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The extent of social anxiety in combination with mental disorders

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■ **Abstract** The aim of the study was to investigate the extent of social anxiety in different mental disorders. A total of 341 patients aged 7–18 years participated in the study. To measure social anxiety, the German version (SPAIK) of the Social Phobia and Anxiety Inventory for Children (SPAI-C) was used. Subgroups were built dependent on mental disorders. A total score above 20, which was assumed to indicate social anxiety, was observed in children with selective mutism ($n = 9$; $M = 22.68$; $SD = 11.29$) and in children with

Asperger's Syndrome ($n = 7$; $M = 20.77$; $SD = 13.77$). Patients who had the following mental disorders also showed a higher total score of social anxiety: obsessive-compulsive disorder, anorexia nervosa, schizophrenia, depression and conduct disorder. In none of these disorders, however, did the mean total score exceed the cut-off of 20.

■ **Key words** social phobia – social anxiety – selective mutism – Asperger's Syndrome – children and adolescents

Introduction

Social anxieties refer to uneasiness in social situations. They also cover social phobia, a clinically relevant subcategory of social anxiety, which is characterized by a pervasive, inadequate fear of social or achievement situations. Social phobia is the fear to fail, to make a fool of oneself or to humble oneself by clumsiness.

In infancy and youth, social phobia is of high importance. With a point-prevalence rate of approximately 1–3% in infancy [e.g. 13, 24, 29] and a prevalence rate of 5–10% in youth and early adulthood [e.g. 19, 43], it is one of the most frequent mental disorders. Additionally, recent studies show an increase of prevalence data, which among other things is traced back to a lowered diagnostical threshold in DSM-IV [32]. Differences between various age groups speak for a real increase of the incidence rate [20]. The average age of onset of generalized social phobia ranges from 11 to 13 years [21, 40].

However, cases of social phobia have been reported in children as young as age 8 [3].

Social phobia leads to apparent impairment in the development of children. The avoidance of social situations particularly restricts social competences and hinders getting acquainted with peers [22, 34, 42]. Davidson [12] found out that the onset of social phobia prior to age 11 predicted no recovery in adulthood. Extensive restriction in quality of life could follow. Besides mental stress, social phobia also concerns social functioning, success at school and in the career [28, 38, 44].

In literature concerning social phobia in children and adolescents, other anxiety disorders, depressive disorders and drug abuse are mentioned as typical comorbid disorders (e.g. 44). Most of the patients ask for therapy not because of social phobia, but because of a comorbid disorder. Social anxieties which occur together with other mental disorders are often not recognized and they are treated rarely in psychotherapy [28, 44].

A first aim of our study is to investigate the extent of

social anxiety in different mental disorders. In a clinical group, we investigate whether social anxieties are more common in some mental disorders than in others. An important aim is to consider mental disorders, which have seldomly been investigated in comorbidity studies concerning social anxiety. Results of our study could be important for psychotherapy pertaining to the question of taking special deficits into consideration (study part 1). Secondly, we would like to investigate if there is a quantitative difference between the subgroups that showed strong social anxiety and children with social phobia (study part 2).

Study Part 1

In a clinical group, we investigated whether social anxieties are more common in some mental disorders than in others.

Methods

■ Participants

The clinical group consists of 341 school-aged children and adolescents ($M = 12.72$ years; $SD = 2.72$ years, 154 girls, 187 boys) who were psychiatrically treated in Wuerzburg from February 2000 to October 2002. All patients were diagnosed with a mental disorder. The clinical group is comprised of 306 in-patients and 17 out-patients from the Department of Psychiatry for Children and Adolescents at the University of Wuerzburg, 13 patients from the day care centre of Wuerzburg, and 5 out-patients from a psychiatric practice in Wuerzburg, adding up to 341 patients.

The patients from the clinical group attended grades one to twelve at school (first grade: 1.2%; second grade: 5.5%; third grade: 7.8%; fourth grade: 10.7%; fifth grade: 15.3%; sixth grade: 11.2%; seventh grade: 9.5%; eighth grade: 12.7%; ninth grade: 14.7%; tenth grade: 4.9%; eleventh grade: 3.2%; twelfth grade: 0.3%), 3.2% had already graduated. In all, 19.9% went to elementary school, 25% to Hauptschule (secondary school with lower academic standards), 18.5% to Realschule (secondary school with average academic standards), 0.9% to Gesamtschule (comprehensive school), 21.3% to Gymnasium (secondary school with higher academic standards), and 13.7% to a school for individual learning or to a school for educational help. A further 0.3% of the group attended a Rudolf Steiner School, a vocational school or a Förderstufe (comprehensive school for grades 5 and 6). Mentally handicapped patients were excluded from the study ($IQ \leq 70$).

The patients received a primary diagnosis according to criteria from the fourth edition of the Diagnostic and

Statistical Manual of Mental Disorders (35) (Table 1). The assessment for the primary diagnosis was done independently by two psychiatrists for children and adolescents. Both findings had to match in order for the patient to participate in the study. The assessment was comprised of a semi-structured interview with the parents, an exploration of the child or adolescent, psychometrical tests and behaviour observation in different situations.

The control group was comprised of a sample of 1197 healthy school-age children and adolescents. Data had been collected from this sample at an earlier time and were used to standardize the SPAIK [31]. The sample comprised 616 girls and 580 boys. The ages ranged from 8 to 16 years. The average age was 12.51 years ($SD = 2.05$). The 13- to 14-year-old age group was represented the most with 428 children, while only 13 eight-year-olds and 65 sixteen-year-olds took part. The children were in grades three to ten (third grade: 8.4%; fourth grade: 10.9%; fifth grade: 9%; sixth grade: 16.5%; seventh grade: 20.3%; eighth grade: 19.1%; ninth grade: 13.8%; tenth grade: 2%). In all, 19.3% were at elementary school, 8.9% were at a secondary school for grades

Table 1 Primary diagnoses according to DSM-IV

Primary diagnosis	Frequency	Percent
Clinical group		
Agoraphobia	1	0.3
Anorexia nervosa	48	13.8
Artificial disorder	1	0.3
Asperger's Syndrome	7	2.0
Atypical eating disorder	12	3.4
Attention-deficit hyperactivity disorder	88	25.2
Bulimia nervosa	3	0.9
Depression	29	8.2
Dissociative disorder	6	1.7
Borderline disorder	6	1.7
Encopresis	10	2.9
Enuresis	9	2.6
Histrionic disorder	6	1.7
Dyslexia	4	1.1
Posttraumatic stress disorder	1	0.3
Psychotic disorders	15	4.3
Schizoaffective disorders	2	0.6
School phobia	8	2.3
Selective mutism	9	2.6
Somatoform disorder	7	2.0
Conduct disorder	20	5.7
Tics	4	1.1
Tourette's Syndrome	4	1.1
Separation anxiety	18	5.2
Obsessive-compulsive personality disorders	1	0.3
Obsessive-compulsive disorder	15	4.3
Control group		
Social phobia	31	100

5 and 6, 17.8% Hauptschule (secondary school with lower academic standards), 29.3% Realschule (secondary school with average academic standards) and 24.6% were at Gymnasium (secondary school with higher academic standards).

■ Procedure

The German version (SPAIK) [31] of the Social Phobia and Anxiety Inventory (SPAI-C) [5] was presented to all participants. The children and adolescents were told that there were no right or wrong answers. They were simply asked to give frank answers to the questions in the SPAIK. If desired, the items were read out to the child.

■ Materials

In order to assess social anxiety, the German version of the Social Phobia and Anxiety Inventory for Children (SPAIK) [31] was applied. The original version of the inventory was developed by Beidel, Turner and Morris [4] for use with children and adolescents in the United States of America. It assesses distress in a variety of social situations according to the criteria of the Diagnostic and Statistical Manual of Mental Disorders [35]. In addition, it assesses cognitive and physical symptomatology as well as overt behaviour. The inventory comprises 26 items that are rated on a 3-point Likert scale. Some of the items require multiple answers. Eleven of them require differentiating between known and unknown children and adults. A total score between 0 and 52 is calculated. There are some normative data for girls and boys as well as for different age groups.

The psychometric properties of the SPAIK have been studied extensively [31]. Objectivity concerning its presentation, calculation and its interpretation is given. It has high internal consistency (Cronbach $\alpha = 0.92$) and good test-retest reliability over 4 weeks ($r_{tt} = 0.84$). There is a one-factor structure concerning its dimensionality [31]. The inventory has been demonstrated to have good construct and discriminant validity. It significantly correlates with other self-report instruments measuring social and other anxieties. Furthermore, it successfully differentiates socially phobic from normal controls, as well as socially phobic from other anxious children and adolescents [31].

Results

A higher mean score in the SPAIK could be found in the clinical sample compared to the sample of healthy children. The mean SPAIK total score in the clinical sample

is $M = 16.65$ ($SD = 11.06$), while it is $M = 12.51$ ($SD = 7.87$) in the normal sample. The difference between the two values is significant [$t(1515) = 10.65$; $p \leq 0.001$].

■ Group-specific differences in the clinical sample

In order to inspect age, gender and type of school effects, a covariance analysis was calculated with the factors “gender” and “age” and the covariate “type of school”. The covariate “type of school” shows no significant effect. A significant main effect for gender could be found [$F(1,318) = 462.59$, $p \leq 0.05$]. The girls ($M = 19.82$; $SD = 11.19$) show significantly higher test scores than the boys ($M = 13.66$; $SD = 10.12$). A significant effect regarding age could not be found.

■ Group-specific differences in the healthy control group

The covariate “age” shows a significant effect in the control group [$F(1,1185) = 9.01$; $p \leq 0.01$]. Younger children (8–11 years: $M = 15.18$ years; $SD = 8.20$ years) reach a higher SPAIK total score than older children (14–16 years: $M = 11.34$; $SD = 7.35$). Significant main effects could be found for the factors gender [$F(1,1185) = 46.48$; $p \leq 0.001$] and type of school [$F(1,1185) = 4.91$; $p \leq 0.001$]. The girls ($M = 14.03$; $SD = 8.34$) show higher test scores than the boys ($M = 10.91$; $SD = 7.00$). The Gymnasium (secondary school with higher academic standards) students show the lowest total scores ($M = 11.16$; $SD = 6.59$), while the elementary school students ($M = 15.12$; $SD = 8.08$) show the highest SPAIK total scores [31].

As a function of the patients’ primary diagnoses, subgroups of the clinical group were formed. The data did not fulfil the criteria for parametric analyses. Therefore, the Mann-Whitney U-Test was used to accomplish comparisons in pairs (Table 2).

In our clinical group, a total score above 20, which was assumed to indicate social anxiety according to the SPAIK norms, was observed in children with selective mutism ($N = 9$; $M = 22.68$; $SD = 11.29$) and in children with Asperger’s Syndrome ($N = 7$; $M = 20.77$; $SD = 13.77$). When using confidence intervals to estimate the true scores, the following can be shown regarding the cut-off score of 20. In the group of children with selective mutism, 44.45% of the SPAIK total score confidence intervals are above the cut-off. This was also true for 28.57% of the confidence intervals in the group of children with Asperger’s Syndrome. Compared to the mean in the healthy control group ($M = 12.51$; $SD = 7.87$), the confidence intervals in the mute group were higher in 55% of the cases. In the group of children

Table 2 SPAIK total scores in different mental disorders

Primary diagnosis	M	SD	Difference to the remainder of the clinical group
Social phobia (n = 31)	29.59	9.79	$p \leq 0.001$
Selective mutism (n = 9)	22.68	11.29	$p \leq 0.09$
Asperger's Syndrome (n = 7)	20.77	13.77	n. s.
Obsessive-compulsive disorder (n = 15)	17.43	10.87	n. s.
Psychotical disorders (n = 15)	16.46	7.77	n. s.
Elimination disorders (encopresis, enuresis) (n = 19)	15.95	11.76	n. s.
Affective disorders (n = 29)	15.87	10.31	n. s.
Anorexia nervosa (n = 48)	15.35	9.25	n. s.
School phobia and separation anxiety (n = 26)	14.80	9.64	n. s.
Conduct disorders (n = 20)	14.10	9.86	n. s.
Attention-deficit hyperactivity disorder (n = 88)	12.38	9.8	n. s.

diagnosed with Asperger's Syndrome, 71.42% of the confidence intervals were higher than the healthy control group's mean.

Other mental disorders showing high SPAIK total scores were obsessive-compulsive disorder (N=15; M=17.44; SD=10.87), psychotic disorders (N=15; M=16.46; SD=7.77), elimination disorders (encopresis und enuresis) (N=19; M=15.95; SD=11.76), affective disorders (N=29; M=15.88; SD=10.31), anorexia nervosa (N=48; M=15.35; SD=9.25), school phobia (N=26; M=14.80; SD=9.64) and conduct disorders (N=20; M=14.10; SD=9.86). In none of these disorders, however, did the mean total score exceed the cut-off of 20, which was assumed to indicate social anxiety. Furthermore, none of the groups showed a significant difference in respect of SPAIK total scores in comparison to the remainder of the clinical group. The subgroups were not comparable to each other, because of differences regarding age and gender.

Study Part 2

In a second step, we investigate whether the subgroups with strong social anxieties differ quantitatively in the extent of social anxiety from the socially phobic children.

Methods

■ Clinical group

Two subgroups of the clinical group had significant results concerning the extent of social anxieties. These subgroups are described in more detail below.

Selective mutism

The clinical group was composed of nine children with selective mutism, seven girls and two boys with a mean age of M=11.89 years (SD=2.42 years; range: 8–16 years). Three children with selective mutism attended primary school, the others went to Hauptschule (secondary school with lower academic standards).

Asperger's Syndrome

Seven children with Asperger's Syndrome were part of the clinical group, two girls and five boys with a mean age of M=13.71 years (SD=2.50 years; range: 10–17 years). Four children with Asperger's Syndrome attended high school, two of them went to Hauptschule (secondary school with lower academic standards) and one attended a school for children with special needs.

■ Socially phobic control group

The socially phobic control group comprised 31 socially phobic children. Seventeen of them were recruited for a project by the German Research Society (FL 117/9–1) at the University of Marburg to investigate emotional competence in socially anxious children. The other 14 socially phobic children were patients from the Department for Psychiatry for Children and Adolescents at the University of Wuerzburg. Thus, 31 socially phobic children aged 8–17 years (M=12.19 years, SD=2.59 years) participated in the study, 18 girls and 13 boys. The children and adolescents attended second to ninth grade at school (second grade: 3.4%; third grade: 10.3%; fourth grade: 10.3%; fifth grade: 17.2%; sixth grade: 20.7%; seventh grade: 13.8%; eighth grade: 6.9%; ninth grade: 10.3%). A total of 6.9% had already graduated. Seven went to elementary school, four to Hauptschule (sec-

ondary school with lower academic standards), six to Realschule (secondary school with average academic standards), ten to high school, and one child went to a school for children with speech and language disorders.

These socially phobic children and adolescents received their primary diagnosis according to criteria from the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders [35] (Table 1). The assessment for the primary diagnosis was done as aforementioned. The assessment of the children taking part in the research project at the University of Marburg was done independently by two psychologists and both findings had to match. All children and their mothers took part in a structured interview to assess the primary diagnosis (DIPS-K) [41]. An exploration of the child, psychometrical tests and behaviour observation in different situations were also conducted [30].

Results

■ Selective mutism

The subgroup of children with selective mutism was compared to our control group of socially phobic children. The two groups were comparable regarding age ($U = 130.50$; $p \leq 0.77$). A significant difference between both groups in the total score of the SPAIK could be observed ($U = 81.0$; $p \leq 0.05$; selective mute children: $N = 9$; $M = 22.68$; $SD = 11.29$; socially phobic children: $N = 31$; $M = 29.59$; $SD = 9.79$). The distribution of the SPAIK total scores in children with selective mutism ranged from 8.58 to 44.42. Four of the nine children reached a very high total score (28.82–44.42). In the socially phobic group, the total score ranged from 12.0 to 45.48. Furthermore, the data indicated a significant difference ($U = 915.0$; $p \leq 0.05$) between the group of children with selective mutism ($N = 9$; $M = 22.68$; $SD = 11.29$) and the remainder of the clinical group ($N = 332$; $M = 15.23$; $SD = 10.29$).

■ Asperger's Syndrome

The subgroup of children with Asperger's Syndrome was compared to the control group of socially phobic children. The two groups were comparable regarding age ($U = 70.50$; $p \leq 0.15$). A considerable, though not significant, difference could be observed in the total score between both groups ($U = 59.5$; $p \leq 0.06$; children with Asperger's Syndrome: $N = 7$; $M = 20.77$; $SD = 13.77$; socially phobic children: $N = 31$; $M = 29.59$; $SD = 9.79$). The distribution of the SPAIK total scores in children with Asperger's Syndrome showed a range from 5.62 to 46.55. Two of the seven children showed a very high SPAIK total score (29.98, 46.55). No significant difference

($U = 896.5$; $p \leq 0.29$) could be observed between the group of children with Asperger's Syndrome ($N = 9$; $M = 20.77$; $SD = 13.77$) and the remainder of the clinical group ($N = 334$; $M = 15.23$; $SD = 10.29$).

Discussion

One aim of the study was to investigate the extent of social anxiety in different mental disorders. It could be found that the extent of social anxieties in the clinical group is significantly higher than in the sample of healthy children. This increase was expected because children and adolescents with mental disorders are often exposed to enormous stress. The vulnerability-stress-model sees the root of a disorder in the interaction between vulnerability factors and stressful experiences in the environment. Accordingly, an increased degree of social anxieties is assumed in children and adolescents with other mental disorders. Furthermore, a higher rate of comorbid disorders, because of which the principally socially anxious children and adolescents were possibly admitted, can also be expected.

There were some groups of mental disorders that showed a high total score of social anxieties: obsessive-compulsive disorders, psychotic disorders, enuresis and encopresis, affective disorders, anorexia nervosa, school phobia and conduct disorders. In none of these disorders, however, did the mean total score of the SPAIK exceed the cut-off of 20, which was assumed to indicate social anxiety. Additionally, a significant difference to the remainder of the clinical group could not be observed in any of these subgroups.

A mean total score above 20 was only observed in children with selective mutism and in children with Asperger's Syndrome.

■ Mutism

How can the high SPAIK total score in children with selective mutism be explained? Recently, selective mutism has been reported as being a manifestation of an anxiety disorder. In case studies, most of the children with selective mutism were described as being shy, sensitive and afraid of everything strange or new [27]. Selective mute children do not usually speak out loud in public where either strangers or people they do not know well might hear them. There is often a distinct hierarchy of people to whom the child speaks. The child usually speaks at home and in very familiar social situations. Their families are also frequently described as shy. All of these are references that apply for a reconceptualization of selective mutism as an anxiety disorder.

The hypothesis that declares a relationship between selective mutism and social phobia was first proposed

by Crumley in 1990 [11]. Black and Uhde [7] reported a relatively large study on social anxiety with 30 selective mute children. The study confirmed the assumed relationship with social anxiety. Further studies by Golwyn and Weinstock [17], Black and Uhde [6] and Leonhard and Topol (1993) investigated the hypothesis about this relationship in conjunction with the efficacy of pharmacological treatments. The question arises as to whether it is social anxiety rather than an oppositional, negativistic, controlling or manipulating attitude that prevents these children from speaking in public.

However, we do not support the classification of selective mutism as a manifestation of high social anxiety. Our data from selective mute children rather indicate a significantly lower SPAIK total score compared to the group of socially phobic children. This does not confirm Black and Uhde's hypothesis [7] of mutism as an extreme form of social phobia. Furthermore, in many case reports, an oppositional and controlling attitude was described in selective mute children. Therefore, their behaviour does not only differ quantitatively but also qualitatively from socially phobic children. Unlike social phobia, the age of onset in selective mutism is 3–6 years. Consequently, most of the selective mute children are under treatment during their kindergarten years. In social phobia, however, cognitive processes are critical for the development of the disorder as they facilitate scrutiny by others. Therefore, the age of onset in social phobia is much later than in selective mutism. In shyness, however, as a less strong subcategory of social anxiety, the age of onset is about 4 years. Consequently, selective mutism is more likely related to shyness than to social phobia. Selective mutism may have a high rate of comorbidity with this subcategory of social anxiety. Finally, also unlike social phobia, the majority of selective mute children outgrow the disorder spontaneously. We think all these arguments do not support the classification of selective mutism as social phobia. However, the prevalence of case reports of selective mutism makes the comparison difficult, because only few empirical studies on a larger scale are available.

■ Asperger's Syndrome

A SPAIK total score above the cut-off of 20 could also be observed in the group of children and adolescents with Asperger's Syndrome. Kanner [23] has suggested that many of the core features of autism, particularly in the instance of sameness and repertoire of fixed behaviour, routines and obsessions, are anxiety driven [16]. Anxiety increases these symptoms and may act as a self-calming strategy. Thus, obsessions and rituals appear to keep fear and anxiety under control.

In a recent study by Gillot et al. [16], children with high functioning autism were compared on measures of

anxiety and social worries to children with specific language impairment and to normally developed children. Children with autism were found to be the most anxious on both measures. High anxiety subscale scores for the autism group were separation anxiety and obsessive-compulsive disorder. Children with autism also reported considerably more social worries than both control groups.

In our study, we could confirm the suggestion of an increased social anxiety in children with Asperger's Syndrome. The question arises as to which aspects of social anxiety are important for children and adolescents with Asperger's Syndrome and how they are related to other anxieties and fears. In literature concerning anxiety in children with autism, the fear of possible change [33] and of being criticized [1] were mentioned as probably being related to social anxieties. Furthermore, deficient social competencies contribute to high total scores in the SPAIK.

The question arises as to whether it is really social anxiety reported in the SPAIK by children and adolescents with Asperger's Syndrome. Their difficulty in the ability to introspect [2, 10] affects their ability to self-report. However, the questionnaire consists of the description of precise social situations. The children were asked to report how they would behave in such social situations.

Though high anxiety and nervousness are often found in children with autism, it is not part of the diagnostic criteria. As to what extent they are specific for the autistic spectrum requires further investigations in larger samples. Our findings suggest that the investigation of social anxieties in Asperger's Syndrome could be of importance.

Our study is limited by the usual sources of error in questionnaire data, which are answer tendencies, individual nuances in the understanding of items, differences in the ability to introspect and self-report. Of more importance is the small sample size, especially in less frequent mental disorders like Asperger's Syndrome and selective mutism. The conclusion, however, that the value of an investigation increases with sample size is not permissible [8]. On the contrary, our significant results indicate a prominent effect despite small sample size.

Our results are in so far surprising as the highest total scores for social anxieties are not observed in classically mentioned disorders like depression or other anxiety disorders, but in selective mutism and Asperger's Syndrome. Studies to reproduce these results with larger sample sizes would be of value. They are particularly relevant due to implications for the treatment of these disorders.

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