




# Cognitive Behavior Group Therapy for Children and Adolescents With Social Anxiety Disorder

## A Randomized Controlled Treatment Trial

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**Abstract:** *Background:* Social anxiety disorder (SAD) in children is highly prevalent but current treatments are not effective for all patients. *Aim:* A group treatment based on empirically driven etiological models including psychoeducation, cognitive restructuring, exposure, and social skills training was examined. *Method:* The study examined treatment success using a SAD-specific cognitive behavior group therapy in a randomized controlled trial ( $N = 74$ , 8–12 years, blind randomized allocation to treatment [CBT;  $n = 42$ ] and waitlist [WLC;  $n = 32$ ]). *Results:* Compared to WLC, parents of children in the CBT group reported a decrease in symptoms (CBT:  $d = 1.02$ , WLC:  $d = 0.06$ ), while children did not differ in two measures of social anxiety. An estimate of total treatment effects showed a steady decrease in social anxiety symptoms (child report pre- to posttreatment:  $d = 0.50$ – $0.52$ , posttreatment to follow-up:  $d = 0.37$ – $0.39$ ; parent report pre- to posttreatment:  $d = 0.92$ , posttreatment to follow-up:  $d = 0.69$ ). *Conclusion:* While group treatment is most likely an effective approach, parents reported stronger social anxiety symptom reduction than children. The selection of measures for the assessment of SAD and treatment success and further modifications of exposure-based approaches are to be considered in future research.

**Keywords:** group treatment, social phobia, CBT

### Kognitive Verhaltenstherapie in der Gruppe für Kinder und Jugendliche mit sozialer Angststörung. Ein randomisierte, kontrollierte Interventionsstudie

**Zusammenfassung:** Obwohl die soziale Angststörung (SAD) bei Kindern weit verbreitet ist, sind die derzeitigen Behandlungen nicht bei allen Patient\_innen wirksam. Es wird eine Gruppenbehandlung untersucht, die auf empirisch fundierten ätiologischen Modellen beruht und Psychoedukation, kognitive Umstrukturierung, Exposition und Training sozialer Fähigkeiten umfasst. Die Studie untersuchte den Behandlungserfolg eines SAD-spezifischen kognitiven Verhaltenstherapieansatzes in einer randomisierten kontrollierten Studie ( $N = 74$ , 8 bis 12 Jahre, blinde randomisierte Zuteilung zur Behandlung [CBT;  $n = 42$ ] und Warteliste [WLC;  $n = 32$ ]). Im Vergleich zur WLC-Gruppe berichteten die Eltern der Kinder in der CBT-Gruppe über einen Rückgang der Symptome (CBT:  $d = 1.02$ , WLC:  $d = 0.06$ ), während sich die Kinder in zwei Fragebögen für soziale Ängste nicht unterschieden. Eine Schätzung der Gesamtwirkung der Behandlung zeigte einen stetigen Rückgang der sozialen Angstsymptome (Kinderbericht vor bis nach der Behandlung:  $d = 0.50$ – $0.52$ , nach der Behandlung bis zum Follow-up:  $d = 0.37$ – $0.39$ ; Elternbericht vor bis nach der Behandlung:  $d = 0.92$ , nach der Behandlung bis zum Follow-up:  $d = 0.69$ ). Während die Gruppenbehandlung höchstwahrscheinlich ein wirksamer Ansatz ist, berichteten die Eltern über eine stärkere Verringerung der sozialen Angstsymptome als die Kinder. Die Auswahl von Messinstrumenten zur Beurteilung der SAD und des Behandlungserfolgs sowie weitere Modifikationen von expositionsbasierten Ansätzen sind Themen, die in der zukünftigen Forschung berücksichtigt werden sollten. Einschränkend zu beachten ist, dass die Psychopathologie nach der Behandlung anhand von Fragebögen und nicht durch Interviews bewertet wurde.

**Schlüsselwörter:** Gruppenbehandlung, Soziale Phobie, KVT

Social anxiety disorder (SAD) is highly prevalent and persistent in childhood (Burstein et al., 2011). Cognitive

behavior therapy (CBT) treatment has proven effective for anxiety disorders in children, adolescents, and adults

(Spence & Rapee, 2016) with a more recent Cochrane Review on all anxiety disorders reporting a response rate for remission of 49% for CBT versus 18% for control conditions (James et al., 2020). In comparison to other anxiety disorders, a primary or comorbid diagnosis of SAD in generic treatment programs usually leads to less symptom remission and lower response rates often of only 25% (e.g., Hudson et al., 2015), even in a 4-year follow-up (Kodal et al., 2018). This has caused researchers to downgrade the expected effect sizes for SAD trials in youth to detect the appropriate sample size (e.g., Nordh et al., 2021).

Spence and Rapee (2016) argued that the low remission and response rates might be caused by the lack of specificity of treating SAD-specific components such as cognitive biases and fear of social interactions. Cognitive treatment programs (e.g., Melfsen, Kühnemund, et al., 2011) have often focused on cognitive restructuring while exposure can also change cognitions (Asbrand et al., 2019). Since the core symptom of SAD is fear of social interactions with peers, it seems appropriate to include more peer interaction in treatment to allow for fear actualization within sessions. Thus, besides changing the treatment content (i.e., focus on cognitions), changing the treatment structure from individual to group is likely to be an important modification. Group CBT programs have gained influence as generic treatment for child anxiety (e.g., Hudson et al., 2015; Shortt et al., 2001) and have been shown to be effective (Flannery-Schroeder et al., 2005; Yang et al., 2019). A network analysis on randomized controlled trials (RCTs) for children and adolescents with any type of anxiety disorders also recently revealed that structured psychotherapy in groups of youth was more effective than the other psychotherapies (or control conditions; Zhou et al., 2019).

To date, almost all group CBT programs have been developed for adolescents age 12 years and older (e.g., Masia Warner et al., 2016). Only two studies focused on younger children with SAD with a stronger emphasis on social skills training in the intervention program and further elements in line with exposure in the therapy program (Beidel et al., 2000; Spence et al., 2000). Both studies showed substantial and stable therapeutic effects (response rate 67% in treatment group vs. 5% in control group, Beidel et al., 2000; response rate 87.5% if parents were involved and 58.0% if parents were not involved vs. 7% in control group; Spence et al., 2000), but, still, a number of patients did not respond to therapy. More recent studies suggest that exposure therapy is a key element in changing cognitions as negative expectations are challenged, attention biases corrected, and positive cognitions applied (e.g., Craske et al., 2022). While exposure was already applied in the study by Beidel et al.

(2000), the overall treatment focused more strongly on changing a deficit of social skills. Although the conceptual role of social skills in SAD in youth is controversial (i.e., social skills deficit or perceptual bias; Cartwright-Hatton et al., 2005), providing social skills training seems to be an effective strategy to alleviate social anxiety.

The current study was designed as an RCT, allocating half of the participants to an experimental group (EG) receiving immediate SAD-specific CBT and the other half to a waitlist control (WLC) group. Based on etiology models (Spence & Rapee, 2016), treatment included psychoeducation, cognitive restructuring, exposure, and social skills training. Compared with the WLC, we expected the EG group to report a decrease in social anxiety symptoms via questionnaires. All measures were assessed pretreatment/waiting, posttreatment/waiting, and at the 3-month follow-up. The treatment trial was part of a larger study, with some research questions relating to attentional biases (e.g., Seefeldt et al., 2014) or to stress response patterns (Krämer et al., 2011; Krämer et al., 2012; Schmitz, Krämer, Blechert et al., 2010, Schmitz, Krämer, Tuschen-Caffier et al., 2011). While these results were all related to the baseline stress task, in the present study we focused on the general efficacy of the group treatment on parent- and self-reports of child social anxiety.

## Method

### Trial Design

For this RCT we used a partial block randomization, allocating half of the participants by drawing from a hat to an experimental condition receiving immediate treatment and half to a WLC condition receiving treatment about 16 weeks later. Randomization for each research center was conducted in a concealed fashion by the other center, based on subject codes, as soon as there were enough participants for one experimental and one WLC allocation (i.e., 10–12 children per site resulting in 5–6 children per group at each allocation). The final group of children ( $n = 10$ ) was not sufficiently large within the project timeline to be block randomized and was, thus, assigned to the intervention group to complete the project timeline. Eligibility criteria and dependent variables for treatment success were specified and registered with the German Research Foundation (TU 78/5–1, HE 3342/4–1) prior to recruitment and not changed during the study. Sample size for children with SAD was determined on the basis of an a priori power analysis and set at  $n = 74$ .

**Table 1.** Participant characteristics

Characteristic	Experimental group (EG)	Waitlist control (WLC) group	Statistics
<i>n</i>	42	32	
Age (in years) <sup>a</sup>	9.8 (1.15)	9.8 (1.64)	$t_{(45,13)} = -1.7$ , ns
% Female <sup>b</sup>	44.7	58.6	$\chi^2_{(1)} = 1.39$ , ns
% Comorbid diagnoses <sup>b</sup>	42.6	51.7	$\chi^2_{(1)} = 0.61$ , ns
% Primary school <sup>b</sup>	53.2	58.6	$\chi^2_{(5)} = 7.23$ , ns
Kinder-DIPS severity <sup>b,c</sup>			$\chi^2_{(3)} = 2.22$ ns
% Impaired (4)	38.3	48.3	
% Moderately impaired (5)	34.0	24.1	
% Clearly impaired (6)	25.5	20.7	
% Severely impaired (7)	2.1	6.9	

Notes. Kinder-DIPS = Diagnostic Interview for Mental Disorders in Childhood and Adolescence; ns = not statistically significant ( $p > .05$ ). <sup>a</sup>Mean (SD). <sup>b</sup>Missing data  $n_{EG} = 0$ ,  $n_{WLC} = 3$ . <sup>c</sup>Severity index 0 (no impairment) to 8 (very severe impairment).

## Participants

Recruitment of children (8–12 years) with a primary diagnosis of SAD (*Diagnostic and Statistical Manual of Mental Disorders [DSM-IV-TR]*; American Psychiatric Association [APA], 2000) took place from September 2007 to June 2009 until the targeted sample size had been reached. Follow-ups ended in April 2010. No harms were reported. Inclusion criteria consisted of SAD as a primary diagnosis. Comorbid diagnoses were allowed. The most frequent comorbidity with seven (13%) occurrences was specific phobia, followed by five (9%) cases of AD(H)D and four (7%) of separation anxiety. An independent ethics committee (ethics committee of the German Society for Psychology) granted ethical approval for this study (approval number BTCNHO1On008DGPS, August 11, 2006, August 12, 2008).

Groups (EG vs. WLC) did not differ in age, type of school, or diagnoses (see Table 1).

## Procedure

After a short telephone screening through trained study staff, oral and written consent was given by eligible children and their parents in a subsequent diagnostic session (see Figure 1). Diagnoses of SAD and comorbid disorders (*DSM-IV-TR*) were reached through combining structured clinical interviews with both the child and a parent separately using the Diagnostic Interview for Mental Disorders in Childhood and Adolescence (Kinder-DIPS; Schneider et al., 2009). Trained interviewers (graduate-level psychology students) conducted all diag-

nostic sessions, which were supervised by an experienced clinical psychotherapist. A diagnosis was reached after a final discussion between the interviewers and the supervising clinical psychotherapist. Conflicting information from parents and children was weighed against each other and a diagnosis was built on whether symptoms were supported with examples, observations during diagnosis, and questionnaire scores. Additionally, children and parents reported sociodemographic data, anxiety symptoms, depressive symptoms, and general psychopathology in online questionnaires (see Online Supplement).

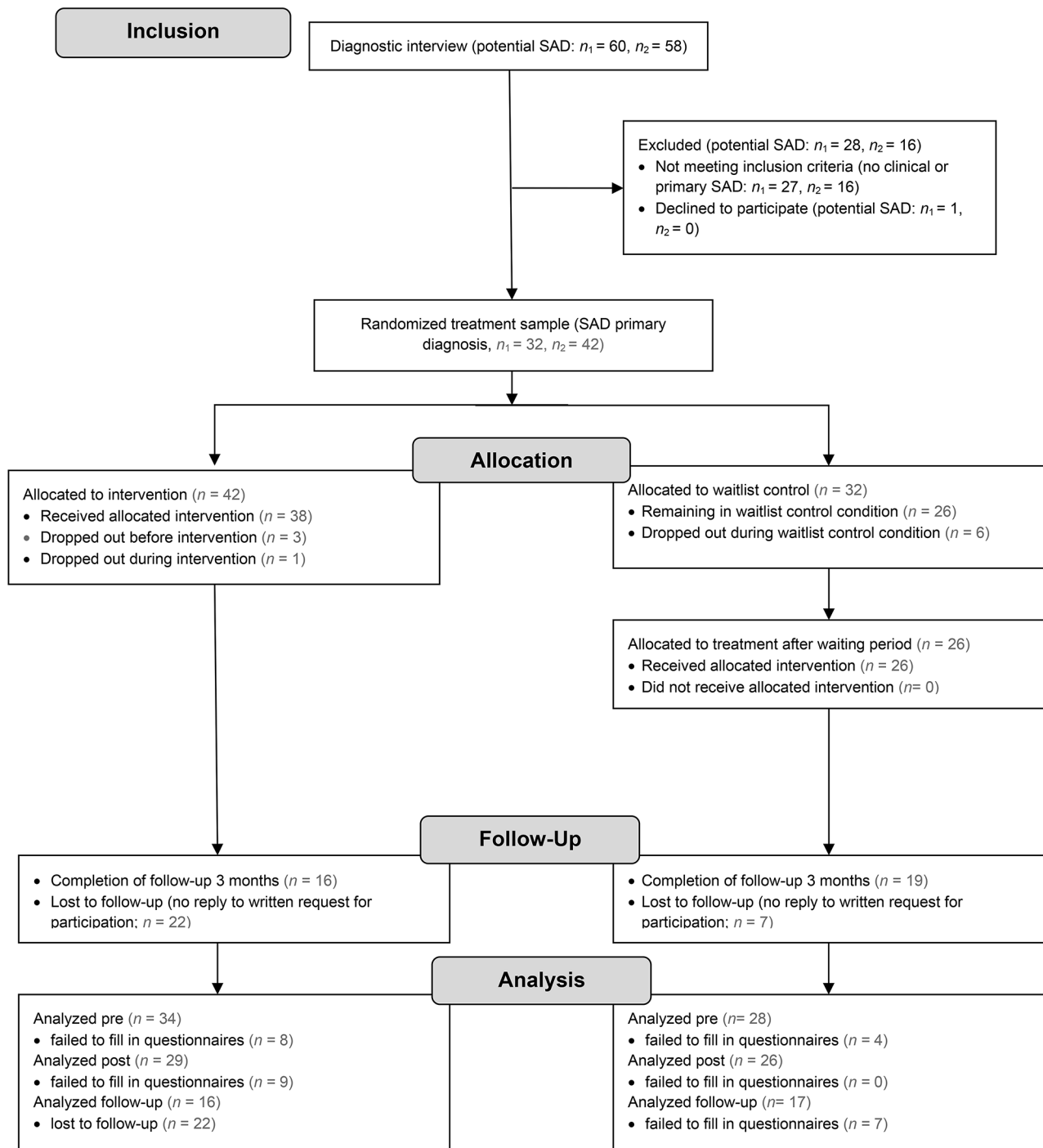
The study took place at two German universities (Bielefeld, Freiburg).<sup>1</sup> The assessments took place for the EG and the WLC group before (PRE) and after (POST) a 9-week (12 sessions) therapy program for the EG. Children in the WLC group received treatment after the postassessment and, thus, before follow-up assessments. Follow-up (FU) assessments took place for both groups 3 months after the treatment.

## Measures

### Kinder-DIPS

The Kinder-DIPS covers the most frequent mental disorders in children and youth. The diagnosis is based both on child and on parent reports. Schneider et al. (2009) reported adequate interrater reliability (87% for anxiety disorders), good retest (Schneider et al., 2009), and successful validation with disorder-specific questionnaires. Children met diagnostic criteria if all criteria according to the DSM-IV were fulfilled and the severity

<sup>1</sup> All analyses first considered site differences, which were nonexistent.



**Figure 1.** Flowchart of study participants. SAD = social anxiety disorder;  $n_1$  = sample, Center 1;  $n_2$  = sample, Center 2. Final sample sizes for the analyses may vary due to single missing data points. Further details are provided in the Results section.

rating was 4 or higher on a scale of 0 (*no impairment*) to 8 (*very severe impairment*).

### SASC-R

The Social Anxiety Scale for Children-Revised (SASC-R) measures social anxiety as reported by children and their

parents (18 items, e.g., “I get nervous when I talk to new kids”) with total scores ranging from 18 to 90, including a subscale of fear of negative evaluation as well as social avoidance and distress. Children and parents respond to each item using a 5-point Likert-type scale ranging from 1 (not at all) to 5 (all the time). Psychometric qualities of the

German version of the SASC-R (Melfsen & Florin, 1997) are similar to the original SASC-R, which have been shown to be acceptable for both test-retest reliability (.67) and internal consistency (.76; La Greca & Stone, 1993). Moderate correlations have been confirmed with general measures of anxiety, self-perception of social confidence, teacher ratings of anxiety withdrawal, and peer nominations of popularity (Ginsburg et al., 1998). The SASC-R is a highly recommended social anxiety measure and rated as good for treatment research (Tulbure et al., 2012). The internal consistency of the SASC-R in the current sample was excellent (child report:  $\alpha = .95$ , parent report:  $\alpha = .92$ ).

### SPAI-C

The Spence Anxiety Inventory for Children (SPAI-C) assesses behavioral characteristics specific to SAD (26 items; e.g., “I am anxious when I meet new boys or girls”). Twelve of the items ask specifically about how the experience of certain situations differs when with familiar versus unfamiliar boys and girls, or with adults. Further, cognitions and physiological symptoms are assessed. Children respond to each item using a 3-point Likert-type scale ranging from 0 (*never or hardly ever*) to 2 (*almost always or always*). Validity and reliability were confirmed in the original (Beidel et al., 2001) and a German sample (Melfsen, Walitza, et al., 2011). Internal consistency in the German sample was excellent (Cronbach’s  $\alpha = .92$ ), while test-retest reliability after 4 weeks was similarly high ( $r_{tt} = .84$ ). The SPAI-C is a highly recommended social anxiety measure and rated as excellent for treatment research (Tulbure et al., 2012). The internal consistency of the SPAI-C in the current sample was excellent ( $\alpha = .97$ ).

### Treatment

The intervention was based on the cognitive model of social phobia by Clark and Wells (Clark & Wells, 1995) and was designed to tackle negative cognitions and self-perceptions by means of exposure (Craske et al., 2022). It targets the interaction of dysfunctional cognitions, possible social deficits, and most importantly, social avoidance by exposure both inside the group and in vivo outside as a 12-session group therapy (Tuschen-Caffier et al., 2009). All therapists were clinical psychotherapists in training. They were trained in the application of the treatment manual by the manual’s authors in a 1-day workshop at each center. The training was followed by regular supervision by the principal investigators (experienced clinical psychotherapists) during intervention delivery. Groups of five to seven children participated in five intervention components: psychoeducation, cognitive restructuring, social skills training, exposure, and relapse prevention.

Each session took 90 min including a 10-min break. The first six sessions of the program (including psychoeducation and cognitive restructuring) were conducted twice a week and the following six sessions (including social skills training, exposure, and relapse prevention) took place weekly. Concluding each session, children received homework based on the session’s content to ensure transfer to everyday life (self-management element). In line with the current status on parent involvement, which shows no additional effect (e.g., Scaini et al., 2016), the treatment does not specifically address parents.

### Data Analysis

Statistical outliers 2.5 SDs above or below the mean were excluded. Outliers were calculated separately for *groups* and *time*. Differences in symptoms between children with and without SAD were analyzed using a multivariate analysis of covariance including group as the factor (levels: EG/WLC) and questionnaire scores as dependent variables (SPAI-C, SASC-R-Child, SASC-R-Parent). Age and gender were included as covariates since these have previously been identified as potential influences on SAD symptoms (Melfsen & Florin, 1997) and treatment success (Beidel et al., 2000; Spence et al., 2000).

For the main analyses of SPAI-C, SASC-R-Child, and SASC-R-Parent, the open-source statistical software R (version 3.2) was applied using the mixed models package lme4 (Bates et al., 2014) and lmerTest (Kuznetsova et al., 2014). These models were fitted with one between-subjects factor group (levels: EG/WLC), one within-subject factor time (levels: PRE/POST), and the interaction between group and time as fixed effects. Furthermore, intercepts for every participant were modeled as random effects. All degrees of freedom were calculated with Satterthwaite approximation. As debates about effect sizes in mixed models are ongoing, no effect size can be reported (Rights & Sterba, 2019). If relevant for the hypotheses, significant main effects and interactions were further analyzed with post hoc *t* tests for independent groups for the group comparisons and with *t* tests for dependent groups for the time comparisons. Cohen’s *d* effect sizes are reported for the post hoc tests.

To estimate the net therapy effect at posttreatment and follow-up, additional analyses were performed using a mixed-models approach with factors group (levels: EG/WLC) and time (levels: PRE/POST/FU). The time course of the WLC was shifted by 1 to achieve modeling synchronicity between the EG and the WLC groups. Therefore, nonsignificant time  $\times$  group interactions indicate the same therapeutic effect in both groups across equal follow-up time courses. SPAI-C, SASC-Child, and SASC-



Parent net therapy and follow-up effects were modeled with one between-subjects factor group (levels: EG/WLC), one within-subject factor time (levels: PRE/POST/FU), and the interaction between group and time as fixed effects. Intercepts for every participant were modeled as random effects.

## Results

### Intervention Effects Based on Social Anxiety Symptoms: Differences Between Groups

#### Annotations

Treatment adherence was assessed by subjective trainer reports and objective observers in a pilot approach for a part of the sample by video. All components of treatment (see methods) were specifically assessed to check for agreement between subjective and objective reports. All raters could choose from “no implementation” to “partial manual-conform implementation” to “manual-conform implementation.” Findings showed satisfactory agreement between objective and subjective codings (von Auer, 2008). No further treatment adherence was assessed in this study. Attendance for treatment was satisfactory (checked for one treatment center), with 73% (EG) and 82% (WG) attending at least 10 out of 12 sessions. Treatment did not show significant effects on other primary (e.g., child depressive symptoms) and secondary outcomes (general psychopathology; see online supplements).

#### Child Report

The mixed-models analysis of social anxiety symptoms reported by the child (SPAI-C) based on the factors group (levels: EG/WLC) and time (levels: PRE/POST) did not show any significant effects, all  $ps > .05$ . A similar approach was used for the second social anxiety questionnaire (SASC-R-Child) and showed a significant main effect of time,  $F_{(1,59.71)} = 6.94, p < .010$ , but no main effect of group,  $F_{(1,67.99)} = 1.48, p = .228$ . Thus, social anxiety scores decreased on average from pre- to posttreatment. Furthermore, the interaction effect of time  $\times$  group did not reach significance,  $F_{(1,59.7)} = 0.48, p = .490$ . Since the course of social anxiety did not differ between groups, no post hoc tests were performed.

#### Parent Report

A similar approach based on mixed models was used for analysis of the parent reports of child social anxiety symptoms (SASC-R-Parent). This analysis revealed a main effect

of group,  $F_{(1,70.14)} = 6.70, p = .012$ , and of time,  $F_{(1,62.67)} = 15.36, p < .001$ . Further, the interaction effect of time  $\times$  group was significant,  $F_{(1,62.67)} = 12.85, p < .001$ . Post hoc paired  $t$  tests showed a significant decrease in social anxiety scores from pre- to posttreatment in the EG,  $t_{(33)} = 5.94, p < .001, d = 1.02$ , but not in the WLC group,  $t_{(26)} = 0.30, p = .766, d = 0.06$ . Independent  $t$  tests showed that social anxiety scores did not differ at pretreatment,  $t_{(59)} = 1.49, p = .14, d = 0.37$ , but were significantly lower at posttreatment in the EG than in the WLC group,  $t_{(63)} = 3.63, p < .001, d = 0.89$ .

### Overall Stability of Treatment Effects: Changes Over Time

As mentioned in the Data Analysis section, to analyze the total treatment effect, the time course of the WLC group was shifted by 1, to achieve modeling synchronicity between the EG and the WLC group. Therefore, nonsignificant time  $\times$  group interactions indicate the same therapeutic effect in both groups across equal follow-up time courses.

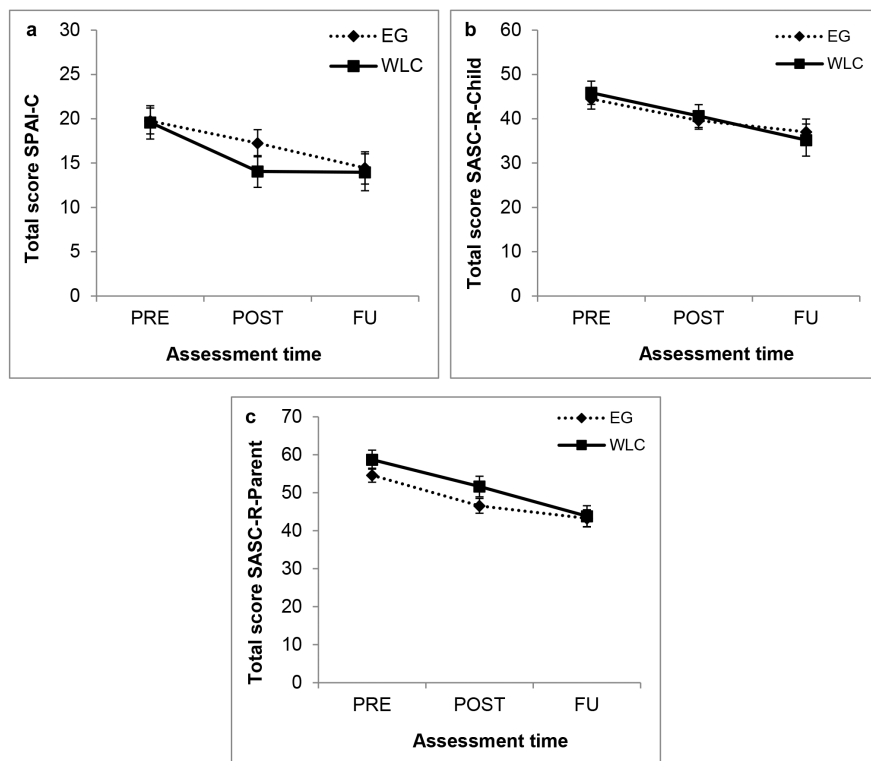
#### Child Report

The mixed-models analysis of social anxiety symptoms reported by the children (SPAI-C) based on factors group (levels: EG/WLC) and time (levels: PRE/POST/FU) revealed a significant main effect of time,  $F_{(2,100.1)} = 17.55, p < .001$ , but no significant main effect of group or time  $\times$  group interaction,  $F_s < 1.27, ps > .287, d = 0.81$ . Thus, as expected, the groups did not differ over time, but social anxiety symptoms steadily decreased. Post hoc paired  $t$ -tests (two-tailed) showed a significant decrease in symptoms from pre- to posttreatment,  $t_{(53)} = 3.82, p < .001, d = 0.50$ , and from posttreatment to follow-up,  $t_{(39)} = 2.49, p = .017, d = 0.39$  (see Figure 2a).

A similar approach for social anxiety symptoms as reported in the SASC-R-Child showed a significant main effect of time,  $F_{(2,100.1)} = 17.07, p < .001$ , but neither a main effect of group,  $F_{(1,67.0)} = 0.08, p = .779$ , nor an interaction effect of time  $\times$  group,  $F_{(2,100.1)} = 0.25, p = .782$ . Thus, again as expected, the groups did not differ over time, but social anxiety symptoms steadily decreased. Post hoc paired  $t$  tests (two-tailed) showed a significant decrease in symptoms from pre- to posttreatment,  $t_{(52)} = 3.95, p < .001, d = 0.52$ , and from posttreatment to follow-up,  $t_{(38)} = 2.31, p = .026, d = 0.37$  (see Figure 2b).

#### Parent Report

A similar approach based on mixed models was used for analysis of parent reports of child social anxiety symptoms (SASC-R-Parent). This analysis revealed a main effect of time,  $F_{(2,107.7)} = 51.09, p < .001$ , but neither a main effect of



**Figure 2.** Reported anxiety scores on the (a) Spence Anxiety Inventory for Children (SPAI-C), (b) the Social Anxiety Scale for Children – Revised (SASC-R) by children, and (c) the SASC-R by parents from pretreatment/waiting (PRE) to post-treatment/waiting (POST) to follow-up (FU) in the experimental group (EG) and the waitlist control (WLC) group.

**Table 2.** Means (*M*) and standard deviations (*SD*) across time

Questionnaire	Pre <sup>a</sup>			Post <sup>a</sup>			Follow-up <sup>b</sup>		
	EG	WLC	Statistics	EG	WLC	Statistics	EG	WLC	Statistics
SPAI-C	20.5 (8.67)	19.3 (9.02)	$p = .603$	17.7 (8.95)	20.3 (9.38)	$p = .280$	14.4 (8.07)	13.8 (8.38)	$p = .798$
SASC-R (child report)	45.1 (11.56)	48.1 (16.46)	$p = .593$	40.48 (11.8)	46.1 (12.40)	$p = .074$	37.1 (12.83)	35.0 (14.22)	$p = .615$
SASC-R (parent report)	54.4 (11.08)	58.4 (11.08)	$p = .142$	47.9 (12.35)	58.4 (13.54)	$p < .001$	44.5 (11.57)	35.0 (14.22)	$p = .625$

Notes. Pre = pretreatment; Post = posttreatment; EG = experimental group; WLC = waitlist control group; SASC-R = Social Anxiety Scale for Children–Revised (cut-offs: 50 for boys, 54 for girls; La Greca & Stone, 1993); SPAI-C = Spence Anxiety Inventory for Children (cut-off: 18 for boys and girls; Beidel, Turner, & Morris, 1995). <sup>a</sup>Comparison of original between effects, that is, before and after treatment for EG and waiting for WLC. <sup>b</sup>Comparison of net treatment effects, that is, of both groups after treatment and follow-up.

group,  $F_{(1,66.6)} = 0.39, p = .533$ , nor an interaction effect of time  $\times$  group,  $F_{(2,107.7)} = 1.73, p = .182$ . Thus, in parallel to the child reports, the groups did not differ over time, but social anxiety symptoms steadily decreased. Post hoc paired *t* tests (two-tailed) showed a significant decrease in symptoms from pre- to posttreatment,  $t_{(58)} = 7.05, p < .001, d = 0.92$ , and from posttreatment to follow-up,  $t_{(44)} = 4.64, p < .001, d = 0.69$  (see Figure 2c).

All means and standard deviations are presented in Table 2.

## Discussion

The aim of this study was to investigate whether children with SAD would benefit from a 9-week (12 sessions) CBT program in a group setting. Social anxiety symptoms from pre- to posttreatment decreased significantly when reported by parents. However, children’s reports of SAD symptoms on two questionnaires did not differ after receiving treatment versus a waiting period. This is similar to recent therapist-guided Internet CBT trials in which the mean clinical severity rating was still close to a clinical level at postassessment in the intervention and above a clinical cut-off score in the control condition

(Nordh et al., 2021). Combining both groups before and after treatment, a stable decrease in social anxiety symptoms was found on these questionnaire measures in the months following treatment.

Differences between parent and child reports on anxiety measures are common both for diagnostic interviews (e.g., Rothen et al., 2009) and for questionnaires (e.g., DiBartolo & Grills, 2006). These differences extend to treatment effects: Gallagher et al. (2004) indicated that after a 3-week group CBT, significantly lower anxiety scores in the treatment group were found only on parent reports. Previous studies of SAD in particular did not compare parent and child reports directly but instead used different measures for each. Spence et al. (2000) asked parents to report about their child's anxiety in clinical interviews, but questionnaires were used to assess the child's self-reported anxiety. Similarly, Beidel et al. (2000) used social anxiety questionnaires only among children, while parents reported on general psychopathology using the Child Behavior Checklist (Achenbach, 1991). Thus, even though it has often been pointed out that parent and child reports differ, in particular in the assessment of internalizing child psychopathology (cf., Rothen et al., 2009), direct comparisons of parent and child reports on similar measures after treatment are scarce. Therefore, child- and parent-reported anxiety symptoms are both important criteria for treatment success but their reliability can be questioned as several studies have found inconsistencies between parent- and child-reported anxiety (e.g., Hyland et al., 2022; Rothen et al., 2009). We have to acknowledge that questionnaires allow for only a limited assessment of the multiple facets of SAD.

Recent German research using an exposure-based manual has shown an increase in positive cognitions (Asbrand et al., 2019, 2020) as well as a remission in child-reported social anxiety but not in parent-reported social anxiety (Asbrand et al., 2020). A significant decrease in parent-reported but not child-reported social anxiety might be attributable to a reduction in avoidance strategies. Before treatment, high social anxiety scores in children may have been based more on behavioral, avoidant items ("I do not talk to others"). During treatment, as children confronted their social anxiety, a shift may have occurred from avoidance and the perception that they are not anxious ("I am not afraid of others, I simply never talk to them") to reduced avoidance and acceptance of being more anxious than others ("I tried talking to others and even though it is getting better, I am still quite afraid to talk to them"). As such, rather than eliminating anxiety (e.g., Craske et al., 2008), the treatment may have helped children develop a different coping style (Arch et al., 2008). After a 12-session treatment

program, it is positive progress to have moved from avoiding all social interactions to confronting social situations and being able to cope with social anxiety. The significant effect in parent reports could, thus, stem from their objective perspective of seeing how their child coped better despite still being anxious. The finding of a decrease in social anxiety symptoms in the WLC group has been reported before (Gallagher et al., 2004), where it was suggested that decreases in self-report measures could be attributable to socially desirable responding rather than actual symptom change.

Results of a comparison between groups are ambiguous when considering both parents and children. This rather daunting finding is similar to previous research that found a diagnosis of SAD leads to a significantly slower rate of change and poorer treatment outcome in general in comparison to other anxiety disorders such as general anxiety disorder (e.g., Ginsburg et al., 2011; Hudson et al., 2015). This slow remission was in fact independent of comorbid disorders, age (Hudson et al., 2015), and the format of treatment as a group (e.g., generic treatment; Hudson et al., 2015) or individual (Ginsburg et al., 2011) setting. However, in the analysis of within-subject effects (estimation of net treatment effects over time), results were promising in showing a steady decrease of social anxiety symptoms. Thus, if both formats of treatment (group and individual) provide similar results, group treatment has the possible advantage over individual therapy of providing evidence-based treatment at lower cost, as five to seven children can be treated simultaneously.

### Limitations

While the study was carefully planned, several limitations apply. The results were based on subjective questionnaire reports as opposed to the gold standard of diagnostic interviews. Additionally, the comparison against a different, active treatment such as an attention bias modification could provide further insight into the effectiveness of different treatments targeting different etiological mechanisms. Further, net treatment effects have to be treated with some caution as the WLC group waited 16 weeks; that is, effects in this group might stem from both time and treatment. Also, attendance for treatment was satisfactory (60% attended all or all but one sessions) but not perfect, which could be targeted in future treatment trials. Also, families verbally reported that the strain of assessments was too much and, thus, high drop-out rates occurred. Moreover, the last 10 children could not be randomized.



## Conclusion

Finally, our aim was not to demonstrate the superiority of group CBT over individual CBT but rather to provide empirical evidence for an efficient group treatment program. We did find treatment effects based on parent but not on child report for childhood SAD. The different symptom perceptions from children compared to parents and the potentially different course of symptom perception during an intervention in children may be worth exploring further (cf. Hyland et al., 2022).

A prospect for treatment research should be to conduct more RCTs to shed more light on the current findings, possibly varying setting (single vs. group therapy), including diagnosis severity as moderator and potentially specific parental inclusion (cf. Scaini et al., 2016). Additionally, the gold standard of a blind diagnostic interview before and after treatment should be applied both to parents and to children in order to include both perspectives in the quality assessment of treatment. From a practitioner's perspective, our results support that group treatment shows similar results to individual treatment and can, thus, be an important component in the outpatient setting.

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### Conflict of Interest

The authors declare no conflict of interest.

### Publication Ethics

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. An independent ethics committee (ethics committee of the German Society for Psychology [DGPs]) granted ethical approval for this study.

Informed consent was obtained from all individual participants (both parents and children) included in the study in written form.

### Authorship

Nina Heinrichs and Brunna Tuschen-Caffier designed the study. They further supervised the study's execution, data analysis, and preparation of the manuscript. Martina Krämer conducted all experimental procedures and treatment. Kai Nitschke conducted all the analyses. Julia Asbrand prepared the first version of the manuscript. All coauthors were involved in the interpretation of data, provided feedback, and approved the final version of the manuscript.

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