘‘mental health’’ was the strongest predictor for recovery from social phobia that remained significant even after Bonferroni correction and after adjustment for the other salient psychological and environmental factors. People with more mental health are

persons who can enjoy positive things in live and do not have to ‘‘push away’’ negative things but rather negotiate them. Lutz and Mark (1995) derived the balance theory of mental health and illness from the affect balance theory of Bradburn (1969): health and illness are two independent factors. Therefore, in social phobics with a high score on mental health the balance between the burden of the social phobia and personal resources that they can use to recover stays equal or even positive (healthy). This result is also in line with Antonovsky's (Antonovsky, 1979, s.98) theory that mental health is a resistance resource against stress. Furthermore, Lutz and Michalak (unpublished) also found that mental health predicted the success of behavior therapy with inpatients.

Fewer and less stress of daily hassles predicted recovery from social phobia as well. This association has not been investigated by any other study. Only in DeWit et al.'s study (1999) chronic burden made recovery from social phobia less likely. Probably, stress in general, either from daily hassles or from a chronic burden, inhibits the individual to recover and make the social phobia chronic.

Furthermore, less anxiety sensitivity predicted the recovery from social phobia. Several plausible explanations may be offered for this finding. First, if an individual with social phobia fears his or her own anxiety this individual might enter in a vicious circle of fear, worsening the anxiety. Second, anxiety sensitivity may lead to an internal focused attention, which is proven to be a maintaining factor of social phobia (e.g., Clark & Wells, 1995; Mansell, Clark, & Ehlers, 2002; Spurr & Stopa, 2002; Wells & Papageorgiou, 1998) because it increases negative thoughts and feelings and can interfere with performance and prevents the individual from observing external information that might disconfirm this fear.

Consistent with (cognitive) behavioral models of social phobia, which assume that exposure to real-life feared situations leads to fear reduction (Brown & Barlow, 2002; Clark & Wells, 1995), we found that less avoidance of social situations predicts full recovery from social phobia. In line with this consideration, having a job increased the likelihood of recovery from social phobia in our study. Müller (2002) found this association as well. Perhaps employment leaves people with social phobia fewer possibilities to avoid social situations and therefore promotes corrective learning experiences in social situations.

Regarding co-morbid disorders, the absence of lifetime episode of affective disorders predict recovery. This finding supports previous investigations that a depression existing already before the onset of the social phobia decreased the chance to recover from social phobia (DeWit, 1999). In the ECA not having other psychiatric also predicted recovery (Davidson et al., 1993).

One surprising finding was that fewer dysfunctional attitudes and higher self-efficacy did not predict recovery. Actually, they belong to the key maintaining factors for social phobia (Clark & Wells, 1995; Hirsch, Clark, Mathews, & Williams, 2003). However, Burns and Spangler (2001) also found that dysfunctional attitudes at intake of a cognitive behavior therapy did not directly cause changes in anxiety during treatment, even though dysfunctional attitudes were associated with anxiety at therapy intake and therapy end. Furthermore, recently some other results indicated that negative cognitions at intake have no causal relationship with the maintenance of social phobia (Stravynski, Bond, & Amado, 2004). Indeed, exposure therapy without explicit cognitive intervention also leads to reduction of negative self-focused thoughts (Hofmann, Moscovitch, Kim, & Taylor, 2004; Newman, Hofmann, Trabert, Roth, & Taylor, 1994). Thus, our findings and other reports provide some evidence to consider if dysfunctional attitudes and low self-efficacy rather are a part of the symptomatology of social phobia that improve as other aspects of social phobia improve rather than causes of symptom reduction.

This study presented in this article had several strengths and limitations. Among the strengths is the examination of potential predictors from several domains. Moreover, we investigated these predictors within a longitudinal design. This makes it possible to gain conclusions about the causal relationship between the predictors and recovery from social phobia. Another strength is the representative community-based sample. However, epidemiological designs go together with small samples of individuals with a disorder. In our study the sample was also relatively small. To determine whether our sample size of $N = 91$ was sufficiently large, we did a power analysis. Assuming a simple logistic regression model with one continuous predictor variable and a binary response variable (recovery from social phobia: yes/no) we used the formula (1) as given in Hsieh et al. (1998) to determine the necessary sample size at $\alpha = .05$ (two-sided test) and $\beta = .2$. In our sample prevalence rates for recovery from social phobia were ca. 64% (see Fig. 1). Based on this value and assuming a medium effect size of 0.5 the sample size needed was 136. Thus, in future epidemiological studies with larger samples than the Dresden Predictor Study are needed. Also, these data can only be generalized to women with social phobia in the community. Even though DeWit et al. (1999) found no gender differences in recovery rates and its determinants, future studies will be needed to determine whether our findings can be generalized to males.

Furthermore, the study sample consisted of a selected age-group (18 and 24). As recovery from social phobia is suggested to occur less often in adults than in children it might be expected that in older individuals with social phobia, recovery rates could be lower in an older sample. Nevertheless the former suggestion still remains to be confirmed.

A final limitation may exist in defining recovery. One of the major difficulties in comparing the recovery from social phobia across studies is the lack of consensus on the definition of recovery. We tried to solve this problem reporting two definitions of recovery from social phobia. For an optimal comparison between different studies on recovery from social phobia it is desirable to reach a consensus on a deliberated definition. This definition(s) should at least describe the period of less/no symptoms.

In conclusion, rates of recovery from social phobia at a diagnostic level are relatively high in community. This rate declines using a more stringent definition. We were the first investigating such a broad range of prospectively measured predictors for the recovery from social phobia and found that especially psychological predictors, namely better mental health, less psychopathology, fewer daily hassles and less anxiety sensitivity, play a major role in the recovery process of social phobia.

Acknowledgments

This study was supported by grant DLR 01EG9410, from the German Ministry of Science, Research and Education. We would like to thank the many people who helped with the study.

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