BSc in Psychology

Cognitive behavioral group therapy for social anxiety disorder: Effectiveness study at the Icelandic center for Treatment of Anxiety disorders for youths

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Foreword

Submitted in partial fulfillment of the requirements of the BSc Psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.

Abstract

Social anxiety disorder (SAD) is one the most common anxiety disorders in adolescence and can have inhibiting impact on individuals life. The purpose of this research study was to examine the effectiveness of cognitive behavioral group therapy (CBGT) for adolescents with SAD in Iceland. The participants consisted of 32 Icelandic adolescents with a mean age of 17 years (*sd* = 0.96), who completed four questionnaires assessing social- and general anxiety, and depression symptoms before treatment, after treatment, and at four-weeks follow-up. The participant's scores were summarized and compared across time and effect sizes were calculated. Finally, it was examined whether the treatment leads up to clinically significant changes. The results revealed that the participant's anxiety and depression symptoms decreased over time indicating that the group CBT was effective. These results support the hypothesis of the current study which was that participants would experience less social anxiety, general anxiety, and depression symptoms following the treatment. Effect sizes indicated a great treatment effect on SAD symptoms among the participants from pretest to posttest (*d* = 0.96, *d* = 1.15). Furthermore, the proportion of participants reporting clinical level of anxiety and depression decreased after the treatment.

Keywords: Social anxiety, cognitive behavioral therapy, group therapy, adolescents, anxiety, impact assessment.

Útdráttur

Félagsfælni er ein algengasta kvíðaröskunin meðal unglinga og getur haft töluvert hamlandi áhrif á þann sem upplifir hana. Tilgangur rannsóknarinnar var að kanna áhrif hugrænnar atferlismeðferðar í hóp við félagsfælni meðal unglinga á Íslandi. Þátttakendur voru 32 unglingar að meðalaldri 17 ára (*sf* = 0.96). Borin voru saman skor þátttakenda við upphaf og lok meðferð og í 4 vikna eftirfylgd á spurningalistum sem meta félagsfælni (samskipta- og frammistöðukvíða), almennan kvíða og þunglyndi og áhrifastærðir (*effect sizes*) voru reiknaðar fyrir mun á meðalskorum þátttakenda. Að lokum var kannað hvort að meðferðin leiddi til klínískt marktækra breytinga. Niðurstöður sýndu að munurinn við upphaf og lok meðferðar og í 4 vikna eftirfylgdinni var marktækur í öllum tilfellum. Það dró marktækt úr félags- og almennum kvíða og þunglyndis einkennum og árangurinn viðhélst fjórum vikum seinna. Ennfremur sýndu áhrifastærðirnar fram á meðferðin hafi haft mikil áhrif á félagsfælni (*d* = 0.96, *d* = 1.15). Á lista sem metur samskiptakvíða náðu helmingur þátttakenda sambærilegu skori og almenningur. Hlutfallið mældist 31% fyrir frammistöðukvíða, 62% fyrir almennan kvíða og 60% fyrir þunglyndi.

Lykilorð: félagsfælni, hugræn atferlismeðferð, hópmeðferð, unglingar, kvíði, árangursmat

Cognitive behavioral group therapy for social anxiety disorder: Effectiveness study at the Icelandic center for treatment of anxiety disorders for youths

Social anxiety disorder (SAD) is characterized by fear or anxiety in social situations, in which the person can be observed by other (American Psychiatric Association, 2013; Guerry, Hambrick, & Albano, 2015). Individuals fear that they could embarrass themselves and therefore be negatively evaluated by others around them. People tend to avoid these situations or feel intense anxiety or distress (American Psychiatric Association, 2013). According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), these symptoms must persist for at least six months and have high impairment on individual's life (American Psychiatric Association, 2013).

When individuals feel that others around them observe them negatively, they trend to engage in self-monitoring to conclude how they should behave and comport with other people and what other people feel about them (Clark, 2001; Herbert, 1995). That results in people becoming trapped in a vicious circle, in which most of their evidence for their fears is self-generated and what people honestly think of them is ignored or inaccessible to them (Clark, 2001; Herbert, 1995). When individuals are in social situations, in which they feel uncomfortable, they often tend to engage in a wide range of behaviors that are used to prevent the discomfort that follows their fear (Clark & Wells, 1995). Safety-seeking behaviors (SSB) have been defined as occuring when individuals with social anxiety engage in systematic behavioral and cognitive ways to hinder their fears and anxiety (McManus, Sacadura, & Clark, 2008).

Social anxiety disorder is one of the most common anxiety disorders in adults and late adolescence (Ollendick, & Hirshfeld-Becker, 2002; Craske et al., 2014) and is the third most common disorder amid all psychiatric disorders (Ollendick, & Hirshfeld-Becker, 2002; Grumet, & Fitzpatrick, 2016; Keller, 2003). Lifetime prevalence of social anxiety disorder is 13% (Grumet, & Fitzpatrick, 2016). SAD typically starts in adolescence (Stein & Stein,

2008) and the estimated prevalence of SAD is 4 to 9% in youth (Stein et al., 2001). It may be no surprise that SAD usually starts in teenage where in this period there are some boisterous changes for the indiviudal (Guerry, Hambrick, & Albano, 2015, p. 202).

The symptoms of social anxiety disorder among adolescents are similar to what adults experience. However, pursuant the DSM-5, there are few things that are necessary for the diagnosis solely for children; "The anxiety must occur in peer settings and not just during interactions with adults" and "the fear or anxiety may be expressed by crying, tantrums, freezing, clinging, shrinking, or failing to speak in social situations" (American Psychiatric Association, 2013).

SAD can have inhibiting impact on individuals life (Fehm et al., 2007; Keller, 2003; Dryman, Gardner, Weeks, & Heimberg, 2016; Stein & Kean, 2000; Massion, Warshaw, & Keller, 1993; Cederlund, 2013). The comorbidity with another mental disorders appears to be high among people with SAD (Fhem et al., 2007; Keller, 2003) and particularly among adolescents (Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997). For example, other anxiety disorders (Brown, Campell, Lehman, Grisham, & Mancill, 2001; Keller, 2003), depression (Kessler et al., 1994), and alcohol- and substance misuse (Buckner et al., 2008; Kushner, Sher, & Beitman, 1990; Schneier et al., 2011). Furthermore, SAD can negatively influence their academic and social functioning (Fehm, 2007; Herbert et al., 2009). Thus, people with SAD are more likely to drop out of school (Stein & Kean 2000; Ameringen, Mancini & Farvolden 2003) and the individual's social life is neglected (Katzelnick, et al., 2001; Beidel et al., 2000) leading to fewer relationships with friends, and family (Walker & Kjernsted, 2000).

Cognitive Behavioral Therapy for Social Anxiety

Cognitive behavioral therapy (CBT) involves psycho-education amending and reevaluating negative thoughts, behavioral experiments, problem-solving, and coping skills are taught (Creswell et al., 2014). The purpose of CBT for SAD is to identify patterns of

maladaptive thoughts and behavior which maintain the anxiety. Also, people with SAD are taught to cope with the stimuli they fear, by be exposed to the stimuli they fear, such as going to party and talking to someone, and reevaluate cognitive error through cognitive restructuring (Hope et al., 2007; Herbert, 1995). By engaging in exposure exercises and cognitive restructuring, individuals can process a new technique on how to view the situations they fear and their communication with others (Hope et al., 2007). Previous research indicated that CBT is an effective treatment for adolescents with SAD (Seligman & Ollendick, 2011; Spence, Donovan, & Brechman-Toussaint, 2000; Scaini, Belotti, Ogliari, and Battaglia, 2016; Craske et al., 2014; Turk, Heimberg, & Magee, 2008; Akiko et al., 2013).

CBT can also be used with a group format (CBGT). Because of the fear of social interaction, evaluation from other people and how others perceive the individual, group therapy provides an environment in which these conditions are tested (Bieling et al., 2006). Group therapy gives people with SAD an opportunity to expose themselves to social situations, role-play, and a chance to get feedback from others about their social interactions (Bieling et al., 2006). Another aspect of a group therapy is that people with SAD are often isolated and feel like their problem is unique. However, when several individuals, dealing with the same disorder come together, they meet other people who is suffering from the same condition (Bieling et al., 2006). One of the benefits of going to group therapy instead of individual therapy for adolescents is that in the latter, the teen meets only one person during the treatment (Albano, 1995).

The current study

To the best of our knowledge, no research has to date examined the effectiveness of group CBT on SAD among adolescents in Iceland. Also, there has been to date minimal recent research into the effectiveness of group CBT for adolescents with SAD in particular (Herbert et al., 2009). Nonetheless, previous research found, indicated that CBGT is an

effective treatment for youth with SAD (Herbert et al., 2009; García-López, Turner, Albano, & Sánchez-Meca, 2002; Seligman & Ollendick, 2011; Scaini et al., 2016).

For example, Herbert et al. (2009) reported a randomized controlled trial on CBGT for 22 adolescents with SAD which was assessed at pre-treatment, post-treatment, and at six-months follow-up. The results indicated that CBGT had great effect on SAD symptoms among the participants with great effect size from pretest to six-months follow-up (d = 1.08) and further revealed a recovery rate of 27% at posttreatment, but 54% at six-months follow-up.

García-López et al. (2002) examined the effectiveness of CBGT for 15 adolescents with SAD which involved two conditions with experimental and control group (waiting list) where pretest, posttest and one-year follow-up were measured. The results supported the effectiveness of CBGT where the clinical success was 54% at posttest and the effect size was high (d = .94) across the two conditions. After one-year, the clinical success was 26.67% and the effect size was medium (d = .56).

Without treatment, SAD is a chronic course which can persist into adulthood (Guerry, Hambrick, &Albano, 2015). Therefore, it is essential for an early intervention where the treatment could help block the development of SAD and other mental health problems (James, James, Gowdrey, Soler, & Choke, 2015) and improve quality of life (Walker & Kjernsted, 2000). Also, when adolescents with SAD are treated with the generic form of CBT for anxiety, they seem to benefit less from the therapy than those with other anxiety disorders (Halldorsson & Creswell, 2017).

Thus, a proper evaluation on treatments for youth with SAD is important to determine what is effective for that specific group. Regarding the limitation on research for the effectiveness of CBGT for adolescents, the essential aspect of treating SAD and to add a research study respecting this subject in Icelandic version, the purpose of the present study was to explore the effect of group CBT for SAD among adolescents in Iceland and the

following hypothesis is proposed: participants will experience less social anxiety, general anxiety, and depression symptoms following the treatment.

Method

Participants

The participants in present study, all sought group therapy for SAD from 2016 – 2018 at the Icelandic Anxiety Treatment Center for youths. In total, 33 participants were invited to participate in the current study, one declined the offer. Therefore, the sample in this research study consisted of total 32, thereof 7 males (21.9%) and 25 women (78.1%). The average age was 17 years (*sd* = .967) and the age span was 16 to 19 years. The mean age for men was 17 years (*sd* = .756, span 16 to 18 year) and the mean age for women was 17 year (*sd* = 1.02, span 16 to 19 year). All the participants met criterion for social anxiety disorder which was assessed in clinical interview carried out by a psychologist at the Icelandic center for treatment of anxiety for youths and the severity of symptoms was measured using self-report scales.

Measures

The participants completed four questionnaires in this study. Previous research has indicated that social anxiety has high comorbidity with general anxiety, and depression (Keller, 2003; Kaufman & Baucom, 2014). Therefore, the general anxiety disorder scale and the patient health questionnaire are presented as well in the current study.

Social Interaction Anxiety Scale (SIAS) (Mattick & Clarke, 1998). This scale is a 20 item self-report scale that measures fear of social interaction (Mattick & Clarke, 1998; Fergus, Valentiner, Kim, & McGrath, 2014) such as speaking to and maintaining a conversation with strangers or friends (Mattick & Clarke, 1998). Participants are asked to rate how characteristic each statement is for them on a 5-point Likert scale which range from 0 "*not at all characteristic or true of me"* to 4 "*extremely characteristic or true of me"*. The total score ranges from 0 to 80, where higher scores represents more social interaction anxiety.

Mattick and Clarke (1998) examined the psychometric properties for the scale. Internal consistency was high (α = 0.88 – 0.94) likewise 4 and 12-week test-retest reliability (*r* = 0,92 and *r* = 0,92). Furthermore, the same research indicated that SIAS have a good discriminant- and convergent validity. People with social anxiety scored 34.6 (*sf* = 16.4) whereas healthy 18.8 (*sf* = 11.8) (Mattick and Clarke, 1998). Results from previous studies have supported Mattick and Clarke conclusion (Kupper & Denollet, 2012; Rodebaugh, Woods, Heimberg, Liebowitz, & Schneier, 2006). Pétur Tyrfingsson translated the scale from the English version to Icelandic.

Halla Ósk Ólafsdóttir (2012) examined the psychometric properties for the translation of SIAS. The results indicated good internal consistency (α = 0.91) and validity, good convergence- and discriminant validity, and reliability. Furthermore, the research study presented a acceptable cut-off score which was 40 (Halla Ósk Ólafsdóttir, 2012). The internal consistency in the present study was good, α = 0.84.

Social Phobia Scale (SPS) (Mattick & Clarke 1998). The scale evaluates fear of being observed and experiencing anxiety while doing curtain activities in front of others, such as, dining, public speaking or writing. The scale consists of 20 questions. Responses are given on a 5-point Likert scale ranging from 0 "*not at all characteristic or true of me* " to 4 "*very much characteristic of me* ". The total score range from 0 to 80. In the originally research study Mattick and Clark (1998), the results indicated high internal reliability (α = 0.89 – 0.94), 4 and 12-week test-retest reliability (*r* = 0.91 and *r* = 0.93). Furthermore, people with social anxiety scored 40 (*sf* = 16) on average but healthy people 14,4 (*sf* = 11,2).

Pétur Tyrfingsson translated the scale from the English version to Icelandic. The Icelandic version of the scale has shown to be valid and reliable in Icelandic research study Höllu Ósk Ólafsdóttur (2012). Internal reliability was good (α = 0.91) as well as discriminant validity. The scale distinguishes well between people with SAD and individuals with other

mental problems presenting a good cut-off score which was 20 (Halla Ósk Ólafsdóttir, 2012). The internal consistency for the scale in current study was good, α = 0.91.

General Anxiety Disorder (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006). The scale is used as a screening tool for symptoms of general anxiety. The questionnaire includes 7 items which are rated on from 0 *"not at all"* to 3 *"Nearly every day"*. The total score ranges from 0 – 21. The respondent is asked how often, over the last two weeks, he or she feels on a certain problem. Lower score indicates less anxiety. Internal consistency (α = .92) and test-retest reliability (*r* = .83) have been rather high in previous research as well as construct validity (Spitzer et al., 2006). The same study revealed that convergent-, and divergent validity was good (Spitzer et al., 2006).

Rósa Ingólfsdóttir (2014) examined the psychometric properties in the Icelandic version. The results indicated a good internal reliability. The convergent- and divergent validity were supported. Furthermore, the scores on the questionnaires between clinical sample and non-clinical sample was statistically significant and presented a good cut-off score which was 10 (Rósa Ingólfsdóttir, 2014). The same research study supported GAD-7 as valid screening tool for general anxiety among healthy population as well for patients. The internal consistency for the scale in the current study was good, α = 0.76.

Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, &Williams, 2001). This 9 item self-report questionnaire assess the severity of depression symptoms and was developed from the diagnostic instrument for mental disorders, Prime Care Evaluation of Mental Disorder (PRIME-MD). Items are rated on a 0 (*not at all*) to 3 (*nearly every day*) scale, and the total scores range from 0 – 27.

Psychometric properties for PHQ-9 has been tested, and previous studies indicates that the scale has good diagnostic properties (Gilbody, Richards, Brealey, & Hewitt, 2007; Martin, Rief, Klaiberg, & Braehler, 2006; Kroenke et al., 2001). The internal reliability was good (α = 0.86– 0.89) as well construct validity, and the test-retest reliability was excellent

(Kroenke et al., 2001). In the same study, people with depressive disorder got higher score on average (M =15.92, *sf* = 3.07) than those without depression (M =2.63, *sf* = 2.87).

Two versions of the Icelandic translation have been carried out. One translation was executed by Agnes Agnarsdóttir, Hafrún Kristjánsdóttir, Jakob Smári, Jón Friðrik Sigurðsson, and Pétur Tyrfingsson. The second translation was performed by Auður Sjöfn Þórisdóttir. Andri S. Björnsson combined the two independent versions of the translated scale in to one. Karen Jónsdóttir and Signý Sigurðardóttir (2016) examined the psychometric properties for the Icelandic version. Internal reliability was good for clinical sample (α = 0.90) and acceptable for general sample (α = 0.72) and had good validity. Furthermore, the research study presented a good cut-off score on the scale which was 10. The internal consistency for the scale in current study was good α = 0.82.

Procedure

Participants who applied to participate in the CBGT program, got a single's interview with psychologist from the Icelandic Anxiety Treatment Center for youth where the specialist analysed if the person in question met criterion for SAD and the problem was formulated. If so, the person was invited to participate in the group CBT. In addition, the purpose of the interview was to form a connection to the participants in hope that they would gain some courage to participate in the CBGT program. SAD was the main problem among those participants who met criterion for SAD according to DSM-IV (American Psychiatric Association, 2000) and therefore no other problems impediments that participants could participate.

The majority of those who sought treatment at the Icelandic Anxiety Treatment Center for youth, or the parents, paid for the therapy, but all were entitled to a grant. The therapy was ten sessions of two hours each, divided into ten weekly session (see table 1). A follow-up session was four-weeks later. Either two psychologists or one psychologist and a psychology student in clinical training supervised the sessions.

Table 1

The schedule for the group treatment

Session	Class assignment
1. Introduction and education on anxiety	Anxiety list
2. Formulation - what is maintaining the problem	Formulation
3. Attention training, safety behaviors	Attention practice – numbers, conversations about interest
4. How thoughts effect on emotions, communication skills	Select an experiment to do at home, conversation practice with safety behavior
5. Communication skills, self-confidence, perfectionism	Balls, Pictionary, conversations about interest, planning gathering.
6. Self-image, standing up for own right	To say no
7. A trip to a café	Beeing foolish – do mistake
8. Video practice	Lecture and assessment
9. Behavioral experiments	Assist each other to choose experiment
10. Questionnaires, settlement, a review on formulation	Discussion about what have been learned during the treatment and what steps they are going to work on

After each session, the participants were provided a homework which related the topic from the last session and, at the beginning of each session, participants were encouraged to review their homework in front of the group and to give an account of how it went, and what lesson they learn from it. The treatment was based on the group CBT treatment for adults which was examined by Sigurður Viðar et al. (2011). Also, an attempt

was to guarantee that all groups received the same treatment by following an instruction manual, written by Sóley Dröfn Davíðsdóttir, a specialist in Clinical Psychology.

The study was approved by the Icelandic National Bioethics Committee (18-048) to analyze the results from the participants in group therapy from 2016 - 2018 for SAD. Also, the research study reported to Privacy and Data Protection Authority in Iceland (case no. 18-048).

In current study, data were collected from the Icelandic center for treatment of anxiety disorders for youths. From March 22nd to April 27th the participants were contacted by telephone by the researcher and invited to participate in the current study. They signed informed consent as well the parents for those who were underage (16 and 17 years old), and were given a prospectus where the purpose, risks, and benefits of the research study was explained. Also, an information about the rights to discontinue at any time was given as well. In total, 37 adolescents participated in the CBGT program, 32 participated in the current study, eight did not attended the follow-up session leading to 24 youth answering the questionnaires before the treatment, after the treatment and at the four-weeks follow-up.

Data Analysis & Examination of Statistical Assumptions

The point of the data analysis was to examine the effect of the group CBT for SAD among adolescents. This research was a quantitative research where group CBT was the independent variable, and measures of the participant's total scores was the dependent variable. The dependent variable was measured before treatment, after treatment, and at a four-weeks follow-up. The total mean scores from the questionnaires were calculated. The Statistical Package for the Social Sciences (SPSS) edition 24, was used for statistical analysis and all of the questionnaire ratings were analyzed at the .05 two-tailed significance level. The internal consistency for the scales was assessed by calculating the Cronbach's alpha coefficient (α). According to Cicchetti and Sparrow (1994), the standard for an acceptable Cronbach's alpha is >0.70.

A paired sample t-test was carried out to determine if there was a difference in participant's total mean scores from pre-treatment to post-treatment. Prior to conducting the analysis, one main assumption regarding the normal distribution of the sample was examined. A Kolmogorov-Smirnov test showed a non-significant value ($p < .005$) for all the questionnaires. Therefore, this assumption was not broken, indicating that there was no deviation from normality in the distribution.

The treatment effect, (i.e., changes resulting from before and after the treatment) was calculated with following formula: M1-M2 / ((Sf1 + Sf2 /2). The effect size $d = 1.0$ indicates that the mean score has increased or decreased about one standard deviation. According to Cohens standard for effect sizes undermentioned counts: 0.20 = small effect; 0.50 = medium effect, and 0.80 = great effect (Cohen, 1988).

A repeated measure for analysis of vairance (ANOVA) and Bonferroni post-hoc test was used with within-subject design to evaluate if there was a change in participant's total scores when measured before, after, and at follow-up. ANOVAs with repeated measures is eminently sensitive to the violation of the assumption of sphericity. The sphericity assumes that the variance of the differences between all combinations of the independent variables are equal. The assumption of sphericity was not met for the measures of social phobia (SPS) and social interaction anxiety (SIAS) as assessed by Mauchly's test and therefore a Huynh-Feldt was used to correct the evaluation of the significance of ANOVA for the two questionnaires.

For further analysis, the clinical significant change following the treatment was examined. Clinical significant change of a treatment refers to when the participant score moves from the clinical range to the general whilst participating in the treatment (Jacobson & Truax, 1991). To analyses this change it is important to determine which cut-off is preferable to distinguish between the clinical- and general sample. Clinical level of SAD was established by Halla Ósk Ólafsdóttir (2012), which was 20 on SPS, and 40 on SIAS. Clinical level on PHQ-9 was established by Karen Jónsdóttir and Signý Sigurðardóttir (2016) which

was 10, and on GAD-7 by Rósa Ingólfsdóttir (2014) which was 10. These previous research presented a good cut off scores which are used for these analysis.

Results

Changes in participant's total scores from pretest to posttest

To test for a change during the treatment between pre-treatment and post-treatment a paired sample t-test was conducted. Table 2 reveals descriptive statistics as well as results from the paired sample t-tests and effect sizes. The results were statistically significant in all cases suggesting that there was a significant difference between the total mean scores from the participants before and after treatment.

Table 2.

Descriptive statistics and effect sizes at the beginning and end of the treatment

	Before treatment		After treatment					
	M	sd	M	sd	n	df	t	d
SIAS	48.77	10.13	38.70	12.29	31	30	5.35	0.96
SPS	46.41	15.54	29.09	16.19	31	30	6.41	1.15
PHQ-9	13.00	5.55	9.31	6.15	32	31	4.03	0.71
GAD-7	11.03	3.90	8.37	4.54	32	31	3.22	0.57

Note. M = Mean, sd = standard deviation, n = sample size (sample size is different for SIAS and SPS questionnaires because of two missing values), df = degrees of freedom, t = the value of paired t-test, d = effect size (Cohens'd). SIAS = Social Interaction Anxiety Scale, SPS = Social Phobia Scale, PHQ-9 = Patient's health questionnaire, GAD-7 = General Anxiety Disorder. * $p < .005$. ** $p < .001$. *** $p < .001$. **** $p < .001$.

As shown in table 2, on average, the participants scored less after treatment than before treatment for social interaction anxiety with statistically decrease of 10.06, 95% CI, [6.22, 13.90], $t(32) = 5.35$, $p < .001$). Secondly, the participants experienced less social phobia after treatment than before treatment. This difference, 17.32, 95% CI [11.80, 22.83] was significant $t(31) = 6.41$, $p < .001$. The calculation for the effect sizes on SIAS and SPS indicated that the treatment had a great effect on SAD ($d = 0.96$, $d = 1.15$).

The participants scored less after treatment on the Patients Health Questionnaire than before the treatment. This difference, 3.68, 95% CI [1.82, 5.55], was significant $t(32) = 4.03$, $p < .001$ and the effect size was medium ($d = 0.71$). Finally, the participants scored less after treatment for general anxiety than before treatment. This difference, 2.65, 95% CI [.97, 4.33], was significant $t(32) = 3.22$, $p = .003$), and represented a medium-sized effect, $d = 0.57$. In addition, a calculation for effect sizes on pre-treatment to the four-weeks follow-up (N = 24) revealed a great effect on SIAS and SPS ($d = 0.92$, $d = 1.10$) and medium effect on GAD-7 and PHQ-9 ($d = 0.76$, $d = 0.76$).

Changes in participant's total scores from pretest to the four-weeks follow-up

Unfortunately, only 24 participants were involved in the ANOVA analysis, as eight of the participants did not attend the follow-up assessment. To test if the participant's mean total scores changed across pretest, posttest and at four-weeks follow-up, a repeated measured ANOVA was used. Table 3 shows the descriptive statistics for the variables used in the current study. The means, standard deviations, and sample size are exposed. Participants showed a significant decrease over time in social and general anxiety, and depression symptoms as measured from before treatment through follow-up.

Table 3.

Descriptive statistics for the questionnaires, before- and after treatment, and at follow-up

	Before treatment		After treatment		At follow-up		
	M	sd	M	sd	M	sd	n
SIAS	47.86	10.18	38.65	10.51	32.47	13.24	23
SPS	45.58	16.72	29.00	14.24	25.95	14.68	24
PHQ-9	12.91	5.46	8.70	5.65	7.29	5.13	24
GAD-7	10.70	4.14	7.25	3.76	5.75	3.72	24

Note. M = Mean, sd = standard deviation, n = sample size (sample size is different for SIAS questionnaire because of one missing value), SIAS = Social Interaction Anxiety Scale, SPS = Social Phobia Scale, PHQ-9 = Patient Health Questionnaire, GAD-7 = General Anxiety Disorder scale. * $p < .001$. ** $p < .001$. *** $p < .001$. **** $p < .001$.

When testing possible differences in mean levels, ANOVAs demonstrated statistically significant differences between scores on SIAS and SPS suggesting that participation in the SAD treatment group decreased participant's level of social anxiety $F(1.7, 37.5) = 23.561$, $p < .001$; $F(1.5, 34.9) = 25.710$, $p < .001$.

Additionally, it showed significant decrease in scores over time on PHQ-9, suggesting that participation in the SAD treatment group also decreased participant's level of depressive symptoms $F(2, 46) = 13.914$, $p < .001$. Regarding general anxiety, ANOVAs showed a significant decrease in scores over time, suggesting that participation in the SAD treatment group decreased participant's level of general anxiety $F(2, 46) = 17.398$, $p < .001$.

A Bonferroni post-hoc test showed a significant mean differences over time, that is, before- and after treatment ($p = .001$), before treatment and at follow-up ($p < .001$), and after treatment and at follow-up ($p = .008$) on the social interaction anxiety scale.

Secondly, the results from a Bonferroni post-hoc test showed a significant mean difference between pre- and post treatment ($p < .001$), and pre-treatment to four-weeks follow-up ($p < .001$) but a non-significant mean difference from post-treatment to four-weeks follow-up ($p = .380$) on the social phobia scale.

Regarding the patient health questionnaire, a Bonferroni post-hoc test revealed a significant mean difference between pre- and post-treatment ($p = .003$), and before treatment and at follow-up ($p < .001$) but a non-significant mean difference from post-treatment to four-weeks follow-up ($p = .469$)

Lastly, a Bonferroni post-hoc test showed a significant mean difference between pre- and post-treatment ($p = .003$), and before treatment and at follow-up ($p < .001$) on the general anxiety disorder scale. From post-treatment to four-weeks follow-up the post-hoc test was non-significant ($p = .150$)

This results indicates that the SPS, PHQ-9, and GAD-7 questionnaires were all rated significantly lower between post-treatment than pre-treatment, and at four-weeks follow-up but a similar level of changes was between post-treatment and the follow-up. Furthermore, the participants reported less interaction anxiety after treatment than before treatment and at follow-up.

Evaluation on clinical improvement among participants

The evaluation for the clinical success among the participants was established from previous resarch which presented good cut off scores (Halla Ósk Ólafsdóttir, 2012; Karen Jónsdóttir and Signý Sigurðardóttir, 2016; Rósa Ingólfsdóttir, 2014). Note that report of the clinical level at pretest and posttest included 32 participants but 24 participants at the follow-up.

The clinical significant of the changes indicated that 84.4% of the participants reported clinical level on SIAS before treatment. However, after the treatment, it decreased to 50%, and further to 37.5% at the four-weeks follow-up, respectively. Also, majority of the participants (90.6%) reported clinical level before treatment on SPS, while at posttest, the percentages of participants reporting clinical level on SPS decreased to 68.8%, and further to 54.2% at the four-weeks follow-up, respectively. Concerning the PHQ-9 and GAD-7 questionnaires, the results are shown in table 4.

Table 4.

Proportion of participants reporting clinical level on the PHQ-9 and GAD-7 questionnaires following treatment

	% GAD-7			% PHQ-9		
	B	A	F	B	A	F
	N = 32	*N* = 32	*N* = 24	*N* = 32	*N* = 32	*N* = 24
General	40.6	62.5	75.0	21.9	59.4	66.7
Clinical	59.4	37.5	25.0	78.1	40.6	33.3

Note. B = before treatment, A = after treatment, F = follow-up, % = percent of the participants, N = sample size (sample size is different for the follow-up measure because of eight missing values), GAD-7 = General Anxiety Scale, PHQ-9 = Patient Health Questionnaire, General = general level on GAD-7 and PHQ-9, Clinical = clinical level on GAD-7 and PHQ-9

Discussion

The aim of the present study was to examine the effectiveness of CBGT on SAD by exploring the total mean scores from the participants on the questionnaires across times. Overall, the results revealed that the total mean scores declined on all questionnaires over time and were statistically significant which indicates that the group CBT for SAD is arguably an effective treatment for symptoms of social- and general anxiety, and depression. In addition, the effectiveness from the treatment maintained four-weeks later (follow-up). These findings support the hypothesis of the current study. Furthermore, the treatment effect-sizes ($d > 0.8$) indicated a high effectiveness on SAD symptoms from pretest to posttest and from pretest to four-weeks follow-up. The results from the clinical significant of the changes indicated that success rates increased over time suggesting that less participants experienced clinical level of social- and general anxiety, and depression symptoms after the treatment and at the four-weeks follow-up. Furthermore, the effect sizes were similar in the comparison between pretest and posttest and pretest and follow-up indicating that the participant's success on anxiety and depression symptoms maintained over time.

As mentioned before, no research has to date examined the effectiveness of group CBT on SAD among adolescents in Iceland and it seems that recent research concerning CBGT for SAD among youth is scarce. Nevertheless, results from previous research indicated that the participant's anxiety symptoms decreased over time which is consistent with the results of the current study (Herbert et al., 2009; García-López et al., 2002). Furthermore, the effect sizes from pretest to posttest in the present study are in line with the past research study García-López et al. (2002) as well the clinical success on SIAS (50% versus 54%) and similar to the results in Herbert et al. (2009) research study on SPS (30% versus 27%).

Notwithstanding current results is encouraging and provides an important information about some practical samples, there are several limitations that should be mentioned. First, the current study used no control group which will make it impossible to allege if the participant's success would have remained the same as if they did not receive any treatment. Secondly, psychologists who supervised the treatment administered the questionnaires to the participants increasing the possibility of a response bias, as a result of social desirability. Thirdly, it is not known whether the participants were takin any ephermal medication during the treatment.

Fourthly, the gender distribution was not equal where merely 21.9% male participated in the study which can affect the generalizability of the findings, and the sample size was rather small. Also, future research using a bigger sample size would provide the opportunity to examine the demographic characteristics of the participants, and the gender- and age difference. Fifthly, whether the participants engage in some private counseling between the last group session and the follow-up session is not known. Sixthly, the criteria which was used for the evaluation of the participant's clinical success in the present study applied to adults and it is not known whether these criteria also apply to adolescents, therefore it would be appropriate in future research to examine that further. Lastly, measures on reliable change

were not included in the analyses and an information about other diagnosis among the participants were not acquired. Future research should explore a participant's feedback about each session after they participated in the program. Furthermore, a second follow-up session approximately 6 – 12 months later is necessary to determine further the longtitudinal effectiveness of the treatment or if the participants retain their improvements.

This is the first study in Iceland to demonstrate that CBGT intervention reduces adolescent's anxiety and depression symptoms. Overall, these results indicated that the group CBT had considerably success in treating social anxiety symptoms among participants and associated psychological problems such as depression and general anxiety. Findings from present study adds an important knowledge to the literature which can be used for clinical practitioners and in clinical practing and raises the possibility to specialize it further for SAD. Furthermore, knowledge about the effectiveness of CBGT for SAD among adolescents offers the possibility to prevent the development of SAD early which will result in more long-term effects.

References

Akiko, K., Watanabe, N., Nakano, Y., Ogawa, S., Suzuki, M., Kondo, M., …Akechi, T. (2013). Group cognitive behavioral therapy for patients with generalized social anxiety disorder in Japan: Outcomes at 1-year follow up and outcome predictors. *Neuropsychiatric Disease and Treatment, 9*, 267 – 275. http://doi.org/10.2147/NDT.S41365

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5. ed.). Arlington, VA: American Psychiatric Association.

Ameringen, M. V., Mancini, C. & Farvolden P. (2003). The impact of anxiety disorders on educational achievement. *Journal of Anxiety Disorders, 17*(5). 561 – 571. https://doi.org/10.1016/S0887-6185(02)00228-1

Beidel, D. C., Turner, S. M., & Morris, T. L. (2000). Behavioral treatment of childhood social phobia. *Journal of Consulting And Clinical Psychology*, *68*(6), 1072 – 1080. doi:10.1037/0022-006X.68.6.1072

Bieling, P. J., McCabe, R. E., & Antony, M. M. (2006). *Cognitive behavioral therapy in groups.* New York, NY: The Guilford Press.

Brown, T. A., Campell, L. A., Lehman, C. L., Grisham, J. R., & Mancill, R. B. (2001). Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *Journal of Abnormal Psychology, 110*(4), 585 – 599. doi:10.1037//0021-843X.110.4.585

Buckner, J. D., Schmidt, N. B., Lang, A. R., Small, J. W., Schlauch, R. C., & Lewinsohn, P. M. (2008). Specificity of social anxiety disorder as a risk factor for alcohol and cannabis dependence. *Journal of Psychiatric Research, 42*(3), 230 – 239. https://doi.org/10.1016/j.jpsychires.2007.01.002

Cederlund, R. (2013). *Social anxiety disorder in children and adolescents: assessment, maintaining factors, and treatment* (PhD thesis). Stockholm University, department of

psychology.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instrument in psychology. *Psychological Assessment, 6*(4), 284 – 290. doi: 10.1037/1040-3590.6.4.284

Clark, M. D. (2001). International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness. New York: John Wiley & Sons Ltd.

Clark, M. D., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (eds.), *Social Phobia Diagnosis, Assessment, and Treatment* (p 69 – 94). New York, NY: The Guilford Press.

Craske, M. G., Niles, A. N., Burklund, L. J., Wolitzky-Taylor, K. B., Vilardaga, J. P., Arch, J. J., & ... Lieberman, M. D. (2014). Randomized controlled trial of cognitive behavioral therapy and acceptance and commitment therapy for social phobia: Outcomes and moderators. *Journal of Consulting And Clinical Psychology*, *82*(6), 1034 - 1048. doi:10.1037/a0037212

Creswell, C., Waite, P., & Cooper, P. J. (2014). Assessment and management of anxiety disorders in children and adolescents. *Archives of Disease in Childhood*. doi: 10.1136/archdischild-2013-303768

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2. ed.). Hillsdale: Lawrence Erlbaum Associates.

Dryman M. T., Gardner, S., Weeks, J. W., & Heimberg, R. G. (2016). Social anxiety disorder and quality of life: How fears of negative and positive evaluation relate to specific domains of life satisfaction. *Journal of Anxiety Disorders, 38*, 1 – 8. https://doi.org/10.1016/j.janxdis.2015.12.003

Fehm, L., Beesdo, K., Jacobi, F., & Fiedler, A. (2007) Social anxiety disorder above and below the diagnostic threshold: Prevalence, comorbidity and impairment in the

general population. *Social Psychiatry and Psychiatric Epidemiology, 43*(4), 257 – 265. doi:10.1007/s00127-007-0299-4

Fergus, T. A., Valentiner, D. P., Kim, H., & McGrath, P. B. (2014). The social interaction anxiety scale (SIAS) and the social phobia scale (SPS): A comparison of two short-form versions. *Psychological Assessment*, *26*(4), 1281 – 1291. doi:10.1037/a0037313

Garcia-López, L. J., Turner, S. M., Albano, A. M., & Sánchez-Meca, J. (2002). Results at long-term among the psychological treatments for adolescents with generalized social phobia (II): Clinical significance and effect size. *Psicología Conductual, 10*(2), 371 – 385.

Gilbody, S., Richards, D., Brealey, S., & Hewitt, C. (2007). Screening for depression in medical settings with the patient health questionnaire (PHQ): A diagnostic meta-analysis. *Journal of General Internal Medicine, 22*(11), 1596 – 1602. doi: 10.1007/s11606-007-0333-y

Grumet, R., & Fitzpatrick, M. (2016). A case for integrating values clarification work into cognitive behavioral therapy for social anxiety disorder. *Journal Of Psychotherapy Integration*, *26*(1), 11–21. doi:10.1037/a0039633

Guerry, J. D., Hambrick, J., & Albano, A. M. (2015). Adolescent social phobia in clinical services. In K. Ranta et al. (eds.), *Social Anxiety and Phobia in Adolescents: Development, Manifestation and Intervention Strategies*. Switzerland: Springer International Publishing.

Halla Ósk Ólafsdóttir. (2012). *Athugun á próffræðilegum eiginleikum og aðgreiningarhæfni social interaction anxiety scale (SIAS) og social phobia scale (SPS)* (Cand. Psych thesis). Iceland University, Department of Psychology. Retrieved from

https://skemman.is/bitstream/1946/12111/1/LOKAVERK_Halla_11.jún%C3%AD.pdf

Halldorsson, B., & Creswell, C. (2017). Social anxiety in pre-adolescent children: What do we know about maintenance?. *Behaviour Research and Therapy, 99*, 19 – 36. https://doi.org/10.1016/j.brat.2017.08.013

Herbert, J. (1995). An overview of the current status of social phobia. *Applied & Preventive Psychology, 4*(1), 39 – 51.

Herbert, J. D., Gaudiano, B. A., Rheingold, A. A., Moitra, E., Myers, V. H., Dalrymple, K. L., & Brandsma, L. L. (2009) Cognitive behavior therapy for generalized social anxiety disorder in adolescents: A randomized controlled trial. *Journal of Anxiety Disorders*, *23*(2), 167–177. http://doi.org/10.1016/j.janxdis.2008.06.004

Hope, D. A., Burns, J. A., Hayes, S. A., Herbert, J. D., & Warner, M. D. (2007). Automatic thoughts and cognitive restructuring in cognitive behavioral group therapy for social anxiety disorder. *Cognitive Therapy and Research, 34*(1), 1–12. https://doi.org/10.1007/s10608-007-9147-9

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*(1), 12 – 19.

James, A. C., James, G., Cowdrey, F. A., Soler, A. & Choke, A. (2015). Cognitive behavioural therapy for anxiety disorders in children and adolescents. C*ochrane Database of Systematic Reviews, 2*. doi:10.1002/14651858.CD004690.pub4

Karen Jónsdóttir & Signý Sigurðardóttir. (2016). *Próffræðilegir eiginleikar íslenskra þýðinga á sheehan disability scale, quality of life scale og the patient health questionnaire* (BSc thesis). Iceland University, Department of Psychology. Retrieved

from https://skemman.is/bitstream/1946/24874/1/Karen%26Signý-lokaskil-1.jún%C3%AD2016.pdf

Katzelnick, D. J., Kobak, K. A., DeLeire, T., Henk, H. J., Greist, J. H., Davidson, J. R. T., … Helstad, C. P. (2001). Impact of generalized social anxiety disorder in managed care. *The American Journal of Psychiatry, 158*(12), 1999 – 2007. https://doi.org/10.1176/appi.ajp.158.12.1999

Kaufman, E. A. & Baucom, K. J. W. (2014). Treating comorbid social anxiety and major depression: The challenge of diagnostic overshadowing. *Clinical Case Studies, 13*(3), 265 – 281. doi:10.1177/1534650113508220

Keller, M. B. (2003). The lifelong course of social anxiety disorder: A clinical perspective. *Acta Psychiatrica, 108*(417), 85 – 94.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen, H. U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. *Archives of General Psychiatry, 51*(1), 8 – 19.

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9 validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606 – 613. doi:10.1046/j.1525-1497.2001.016009606.x

Kupper, N. & Denollet, J. (2012). Social anxiety in the general population: Introducing abbreviated version of SIAS and SPS. *Journal of Affective Disorders, 136*(1-2), 90 – 98. https://doi.org/10.1016/j.jad.2011.08.014

Kushner, M. G., Sher, K. J., & Beitman, B. D. (1990). The relation between alcohol problems and the anxiety disorders. *The American Journal of Psychiatry, 147*(6), 685 – 95.

Lewinsohn, P. M., Zinbarg, R., Seeley, J. R., Lewinsohn, M., & Sack, W. H. (1997).

Lifetime comorbidity among anxiety disorders and between axniety disorders and other mental disorders in adolesccents. *Journal of Anxiety Disorders, 11*(4), 377 – 394.

Martin, A., Rief, W., Klaiberg, A., & Braehler, E. (2006). Validity of the brief patient health questionnaire mood scale (PHQ-9) in the general population. *General Hospital Psychiatry, 28*(1), 71 – 77. https://doi.org/10.1016/j.genhosppsych.2005.07.003

Massion, A. O., Warshaw, M. G., & Keller, M. B. (1993). Quality of life and psychiatric morbidity in panic disorder and generalized anxiety disorder. *The American Journal of Psychiatry, 150*(4), 600 – 607.

Mattick, R. P. & Clark, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*(4), 455 – 470. doi.org/10.1016/S0005-7967(97)10031-6

McManus, F., Sacadura, C., & Clark, D. M. (2008). Why social anxiety persists: An experimental investigation of the role of safety behaviours as a maintaining factor. *Journal of Behavior Therapy and Experimental Psychiatry, 39*(2), 147 – 161. https://doi.org/10.1016/j.jbtep.2006.12.002

Ollendick, T. H., & Hirshfeld-Becker, D. R. (2002). The developmental psychopathology of social anxiety disorder. *Biological Psychiatry, 51*(1), 44 – 58. https://doi.org/10.1016/S0006-3223(01)01305-1

Rodebaugh, T. L., Woods, C. M., Heimberg, R. G., Liebowitz, M. R., & Schneier, F. R. (2006). The factor structure and screening utility of the social interaction anxiety scale. *Psychological Assessment, 18*(2), 231 – 237. doi:10.1037/1040-3590.18.2.231

Rósa Ingólfsdóttir. (2014). *Psychometric properties of the Icelandic version of the*

generalized anxiety disorder-7 (BSc thesis). Reykjavik University, Department of Psychology. Retrieved from https://skemman.is/bitstream/1946/19443/1/Rósa%20Ingólfsd%20skemman.pdf

Schneier, F. R., Foose, T. E., Hasin, D. S., Heimberg, R. G., Liu, S. M., & Blanco, C. (2011). Social anxiety disorder and alcohol use disorder comorbidity in the national epidemiologic survey on alcohol and related conditions. *Psychology Medicine, 40*(6), 977 – 988. doi:10.1017/S0033291709991231

Seligman, L. D., & Ollendick, T. H. (2011). Cognitive behavioral therapy for anxiety disorders in youth. *Child and Adolescent Psychiatric Clinics of North America*, *20*(2), 217 - 238. http://doi.org/10.1016/j.chc.2011.01.003

Sigurður Viðar. (2011). Hugræn atferlismeðferð í hóp við félagsfælni: Árangursmæling við kvíðameðferðastöðina (KMS). *Sálfræðiritið – Tímarit Sálfræðingafélags Íslands, 16*. 85 – 100.

Scaini, S., Belotti, R., Ogliari, A., & Battaglia, M. (2016). A comprehensive meta-analysis of cognitive-behavioral interventions for social anxiety disorder in children and adolescents. *Journal of Anxiety Disorders, 42*, 105 – 112. https://doi.org/10.1016/j.janxdis.2016.05.008

Spence, S. H., Donovan, C. & Brechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *Journal of Child Psychology and Psychiatry, 41*(6), 713 – 726.

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *JAMA Internal Medicine, 166*(10), 1092 – 1097. doi:10.1001/archinte.166.10.1092

Stein, M. B., Fuetsch, M., Müller, N., Höfler, M., Lieb, R., & Wittchen, H. U. (2001).

Social anxiety disorder and the risk of depression: A prospective community study of adolescents and young adults. *JAMA Psychiatry, 58*(3), 251 – 256. doi:10.1001/archpsyc.58.3.251

Stein, M. B., & Kean, Y. M. (2000). Disability and quality of life in social phobia: Epidemiologic findings. *The American Journal of Psychiatry, 157*(10), 1606 – 1613. https://doi.org/10.1176/appi.ajp.157.10.1606

Stein, M. B., & Stein, D. J. (2008). Social anxiety disorder. *The Lancet, 371*(9618), 1115–1125. https://doi.org/10.1016/S0140-6736(08)60488-2

Turk, C. L., Heimberg, R. G., & Magee, L. (2008). Social anxiety disorder. In Barlow, D. H. (Ed.), *The clinical handbook of psychological disorders: A step-by-step treatment manual* (pp. 123 – 258). New York: The Guilford Press.

Walker J. R., & Kjernsted, K. D. (2000). Fear: The impact and treatment of social phobia. *Journal of Psychopharmacology, 14*(2), 13 – 23. doi:10.1177/02698811000142S103