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Group cognitive behavioural treatment of youth anxiety in community based clinical practice: Clinical significance and benchmarking against efficacy

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ABSTRACT

The efficacy of a group cognitive behavioural therapy (CBT) programme (Cool Kids) of youth anxiety has been demonstrated at university clinics in Australia and Denmark and similar CBT programmes have been found effective within community settings in other countries. However, most effectiveness studies of CBT for youth anxiety have either used a mixture of CBT guidelines, or translated protocols not previous tested in an efficacy trial. This study used a benchmarking strategy to compare outcomes from the same CBT programme used at a university research clinic ($N = 87$) and community centres ($N = 82$). There was a significant reduction on both clinical and self-report measures of youth anxiety over time with medium to large effect sizes within both samples. Treatment effects on self-report measures of youth anxiety were significantly larger within the university sample, while changes in clinical measures of youth anxiety were similar in the two samples. Overall these findings suggest that an efficacious CBT group treatment programme developed within research contexts is transportable to community centres. Despite being effective within the community, the results indicate that the treatment may lose some of its efficacy when disseminated to the community.

1. Introduction

Anxiety disorders are among the most common and widespread psychiatric disorders experienced by children and adolescents (herein referred to as youths) (Costello, Egger, & Angold, 2005) and for a large proportion of youths untreated anxiety disorders may interfere with their development and functioning, and persist into adulthood (Audra, Langley, Bergman, McCracken, & Piacentini, 2004). Thus, it is important that evidence based treatment for youth anxiety disorders is disseminated to the community.

A Cochrane meta-analysis of 41 randomized controlled clinical trials (RCTs) conducted within university, community and school settings provide support for the efficacy of Cognitive Behavioural Therapy (CBT) for youth anxiety disorders (James, James, Cowdrey, Soler, & Choke, 2013). Based on intention to treat (ITT) criteria, the remission rate was 59% for CBT and 16.9% for waitlist control groups and the overall between group effect size (ES) for reductions in questionnaire measures (completed by a parent, guardian, independent rater or the youth) of anxiety symptoms was $d = 0.98$ (95% CI = 0.74 to 1.21). In-Albon and Schneider (2007) reviewed 24 RCTs of CBT for youth anxiety disorders, where all studies except one were conducted within a university setting. A mean of 68.9% (SD = 11.75) of treatment completers and 55.4% (SD = 13.43) of ITT samples were free of their primary diagnosis post-treatment. The mean overall pre-post treatment ES was $d = 0.86$ (95% CI = 0.69 to 1.03) based solely on youth (not parent) self-report measures of anxiety.

Efficacy trials prioritise internal validity and are typically administered under optimal conditions in randomized controlled clinical trials (RCTs) with relatively homogenous samples, highly specialised and supervised therapists and conducted at university clinics. Effectiveness trials assessing how well CBT for youth anxiety works within a community setting have been quite rare. These trials are typically conducted within routine clinical settings with more heterogeneous clients and less trained and supervised therapists. To the best of our knowledge, eight effectiveness trials have been conducted examining CBT for youths with a heterogeneous set of anxiety disorders treated within a community setting.

Abbreviations: CS, Community sample; US, University sample; SCC, School counselling centre; CAPC, Children and adolescent psychiatric centre.

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These include one pilot study (Nauta, Scholing, Emmelkamp, & Minderaa, 2001), one naturalistic study (de Souza et al., 2013) and six RCTs comparing group and/or individual CBT programmes to waitlist (Lau, Chan, Li, & Au, 2010; Wergeland et al., 2014); usual care (Barrington, Prior, Richardson, & Allen, 2005; Southam-Gerow et al., 2010), family CBT (Bodden et al., 2008) and CBT plus parent training (Maaike, Nauta, Scholing, Emmelkamp, & Minderaa, 2003). It is somewhat difficult to compare these studies, due to differences in ways of reporting and assessing treatment outcomes. Based on ITT samples Bodden et al. (2008) and Southam-Gerow et al. (2010) reported 50% and 56% post-treatment recovery rates for the primary diagnosis while Wergeland et al. (2014) reported a lower recovery rate of 34.5%. Wergeland et al. (2014) reported a full recovery rate (all diagnoses) of 22.9%, compared to full recovery rates ranging from 41–65% reported in four effectiveness trials (Barrington et al., 2005; Bodden et al., 2008; Lau et al., 2010; Maaike et al., 2003). The lower recovery rates in Wergeland et al. (2014) may be explained by that 46% of their sample had a principal diagnosis of SOP compared to 17–39% in some of the other effectiveness trials (Bodden et al., 2008; Maaike et al., 2003; Southam-Gerow et al., 2010). There is some evidence that youths with SOP may have poorer treatment response from general CBT programmes (Crawley, Beidas, Benjamin, Martin, & Kendall, 2008; Hudson et al., 2014). Apart from Wergeland et al. (2014) the recovery rates reported in these effectiveness trials are comparable to recovery rates (55.4%) of efficacy trials conducted within university setting as reviewed in In-Albon and Schneider (2007). Pre-post effect sizes for self-report measures of youth anxiety in the six effectiveness trials ranged from $d = 0.34$ to $d = 1.06$ for parent reports and from $d = 0.23$ to $d = 1.03$ for youth reports (Barrington et al., 2005; Bodden et al., 2008; de Souza et al., 2013; Lau et al., 2010; Maaike et al., 2003; Southam-Gerow et al., 2010; Wergeland et al., 2014).

The evidence of transportability of CBT for youth anxiety to the community is thus promising, but limitations of the existing effectiveness literature remain. Firstly, some effectiveness studies have applied CBT protocols that are poorly defined, i.e. either based on a "set of CBT guidelines" or described as "comparable" to efficacious CBT programmes that had not previously been tested in efficacy trials (Barrington et al., 2005; Bodden et al., 2008). Secondly, some effectiveness studies have benchmarked translated CBT protocols to efficacy trials testing the protocol in its original language and culture rather than to efficacy trials testing the actual translated protocol (de Souza et al., 2013; Lau et al., 2010; Maaike et al., 2003; Wergeland et al., 2014). Thirdly, the measures and methods used to evaluate treatment outcome vary considerably, which may affect the validity of cross study comparisons. Thus solid knowledge about the extent to which CBT protocols for youths with a heterogeneous set of anxiety disorders can be transferred from efficacy trials to general use in community settings is sparse. A benchmarking study of CBT for childhood obsessive compulsive disorder (OCD) in community based clinical practice, found both significant and statistical changes on diagnostic and symptom severity, and concluded that these results approached but were not equal to results from efficacy trials (Farrell, Schlup, & Boschen, 2010).

The Cool Kids programme is a 10 session group CBT programme developed by a research group at the Centre for Emotional Health at Macquarie University in Australia (Rapee, Abbott & Lyneham, 2006). The programme has been demonstrated efficacious by its developers in Australia, in a waitlist control trial, where 267 youths with a principal anxiety disorder were randomly allocated to group treatment, waitlist or bibliotherapy (Rapee et al., 2006). For the completer sample 61% in the group treatment were free of an anxiety disorder at post-treatment, compared to 25.9% in the bibliotherapy and 6.7% in the waitlist condition (similar pattern was apparent for the intention to treat sample, 48.9% vs. 17.8% vs. 5.7%, respectively). A second study by the same research group also supported the efficacy of the programme. In this study 112 youths (aged 7–16 years) with a principal anxiety disorder were randomly allocated to either a group treatment or an active control condition (group support and attention) (Hudson et al., 2009). Within the CBT condition 45.1% of treatment completers at post-treatment were free of their primary diagnosis compared to 29.6% in the control conditions (difference not significant), and at 6 months follow up this difference had become significant, with 68.7% within the CBT condition and 45.5% within the control condition (analyses on ITT sample produced equivalent results). The full recovery rate was significantly higher among the CBT condition at post-treatment (33.3% vs. 15.9%) and follow up (49.0% vs. 29.6%). Mothers' within the Cool Kids condition reported significantly greater treatment gains than mothers' of children in the control condition (between group ES $d = 0.44$) on the main self-report outcome measure for anxiety (i.e. Spence Children anxiety Scale: SCAS (Spence, 1997)) while youths reported similar improvements across conditions ($d = 0.03$).

The Cool Kids programme has been translated to Danish and its efficacy tested in a randomized waitlist control trial at a university based research clinic in Aarhus, Denmark (Arendt, Thastum, & Hougaard, 2015) where 109 youths were randomized to treatment or three months waitlist condition. At post-treatment 66.1% of treatment completers (and intention to treat sample) in the intervention condition were free of their primary diagnosis and 48.2% were free of all anxiety diagnoses compared to 7.5% and 5.7% in the waitlist condition. Pre-post ES on the main self-report outcome measure for anxiety (SCAS) in the treatment condition were $d = 1.05$ and $d = 1.14/0.98$, for youths and mother/father reports, respectively.

The aim of the current study was to evaluate the outcomes of cognitive behavioural group therapy programme (Cool Kids) for youths with heterogeneous set of anxiety disorders in community-based centres (i.e. school counselling centres (SCC) and child and adolescent psychiatric centres (CAPC)) and benchmark these against outcomes achieved in a university clinic using the same treatment programme. Based on previous effectiveness studies of heterogeneous youth anxiety disorders it was hypothesised that CBT delivered in community setting would produce statistical and clinical significant change, and approach results from a university clinic.

2. Methods

2.1. Participants

Participants in the community sample (CS) were assessed for eligibility from October 2011 to October 2012, and comprised 88 youths aged 7–16 years from seven community centers across Jutland in Denmark, of which three were child and adolescent psychiatric centers (CAPC) ($n = 32$) and four were school counseling centers (SCC) ($n = 56$). One participant from the SCC was excluded due to a primary diagnosis of depression. Thus 87 youths were included in the study and treated in 15 separate groups, with 4–7 participants (mean = 5.8) in each group. Two participants did not start treatment (one due to severe social anxiety, the other because the mother thought it was too hard for the youth to attend group therapy), and four participants dropped out during treatment (i.e. attended <6 sessions).

Participants within the benchmarking university sample (US) comprised 82 youths aged 7–16 years who had participated in the Cool Kids intervention condition in one of two separate randomized controlled efficacy trials at the university clinic (i.e. comparing the Cool Kids programme to (i) a waitlist condition ($N = 56$) (Arendt et al., 2015) or (ii) a bibliotherapy condition ($N = 26$) (Vadgaard et al., 2013). Three participants from the US dropped out during treatment (i.e. attended <6 sessions). A total of 14 groups were

treated within the US, with 4–7 participants (mean = 5.9) in each group.

Inclusion criteria in all samples were that participants met diagnostic criteria for an anxiety disorder according to DSM-IV as the primary diagnosis. Exclusion criteria included psychosis, and severe depression as primary or comorbid disorders. Based on clinical judgment children were excluded if they were unable to engage in a group setting due to untreated ADHD, other disruptive behaviour disorders, pervasive or specific developmental disorders or general learning disorder.

2.2. Procedure

The university sample consisted of self-referred youths that were recruited from a training and research clinic at the Department of Psychology and Behavioural Sciences, Aarhus University. At the community centers, the youths from CAPC were referred for treatment from primary health services, while youths at the SCC referred themselves, in response to, newspaper advertisements or recommendations from local community health services. The SCC also sent information letters to parents and teachers at local schools. Within a month before treatment start (M = 10.5 days, SD = 6.0) prospective participants were assessed with the Anxiety Disorders Interview Schedule—Child and Parent versions (ADIS-IV—C/P) (Silverman & Albano, 1996). The pre-treatment assessment interviews took place at the community centers, but were performed by eight independent interviewers from the university clinic. The interviewers from the university clinic were graduate level psychology students who had finished a one year teaching course at the university, where they were trained and supervised in the use of ADIS—C/P, by the same criteria as used in the RCT efficacy trials (see Arendt et al., 2015). Apart from the training, all interviewers had conducted a minimum of 10 interviews at the university clinic prior to the current study. Following the ADIS-C/P interviews, the interviewers were supervised by a clinical psychologist at the university clinic. If the youth fulfilled the inclusion criteria, the parents and youth were mailed electronic self-report measures to complete max two weeks before treatment start. This assessment procedure was repeated at post-treatment and at three month follow up, using the same student interviewer for each family at pre, post and follow up assessments. Therefore pre-treatment diagnostic status were likely to be known at post-treatment and follow up, breaking assessor blinding. Due to practical reasons, an exception was made with eight participants, where the pre-treatment assessments were performed by the treating clinicians from the community centers who had received a two days course and supervision in the use of ADIS-IV C/P and were experienced with diagnostical interviewing. For these eight participants the post and follow up assessments were conducted by the independent student interviewers. Participants in the RCT's at the university clinic were assessed by the same procedure, except that a different interviewer was used at post treatment and follow up assessments to ensure blindness to the youths allocated condition and pre-diagnosis.

2.3. Community setting and therapist training

The CAPC are outpatient child and adolescent mental health clinics offering assessment, and pharmacological and psychological treatment to youths with severe mental disorders. The SCC are run by the municipalities and offer assessment, support, and supervision to youths aged 0–17 and their parents, and teachers at schools, and daycare centers. Prior to this study, none of the centers offered manualized psychological treatment to youths with anxiety disorders.

A total of 16 therapists employed at the centers participated in this study, 14 psychologists, one occupational therapist and one child and adolescent psychiatrist, specialized in psychotherapy. Four psychologists were specialized in clinical psychology. 10 (62.5%) therapists had no prior CBT training, four (25%) had one year of training and two (12.5%) had two years of training in CBT. Seven therapists (44%) had no prior experience of treatment of youth anxiety, the remaining (56%) had between 3 and 15 years of experience with assessment and/or treatment of youth anxiety. 12 (75%) therapists had no prior experience with the group therapy format.

All therapists attended a two day training course in the Cool Kids manual at the university clinic and received three two-h sessions of group supervision (in groups of four therapists) during each 10-session treatment group. Supervision was led by therapists from the university clinic, with at least two years' experience in using the Cool Kids manual.

2.4. University setting and therapist training

The university clinic is a research and training clinic at the Department of Psychology at Aarhus University that offers CBT free of charge for youths with anxiety disorders. Each group was led by one of two psychologist trained and supervised in the Cool Kids programme by the second author of this paper who is an authorized specialist in psychotherapy who had received training in the programme at Macquarie University. One therapist had no prior CBT or other clinical experience, and the other had two years of training in CBT and seven years of experience with assessment and treatment of youth and adult anxiety.

2.5. Treatment

The Cool Kids programme was designed for youths aged 7–18 years and involves direct therapist contact with both the youths and their parent(s) (Rapee et al., 2006). The programme teaches parents and youth cognitive behavioural therapy skills to manage anxiety through 10 sessions, typically spread over approximately 12 weeks. Content of the programme includes a strong focus on psycho-education, cognitive restructuring, graded exposure, and parent management training. For more detailed description of the manual, see Rapee et al. (2006).

At both the university clinic and the community centres the treatment consisted of 10 two-hour group sessions where youths and their parents attended. At the university clinic, there was one therapist per group, together with three graduate psychology students who were assigned to each group to assist the children during the in-session assignments, as part of an educational programme at the clinic. At the community centres two therapists were assigned to each group.

2.6. Measures

Structured diagnostic interview: Anxiety Disorders Interview Schedule–Child and Parent version (ADIS-C/P)(Silverman & Albano, 1996). This interview was developed specifically to diagnose anxiety disorders in youths (Silverman & Eisen, 1992), and has good inter-rater and retest reliability and concurrent validity in clinical samples (Lyneham, Abbott, & Rapee, 2007; Silverman, Saavedra, & Pina, 2001; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). The ADIS-C/P has been shown to be sensitive to treatment change (Barrett, Dadds, & Rapee, 1996). An interrater reliability check was conducted by letting one trained graduate level psychology student watch and rate 18 (20.7%) of video-recorded baseline interviews. The Kappa interrater reliability was .66. for the primary anxiety diagnosis and the interclass correlation coefficient for the CSR of the primary anxiety diagnosis was .41 (two-ways mixed for individual raters, consistency).

2.6.1. The spence children's anxiety scale (SCAS)

Spence (1997) is a self-report rating scale for assessing youth anxiety symptoms (Spence, 1997). It consists of 44 items (including 6 positive filler items) rated from 0 (never) to 3 (always), and was developed to assess anxiety symptoms specifically related to social phobia, panic disorder and agoraphobia, generalized anxiety disorder, obsessive-compulsive disorder, separation anxiety disorder, and specific phobias. Each subscale is scored separately and summarized for a total score reflecting overall anxiety symptoms. The Danish translation of SCAS has demonstrated good internal consistency for the total scale ($\alpha = .89$) in a sample of youths with anxiety disorders, and good test–retest reliability after two weeks ($r = .84$) and three months ($r = .83$) in a community sample Psychometric properties of the child and parent versions of Spence Children's Anxiety Scale in a Danish community and clinical sample. Internal consistency for the total scale in the current sample was good ($\alpha = .84$).

2.6.2. The spence children's anxiety scale—parent version

(SCAS—P) contains the same items as the child version, with exception of the six positive filler items, and is scored the same way (Nauta et al., 2004). The Danish translation of SCAS—P has demonstrated good internal consistency for the total scale ($\alpha = .87$) in an anxiety disorder sample, and good test–retest reliability after two weeks ($r = .88$) and three months ($r = .81$) in a community sample (Arendt, Hougaard, & Thastum, 2014). Internal consistency for the total scale in the current sample was good for mother report of youth (SCAS—mother; $\alpha = .88$) and father report of youth (SCAS—father; $\alpha = .88$).

2.6.3. Beck youth inventories of emotional and social impairment (BYI)

Beck, Beck, and Jolly (2001) consists of five self-report scales measuring self-concept, anxiety, depression, anger and disruptive behaviour. The scale for depression (BDI), which was used in this study, has demonstrated excellent test–retest reliability, internal consistency, and discriminated moderately between a Danish clinical and norming sample (Thastum, Ravn, Sommer, & Trillingsgaard, 2009).

2.6.4. Children's anxiety life interference scale (CALIS)

Lyneham et al. (2013) is designed to measure life interference and impairment experienced by the youth from the youth (9 items) and parent (16 items) point of view and also the interference experienced by the parent in their own life. The scale has demonstrated good internal consistency, moderate to high test–retest reliability, significant interrater reliability, good convergent and divergent validity in clinical and community samples, and is sensitive to treatment change (Lyneham et al., 2013)

2.6.5. Depression and anxiety stress scale (DASS)

Lovibond & Lovibond (1995) is a self-report scale used with parents/legal guardians consisting of three 14 item subscales measuring current (past week) symptoms of depression, anxiety and tension/stress among adults. The scale has demonstrated excellent reliability and adequate convergent and discriminative validity in a large non-clinical sample (Crawford & Henry, 2003).

2.7. Statistical analyses

Participant baseline demographics, clinical characteristics, and scores on outcome measures were compared between samples and settings using independent samples *t*-tests and Fisher's exact test.

Since the study was based on results from participants treated in groups, intra-group dependency was investigated to check the assumption of independence of observations. Intra-class correlation coefficients (ICCs) were calculated for primary outcome measures of anxiety (SCAS and ADIS) at post-treatment and three month follow up using the formula: $ICC = (MS_{betweengroup} - MS_{withingroup})/(MS_{betweengroup} + [n - 1]\ MS_{withingroup})$. Due to uneven numbers in each of the groups, n for this calculation was based on the harmonic mean of the number of individuals in each of the 29 groups, calculated by the formula: a (i.e., number of groups)/($[1/n_1] + [1/n_2] + [1/n_3] + [1/n_i]$).

Repeated-measure, mixed-model analyses of variance (ANOVA) were conducted on Setting (CAPC vs. SCC) and Samples (CS vs. US) as the between-subjects variable and Time (pre vs. post-treatment/and pre vs. three month follow up) as the within-subjects variable. Secondary analyses examined the effects of pre-treatment scores as covariates on treatment outcome with ANCOVA which revealed same overall findings and are thus not reported.

The magnitude of change within groups (i.e. pre-post effect sizes [ES]) was estimated according to the following formula where the ES equals the mean difference between pre-treatment and post-treatment scores divided by the standard deviation of the mean difference, adjusted by the correlation between the pre- and post-scores (Borenstein, Hedges, Higgins, & Rothstein, 2009). The magnitude of difference between groups was estimated by calculating the standardized mean difference between the pre-post change scores of the two samples, divided by a pooled estimate of the post-test standard deviations (Borenstein et al., 2009). This between group ES takes into the account the pre-treatment scores of the groups.

The analyses included all participants with pre-treatment data, regardless of whether they discontinued treatment (CS = 6.9%; US = 3.7%) or failed to return their post treatment questionnaires (CS: SCAS mother = 5.9%, SCAS father = 9.8%, SCAS youth = 15.3%; US: SCAS mother = 6.1%, SCAS father = 6.3%, SCAS youth = 7.3%). Missing data at post or follow up were accounted for by bringing forward the participant's last observation (i.e. pre or post treatment score). All analyses conducted on the completer sample produced comparable results, thus only ITT results are reported.

The proportion of youths meeting criteria for reliable change (RC) were calculated according to Jacobson and Truax (1991) criteria, for the whole sample on the primary self-report measures of youth anxiety (i.e. SCAS) using two week test–retest reliability coefficients (SCAS parent = 0.88 SCAS youth = 0.84) and the standard deviations reported by Arendt et al. (2014). RC was indicated by a change of 8.81, 8.73 and 11.08 for SCAS mother, SCAS father, and SCAS youth reports respectively. Clinical cut-off scores were defined as the mid-point between clinical and non-clinical means reported in Arendt et al. (2014) calculated according to Jacobson and Truax (1991) criteria. These scores corresponded to 23.94, 21.74, and 29.05 for SCAS mother, SCAS father and SCAS youth, respectively. As recommended by Jacobson and Truax (1991) clinical significant change (CSC) was defined as the proportion of those scoring above the clinical cutoff before treatment who (a) achieved reliable improvement during treatment based on the RC index, and, (b) scored below the clinical cut-off after treatment. The proportion of participants that lost their primary and/or all anxiety diagnosis was compared across settings and samples using Fisher's exact test.

3. Results

3.1. Demographic comparison

The two settings from the CS were first compared on demographic variables at pre-treatment (see Table 1, upper half). No significant differences were found between the two settings. Then the combined CS (SCC and CAPC) were compared to the US. There

Table 1
Demographic and clinical variables across SCC and CAPC settings, and community, and university samples at baseline.

	SCC (*N* = 55) (mean or %)	CAPC (*N* = 32) (mean or %)	*p*	CS (*N* = 87) (mean or %)	US (*N* = 82) (mean or %)	*p*
Gender. % female	58.2	43.8	.266	52.9	51.2	.878
Age	11.22 (1.34)	11.11 (1.99)	.785	11.18 (1.60)	11.45 (2.25)	.370
Marital status % married	67.9	59.4	.486	64.7	72.0	.325
Parents living together	79.2	87.5	.392	82.4	87.8	.388
Family annual income—Danish kroner	578.911 (253.083)	623.881. (288.598)	.452	595.644 (266.067)	677.721 (258.885)	.047
No. of siblings	2.38 (0.69)	2.34 (0.85)	.843	2.36 (0.75)	2.38 (0.78)	.911
Principal diagnoses						
Generalized anxiety	34.5	15.6		27.6	24.4	
Social phobia	14.5	3.1		10.3	12.2	
Separation anxiety	21.8	40.6		28.7	28.0	
Panic disorder	3.6	9.4		2.3	1.2	
Agoraphobia with panic	7.3	15.6		8.0	6.1	
Agoraphobia without	1.8	15.6		1.1	4.9	
OCD	9.1	–		11.5	20.7	
Specific phobia	5.5			9.2	2.4	
PTSD	1.8			1.1		
Comorbid diagnoses						
Anxiety	69.1	90.6		77.0	85.4	
Externalizing	10.9	18.8		13.8	9.8	
Mood disorders	1.8	9.4		4.6	6.1	
Other[a]	1.8	3.1		2.3	3.7	
No comorbidity	36.4	3.1		24.1	24.4	
No. of anxiety disorders	2.02 (1.08)	2.19 (0.82)	.445	2.08 (0.99)	2.29 (1.09)	.188
No. of comorbid diagnoses (other than anxiety)	0.09 (0.29)	0.31 (0.47)	.020	0.17 (0.38)	0.15 (0.36)	.646
ADIS CSR for comorbid diagnoses (other than anxiety)	0.56 (1.57)	1.78 (2.74)	.026	1.01 (2.15)	0.79 (1.87)	.482
No. in pharmacotherapy	7 (12.5)	11(33.3)	.028	18 (20.2)	12 (14.5)	.422
-SSRI	3 (5.4)	5 (15.2)		8 (9.0)	7 (8.4)	
-Antipsychotic	0 (0.0)	2 (6.1)		2 (2.5)	0 (0.0)	
-Stimulant	0 (0.0)	2 (6.1)		2 (2.5)	1 (1.2)	
-Other [b]	4 (7.1)	2 (6.1)		6 (6.7)	4 (4.8)	

Note. CS: Community sample, US: University sample, SCC: School counselling centre, CAPC: Children and adolescent psychiatric centre; OCD: Obsessive Compulsive Disorder, PTSD: Post traumatic stress disorder, ADIS: Anxiety disorder interview schedule, CSR: Clinical severity rating, SSRI: Selective serotonin reuptake inhibitors

[a] Other includes enuresis (*n* = 3), selective mutism (*n* = 1), sleep terror disorder (*n* = 1)

[b] Other includes asthma-medicine (*n* = 7), enuresis medicine (*n* = 1), nature medicine (*n* = 2)

were no significant differences between the samples except for the mean annual income which was larger for families within the US.

3.2. Clinical comparison at baseline

In the CS mothers from the CAPC scored significantly higher than mothers from the SCC on ratings of youth anxiety (SCAS—mother: $M_{CAPC} = 39.03$, SD = 15.36 vs. $M_{SCC} = 31.41$, SD = 10.46, t (83) = 2.46, $p = .017$, $d = 0.61$), their experience of interference in their own life (CALIS own: $M_{CAPC} = 18.52$, SD = 6.81 vs. $M_{SCC} = 13.29$, SD = 7.84, t (83) = 3.13, $p = .002$, $d = 0.70$), and their youth's life (CALIS youth: $M_{CAPC} = 20.44$, SD = 7.14 vs. $M_{SCC} = 15.81$, SD = 7.17, t (83) = 2.89, $p = .005$, $d = 0.65$). The mean clinical severity rating (CSR) for the primary anxiety diagnosis was significantly higher at the CAPC than at the SCC ($M_{CAPC} = 6.75$, SD = 0.92 vs. $M_{SCC} = 6.20$, SD = 0.76, t (85) = 3.03, $p = .003$, $d = 0.67$) but no significant differences were found for all anxiety diagnoses combined. The rate of separation anxiety in the CAPC sample was markedly higher which in turn may be a partial explanation for some of the above differences such as the high rate of interference in the mothers own life. At the CAPC there was a larger proportion of comorbid anxiety, externalizing and mood disorders (see Table 1), which was reflected by a higher number of comorbid diagnoses and CSR for comorbid diagnoses than at the SCC. A larger proportion of youths at the CAPC was using medication. No other significant differences were found between the CAPC and SCC settings.

The combined CS was then compared to the US on clinical variables at pre-treatment (see means and *SD*s in Table 2). The US scored significantly higher on mothers' rating of youth anxiety (SCAS mother: t (165) = 2.02, $p = .045$, $d = 0.31$) and youths' self-reports of anxiety (SCAS: t (165) = 2.94, $p = .004$, $d = 0.46$). The CS had a significantly higher mean CSR clinical rating for the primary anxiety diagnosis (t (167) = 2.73, $p = .007$, $d = 0.42$) No other significant differences were found between the CS and US at pre-treatment.

3.3. Intra-group dependency

Calculations of ICC indicated that all ICC's were small (<0.15) and insignificant for all measures at all outcome assessment points. Thus, the data showed no evidence of intra-group dependency indicating that the assumption of independence of observations was not violated.

3.4. Effects of treatment within the community sample

Subgroup analyses were conducted to check for differences in change scores between the CAPC and SCC settings on all outcome measures since there were significant pre-treatment differences between the settings on mothers' ratings of youth anxiety and interference of their own and their youths' life. There were no Time × Setting interaction effects for changes on any outcome measure, indicating similar efficacy for participants within the CS regardless of setting.

There was no between group main effect for setting on any measures except for mothers' ratings of youth anxiety (SCAS mother: F (1.83) = 8.82, $p = .004$, $\eta_p^2 = .10$), and interference of their

Table 2
Means and standard deviations for all questionnaire measures and ADIS at pre-, post, and three month follow up across samples from the community centres and the university clinic.

	Community sample (combined)					University sample					
	N	Pre	Post	Three month	Pre-post/FU ES	*N*	Pre	Post	Three month	Pre-post/FU ES	Between group ES post/FU
Diagnosis severity (CSR principal)	*87*	*6.40 (0.86)*	*3.31 (2.59)*	*2.23 (2.59)*	*1.44/2.02*	*82*	*6.00 (1.05)*	*2.33 (2.55)*	*1.67 (2.36)*	*1.77/2.17*	*0.23/0.06*
CSR anxiety disorders	*87*	*11.92 (4.70)*	*6.63 (5.27)*	*4.18 (4.82)*	*1.06/1.63*	*82*	*11.49 (4.87)*	*5.39 (5.13)*	*3.84 (3.99)*	*1.22/1.71*	*0.16/0.02*
SCAS											
Youth	*85*	*31.56*	*24.88*	*19.93*	*0.48/0.84*	*82*	*38.32*	*21.13*	*15.70*	*1.13/1.57*	*0.74/0.84*
Mother	*85*	*(13.58)*	*(14.27)*	*(14.06)*	*0.80/1.06*	*82*	*(16.01)*	*(14.21)*	*(12.15)*	*1.19/1.39*	*0.71/0.64*
Father	*82*	*34.32 (12.98)*	*23.89 (13.22)*	*20.22 (13.61)*	*0.58/0.74*	*79*	*38.90 (16.28)*	*21.44 (12.06)*	*18.39 (12.66)*	*0.97/1.38*	*0.36/0.52*
		32.48 (14.63)	*24.13 (14.30)*	*21.60 (14.71)*			*35.80 (14.06)*	*22.54 (13.17)*	*18.09 (11.23)*		
BYI—Youth											
BDI (dep)	*84*	*12.81 (10.25)*	*9.27 (9.30)*	*7.02 (7.75)*	*0.36/0.63*	*80*	*13.33 (9.11)*	*7.16 (7.71)*	*5.09 (6.74)*	*0.73/1.00*	*0.31/0.34*
CALIS											
Youth report	*85*	*10.12 (6.01)*	*8.44 (7.03*	*8.08 (7.96)*	*0.25/0.29*	*82*	*11.45 (6.71)*	*6.88 (6.06)*	*4.76 (5.36)*	*0.71/1.09*	*0.44/0.68*
Mother report	*85*				*0.65/1.01*	*82*					
- Youth		*17.55 (7.46)*	*12.24 (8.66)*	*9.68 (8.06)*	*0.59/0.85*		*17.67 (6.99)*	*10.32 (6.87)*	*7.98 (7.19)*	*1.06/1.37*	*0.26/0.24*
- Own	*82*	*15.26 (7.85)*	*10.70 (7.52)*	*8.67 (7.70)*		*79*	*13.75 (8.46)*	*8.31 (7.61)*	*6.57 (8.14)*	*0.66/0.87*	*0.12/0.08*
Father report					*0.42/0.65*						
- Youth		*16.00 (7.82)*	*12.51 (8.64)*	*10.77 (8.37)*	*0.26/0.46*		*16.04 (7.22)*	*10.87 (7.59)*	*9.11*	*0.70/0.95*	*0.21/0.22*
- Own		*11.16 (7.44)*	*9.10 (8.07)*	*7.59 (8.04)*			*10.30 (7.46)*	*7.10 (6.41)*	*(7.43)5. 50 (5.91)*	*0.44/0.69*	*0.16/0.17*
DASS-Mother	*85*					*82*					
-Depression		*3.91 (5.34)*	*2.82 (4.92)*	*2.93 (6.10)*	*0.21/0.17*		*2.82 (4.45)*	*1.57 (3.48)*	*2.02 (4.03)*	*0.31/0.19*	*0.04/0.04*
-Anxiety	*81*	*1.86 (2.66)*	*1.60 (3.14)*	*1.39 (2.99)*	*0.09/0.17*	*79*	*1.26 (1.85)*	*0.70 (1.55)*	*0.67 (1.33)*	*0.33/0.36*	*0.12/0.05*
-Stress		*7.62 (7.41)*	*5.91 (6.76)*	*5.18 (6.42)*	*0.24/0.35*		*6.35 (6.71)*	*4.32 (6.51)*	*3.78 (5.68)*	*0.31/0.41*	*0.05/0.02*
DASS-Father											
-Depression		*3.99 (6.05)*	*3.05 (4.16)*	*2.62 (4.14)*	*0.18/0.26*		*3.44 (5.62)*	*2.84 (6.41)*	*3.03 (7.02)*	*0.10/0.06*	*0.06/0.17*
-Anxiety		*1.28 (2.05)*	*1.42 (2.66)*	*0.98 (1.99)*	*0.06/0.15*		*1.00 (1.83)*	*0.95 (1.85)*	*1.18 (2.26)*	*0.19/0.09*	*0.08/0.23*
-Stress		*6.54 (6.58)*	*5.62 (5.79)*	*4.85 (5.76)*	*0.15/0.27*		*5.41 (4.86)*	*4.53 (5.00)*	*4.57 (6.39)*	*0.18/0.15*	*0.01/0.14*

Note. FU: Follow up, ES: Effect size, CSR: Clinical severity rating, SCAS: Spence children anxiety scale, BYI: Beck Youth Inventory, BDI: Beck Depression Inventory, CALIS: Children's Anxiety Life Interference Scale: DASS: Depression and Anxiety Stress Scale.

own life (CALIS own: F (1.83) = 10.77, p = .002, η_p^2 = .12), and the youths life (CALIS youth: F (1.83) = 6.19, p = .015, η_p^2 = .07) showing that the CAPC scored on average higher on these measures.

3.5. Effects of treatment between community and university samples: intention to treat analyses

Since there were no differences in change scores between the CAPC and SCC settings on any measure, these were pooled into a combined CS in the following analyses and compared to the US.

3.6. Main outcome measures

The pre-post treatment comparisons revealed a Time × Sample interaction effect for parent and youth ratings of youth anxiety (SCAS mother: F (1,165) = 13.00, p < .001, η_p^2 = .07; SCAS father: F (1,159) = 6.74, p = .01, η_p^2 = .04; SCAS-youth: F (1,165) = 23.94, p < .001, η_p^2 = .13) showing a significantly larger reduction within the US with small to medium effect sizes. There was a main effect of time for parent and youth ratings (SCAS mother: F (1,165) = 204.04, p < .001, η_p^2 = .55; SCAS father: F (1,159) = 130.29, p < .001, η_p^2 = .45; SCAS-youth: F (1,165) = 125.28, p < .001, η_p^2 = .43), with large pre-post effect sizes (see Table 2).

There was no interaction effect for the CSR of the primary diagnosis (ADIS primary: F (1,167) = 2.42, p = .12, η_p^2 = .01) or CSR of all anxiety diagnoses (ADIS all: F (1,167) = 1.01, p = .32, η_p^2 = .01) indicating similar efficacy regardless of location. There was a main effect of time for the CSR of the primary diagnosis (ADIS primary: F (1,167) = 330.55, p < .001, η_p^2 = .66) and the CSR for all anxiety diagnoses (ADIS all: F (1,167) = 200.25, p < .001, η_p^2 = .55) showing a significant reduction in scores from pre-post treatment with large effect sizes. The pre-post between group ESs for parent and youth self-report measures of youth anxiety symptoms were medium to large and significantly in favour of the US (SCAS-mother: d = 0.71 (CI 95% 0.4 to 1.03); SCAS-father: d = 0.36 (CI 95% 0.05 to 0.67) SCAS: d = 0.74 (CI 95% 0.42 to 1.05)) while the between group ESs for clinical ratings were small and not significant (ADIS primary: d = 0.23 (CI 95% -0.08 to 0.53), ADIS all: d = 0.16 (CI 95% -0.15 to 0.46). Pre-post ESs and between group ESs are presented in Table 2 and changes on main outcome measures are seen in Fig. 1.

For the pre-three month follow up, the Time x Sample interaction effects remained significant for the SCAS (SCAS mother: F (1,165) = 8.76, p = .003, η_p^2 = .05; SCAS father: F (1,159) = 10.94, p = .001, η_p^2 = .06 and SCAS: F (1,165) = 23.93, p < .001, η_p^2 = .13) showing significantly larger change scores within the US with small to medium effect sizes. No significant interactions were found for the CSR of the primary diagnosis (ADIS primary: F (1,167) = 0.17, p = .68, η_p^2 = .00) or all anxiety diagnoses (ADIS all: F (1,167) = 0.01, p < .91, η_p^2 = .00).

The main effect of time was significant for SCAS (SCAS mother: F (1,165) = 258.02, p < .001, η_p^2 = .61; SCAS father: F (1,159) = 191.68, p < .001, η_p^2 = .55; SCAS youth: F (1.165) = 232.66, p < .001, η_p^2 = .59) and CSR of the primary diagnosis (ADIS primary: F (1.167) = 496.37, p < .001, η_p^2 = .75) and all anxiety diagnoses (ADIS all: F (1,167) = 345.36, p < .001, η_p^2 = .67) showing a significant reduction in scores from pre-three month follow up treatment with large effect sizes.

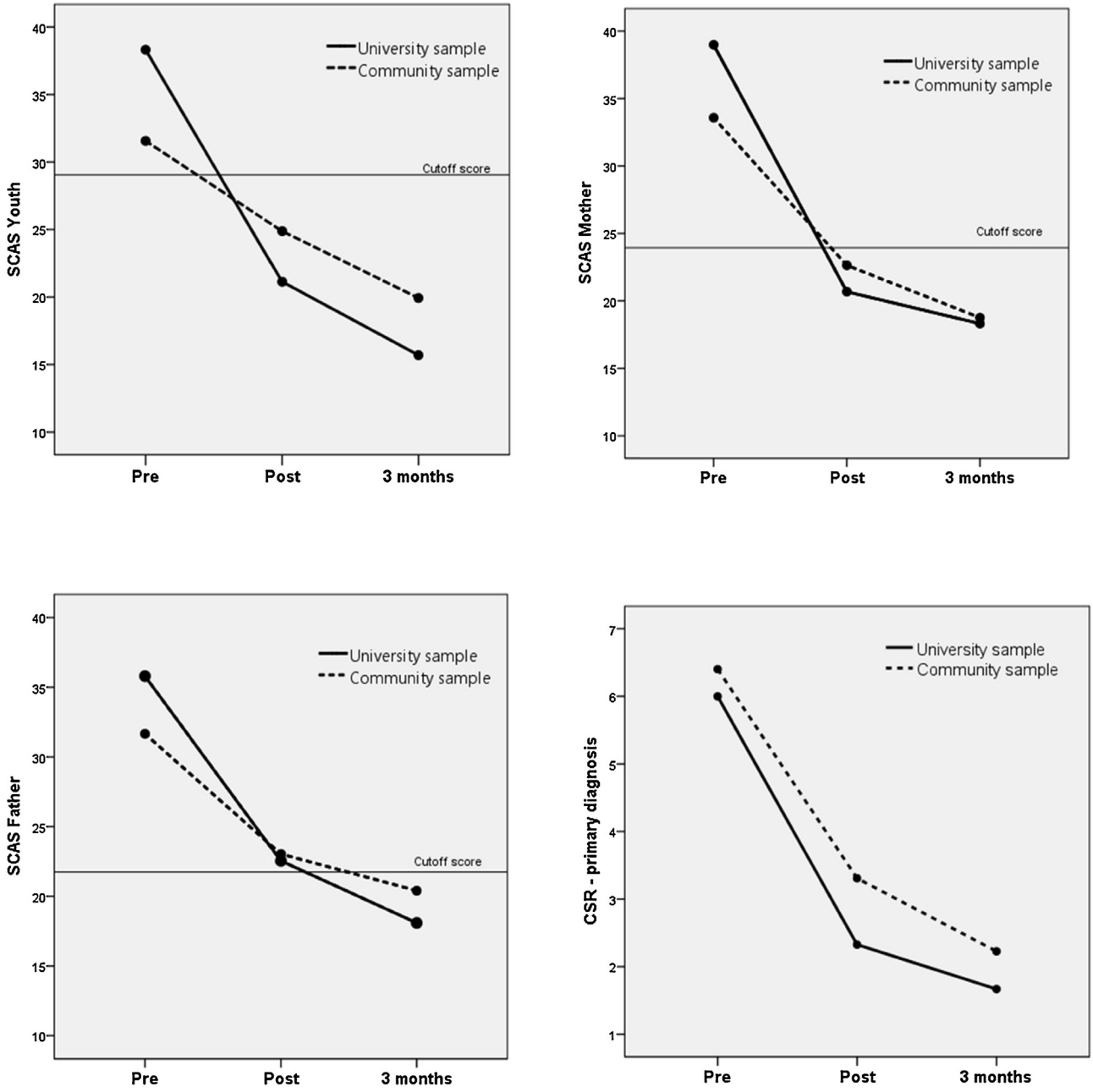

Fig. 1. Mean scores on measures of youth anxiety symptoms on primary outcome measures for participants in the university sample and community sample at pretreatment, post-treatment, and at three month follow-up.

Pre-three month ESs and between group ESs are presented in Table 2.

3.6.1. Secondary outcome measures

The Time x Sample interaction was not significant for any secondary questionnaire measures except for youths own experience of life interference and impairment associated with their anxiety (CALIS youth: $F(1,165)$ 9.95 $p = .002$. $\eta_p^2 = .06$), which showed a larger reduction within the US.

There was a significant effect of time for all secondary measures (BDI—youth: $F(1,162)$ 42.27 $p < .001$. $\eta_p^2 = .21$; CALIS mother (own): $F(1,165)$ 86.50 $p < .001$. $\eta_p^2 = .34$; CALIS mother (youth): $F(1,165)$ 133.43 $p < .001$. $\eta_p^2 = .45$; CALIS father (own): $F(1,159)$ 46.08 $p < .001$. $\eta_p^2 = .23$; CALIS father (youth): $F(1,159)$ 86.68 $p < .001$. $\eta_p^2 = .35$; CALIS youth: $F(1,165)$ 46.57 $p < .001$. $\eta_p^2 = .22$; DASS mother (depression): $F(1,165)$ 12.59 $p = .001$. $\eta_p^2 = .07$; DASS mother (anxiety): $F(1,165)$ 6.09 $p = .015$. $\eta_p^2 = .04$; DASS mother (stress): $F(1,165)$ 15.30 $p < .001$. $\eta_p^2 = .09$; DASS father (depression): $F(1,159)$ 3.98 $p = .048$. $\eta_p^2 = .03$; DASS father (stress): $F(1,159)$ 5.56 $p = .020$. $\eta_p^2 = .03$) except fathers report of their own anxiety symptoms (DASS father (anxiety): $F(1,158)$ 0.06 $p = .806$. $\eta_p^2 = .00$).

3.7. Reliable and clinical significant change on primary questionnaire measures for anxiety

A significantly larger proportion within the US achieved CSC status on the father and youth ratings (SCAS father $\chi^2 = 5.51$, $p = .019$; SCAS youth $\chi^2 = 5.90$, $p = .015$) but no difference was found on the mothers' ratings. Of all participants included in the study, there was a significantly larger proportion within the US that achieved

Table 3
Reliable and clinical significant change from pre- to post treatment on SCAS–for intention to treat sample.

	SCAS - mother		SCAS father		SCAS youth	
	CS (*N* = 85)	US (*N* = 82)	CS (*N* = 82)	US (*N* = 79)	CS (*N* = 85)	US (*N* = 82)
Reliable deteriation	2 (2.4%)	2 (2.4%)	3 (3.7%)	2 (2.5%)	5 (5.9%)	1 (1.2%)
Unchanged	33 (38.8%)	22 (26.8%)	42 (51.2%)	30 (38.0%)	56 (65.9%)	29 (35.4%)
Reliable improvement	50 (58.8%)	58 (70.7%)	37 (45.1%)	47 (59.5%)	24 (28.2%)	52 (63.4%)
Above CSC cutoff pre	68 (80.0%)	72 (87.8%)	62 (75.6%)	67 (84.8%)	35 (41.2%)	57 (69.5%)
RC. above CSC cutoff pre and post (i.e. RC but not CSC)[a]	10/68 (14.7%)	15/72 (20.8%)	15/62 (24.2%)	12/67 (17.9%)	2/35 (5.7%)	10/57 (17.5%)
RC. above CSC cutoff pre. below CSC post (i.e. CSC)[b]	34/68 (50.0%)	42/72 (58.3%)	18/62 (29.0%)	33/67 (49.3%)	13/35 (37.1%)	36/57 (63.2%)
% ITT achieving CSC	34/85 (40.0%)	42/82 (51.2%)	18/82 (21.4%)	33/79 (41.3%)	13/85 (15.3%)	36/82 (43.9%)

Note. CS: Community sample, US: University sample, SCAS: Spence children anxiety scale
[a] Denominator = number above the CSC cutoff at pre-treatment. Numerator = number who achieved RC but scored above the CSC at post-treatment.
[b] Denominator = number above the CSC cutoff at pre-treatment. Numerator = number who achieved RC and scored below the CSC at post-treatment.

CSC status on youth and father ratings of youth anxiety (SCAS father $\chi^2 = 7.66$, $p = .006$; SCAS youth $\chi^2 = 17.20$, $p < .001$) but no difference between samples on mother ratings (Table 3).

3.8. Diagnostic status at post-treatment and follow up across settings and samples

At three month follow-up 76.8% of the US were free from the primary diagnosis as compared with 59.8% of the CS ($p = 0.21$). There were no significant differences between the CS and the US at post-treatment, and no significant differences between CAPC and SCC at post-treatment or at three months follow-up (Table 4).

4. Discussion

The main aim of this study was to benchmark outcomes of a CBT group programme (The Cool Kids) for youth anxiety when applied at community centres to outcomes from a university research clinic using the same treatment protocol with demonstrated efficacy. As hypothesised the main finding was that measures of youth anxiety symptoms reduced significantly in a group receiving CBT at community clinics, but results indicate that this change is somewhat smaller than obtained with the same treatment protocol at a university clinic.

At baseline, pre-treatment scores on self-report measures of youth anxiety symptoms were significantly higher for mothers and youths within the university sample (US). This was in contrast to clinical ratings, which were based on diagnostic measures, where the community sample (CS) scored significantly higher on clinical severity ratings (CSR) of the primary anxiety disorder. The discrepancy between pre-treatment (and change scores) on self-report measures and clinical ratings of youth anxiety is discussed in greater detail below. There were no other significant pre-treatment differences in terms of clinical severity (e.g. comorbidity, medication) or demographic variables, except higher family income among the US sample. Absence of difference between the CS and US in terms of pre-treatment severity (on other measures than anxiety), is most likely due to the heterogeneity of the CS, which included participants who were recruited and treated within two types of community settings. The child and adolescent psychiatric centres (CAPC) recruited clinically referred youths while youths at the school counselling centres (SCC) were self-referred. Pre-treatment comparisons suggest that participants in the CACP sample were more severe than the SCC sample, in terms of higher rates of comorbidity, more usage of medication, and higher clinical ratings of the primary diagnosis. Despite these pre-treatment differences within the CS, there were no significant differences in changes on any outcome measure between these settings, suggesting similar effects regardless of clinical severity or referral procedures within the CS. The comparison of treatment effects within the CS is however under powered and should be interpreted with caution.

The main intention to treat (and completer) analyses of the CS and US showed a significant reduction on both clinical ratings and self-report measures of the severity of youth anxiety symptoms and diagnoses from pre- to post-treatment and pre- to follow up. A comparison of outcomes of the CS and US revealed a discrepancy between results of self-report measures and clinical ratings. Between group ESs at post and three month follow up for parent and youth self-report measures of youth anxiety symptoms were medium to large and significantly in favour of the US, while the between group ESs for clinical ratings were small and not significant. The CSC calculations of self-report measures of youth anxiety and diagnostical status at post-treatment, revealed similar findings. A significantly larger proportion of the US fell within the levels of

Table 4
Proportion of youths no longer meeting criteria for principal anxiety diagnosis at post-treatment and follow up across settings in the community study and compared to university setting.

Post-treatment	SCC (*N* = 55)	CAPC (*N* = 32)	Fisher's exact test[a]	CS (*N* = 87)	US (*N* = 82)	Fisher's exact test[a]
Principal diagnosis	50.9%	37.5%	$p = .269$	46.0%	61.0%	$p = .064$
All diagnosis	41.8%	28.1%	$p = .252$	36.8%	41.5%	$p = .636$
Follow-up	**SCC (*N* = 55)**	**CAPC (*N* = 32)**	Fisher's exact test[a]	**CS (*N* = 87)**	**US (*N* = 82)**	**Fisher's exact test[a]**
Principal diagnosis	65.5%	50.0%	$p = .179$	59.8%	76.8%	$p = .021$
All diagnosis	58.2%	43.8%	$p = 266$	52.9%	58.5%	$p = .536$

Note. CS: Community sample, US: University sample, SCC: School counselling centre, CAPC: Children and adolescent psychiatric centre
[a] Analyses were conducted with the intention to treat sample.

the non-impaired population at post-treatment on father and youth self-reports of youth anxiety symptoms, while the proportion of youths who lost their principal anxiety diagnosis or all anxiety diagnoses according to clinical ratings was not significantly different between the two samples at post-treatment. An interrater reliability check of the clinical severity ratings of the primary diagnosis within the CS revealed only moderate agreement (ICC = 0.41). Arendt et al. (2015) reported a somewhat better interrater reliability in the US (ICC = 0.69), which might suggest that the discrepancy between results on clinical ratings and self-reports between these samples are due to assessor biases within the CS.

One possible explanation is that assessors and the supervisor, who were involved in assessments of both samples, (but were not blinded to the samples of the participants), may have had a general tendency to give a higher CSR when assessing participants from the CS, based on the typical clinical assumption that community samples tend to be more severe. This hypothesis could explain the contrasting pre-treatment findings between self-reports and clinical ratings of youth anxiety, but does not explain the discrepancy in terms of their pre-post treatment change scores. A possible explanation of the discrepancy in treatment change scores is that the assessors and supervisor could have been biased towards favouring the effect of the intervention, thus similar change scores across both samples and settings on clinical ratings. There may also have been a responder or selection bias. Participants from the US were offered treatment as a part of a research project at the university clinic and unless they fulfilled the inclusion criteria they would not be offered any treatment at the clinic. Participants within the community would in most cases have been offered other relevant treatment or support, even though they did not fulfil the inclusion criteria for this study. This may have given rise to higher pre-treatment self-reports within the US. Since the university research clinic was explicitly funded to test the efficacy of this treatment, it can't be ruled out that demand characteristics played a greater role among participants in the US compared to the CS. Also participants from the US actively sought treatment for anxiety disorders, thus the parents may have had a higher awareness of their child's anxiety level and be more motivated for the treatment, whereas for participants from the CS referral may be initiated by e.g. teachers or school counsellors and for a variety of symptoms, parents in some cases only gradually realizing the extent of the anxiety. Also, mothers in the CS experienced more interference in their own life which may influence their ability to engage in the treatment.

Overall this study supports previous cross study comparisons of effectiveness and efficacy trials, indicating that CBT is effective, but may lose some of its efficacy when transported to community centres (Barrington et al., 2005; Bodden et al., 2008; Lau et al., 2010; Maaike et al., 2003; Southam-Gerow et al., 2010). The pre-post ES within the CS for youth ($d = 0.47$) and mother/father ($d = 0.77/0.57$) self-report measures in this study are within the range of previous effectiveness trials, where ES's have ranged from from $d = 0.23$ to $d = 1.03$ for youth reports and $d = 0.34$ to $d = 1.06$ for parent reports (Barrington et al., 2005; Bodden et al., 2008; Lau et al., 2010; Maaike et al., 2003; Southam-Gerow et al., 2010). These ES's are marginally smaller than ES's that have been reported in a meta analyses of 20 efficacy trials that found a mean pre-post ES of $d = 0.74$ (95% CI = 0.60 to 0.82) based on youth self-reports and $d = 1.06$ (95% CI = 0.85 to 1.08) for parent reports (Ishikawa, Okajima, Matsuoka, & Sakano, 2007). The diagnostic recovery rate for the primary anxiety diagnosis (46%) within the CS at post-treatment is comparable to 50-54% recovery rates reported in previous effectiveness trials (Barrington et al., 2005; Bodden et al., 2008; Lau et al., 2010; Maaike et al., 2003; Southam-Gerow et al., 2010; Wergeland et al., 2014) and a 55.4% recovery rate reported in a meta-analysis of 24 efficacy trials (In-Albon & Schneider, 2007). In most previous effectiveness trials therapists have received more training and/or supervision in CBT than in the present study (Barrington et al., 2005; Lau et al., 2010; Maaike et al., 2003; Wergeland et al., 2014). The current study suggests that a 10 session group CBT programme can be implemented with relatively small amount of training (2 day course) and supervision (3×2 h in groups) into community settings. However, the treatment appears to lose some of it efficacy when transported to the community, which indicated room for further improvement of the programme or the implementation process. Many of the therapists in the CS had no or little prior CBT training or experience with treatment of youth anxiety disorders, and thus in the supervision it was necessary to teach some therapists very basic treatment principles such as establishing appropriate treatment goals early in treatment and adjusting the exposure plans (i.e. stepladders). Thus, it is possible that more therapist CBT training and/or supervision could enhance treatment effects in the community. Group size, and/or number of therapists per group could also explain differences between the settings. At the university clinic, one therapist and three graduate psychology students were assigned to each group which allowed more detailed monitoring of participants progress and in-session assignments than with only two therapists in each group at the community centers. Also, the group format in itself may influence treatment effects. In fact, Reynolds, Wilson, Austin, and Hooper (2012) review of 55 treatment studies for youth anxiety found that individual treatment had larger ESs than group treatments. In the current study, it was the supervisors impression, that the therapists (who were in general not familiar with the group therapy format prior to this study) often expressed need to address issues related to the group therapy format in itself. Perhaps more emphasis could be on teaching therapist how to conduct group therapy and not assume that therapeutic skills and tactics can be transferred directly from individual to group setting.

Several limitations to this study must be mentioned. It is not a randomized trial and with the absence of a control group, we cannot fully rule out the possibility that improvement within the CS may be due to the effect of time alone. However, the pre-post ESs in this study are similar to those reported for the intervention groups and larger than reported ES of waitlist groups in other effectiveness and efficacy trials (Arendt et al., 2015; Wergeland et al., 2014). Whether CBT outperforms usual care in the community was not addressed in this study, mainly because most of the community centres did not offer treatment to youth anxiety prior to this study. Comparison with usual care would have been highly relevant within this field, since two effectiveness trials have failed to demonstrate significant differences between CBT and usual care in the community (Barrington et al., 2005; Southam-Gerow et al., 2010). As mentioned above, the assessors and supervisor were not blinded as to treatment sample. Therapist adherence to treatment protocol was not measured which may adversely affect internal validity of the study, although this reflects real world practices.

In conclusion these findings provide support for the hypothesis that an efficacious CBT group treatment protocol developed within research contexts is transportable to community centres with a relatively small amount of training and supervision.

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