Cognitive-Behavior Therapy With and Without Parental Involvement for Anxious Chinese Adolescents: A Randomized Controlled Trial

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Abstract

This study evaluated the effectiveness of a culturally attuned group cognitive-behavior therapy (CBT) intervention for Chinese adolescents at risk for anxiety disorders in Hong Kong and the additive effects of parental involvement. A randomized controlled design was adopted. Assessments were gathered at pre- and posttreatment, and 6-month follow-up. Participants (N = 136) were randomly assigned to (a) CBT plus parental involvement (CBT-PI) (n = 46), (b) CBT (n = 45), and

(c) social activity (n = 45) conditions. Data were analyzed according to the intention-to-treat principle using multilevel modeling. The CBT-PI condition showed a greater reduction in physical injury fears compared with the CBT condition. The current findings suggest that involving parents in CBT for Chinese adolescents with anxiety problems may provide a small improvement in treatment efficacy.

Pathological childhood anxiety is defined as persistent or excessive anxiety symptoms that severely affect a child's nor- mal and adaptive functioning. On a continuum, anxiety can be expressed in terms of mild to severe, with severe anxiety characterized by the presence of an anxiety disorder (Keenan & Evans, 2009). The prevalence of youth anxiety disorders is between 10% and 20% (Kendall & Peterman, 2015). In Hong Kong, although an established prevalence study is lacking, a recent study suggests that 11.5% of children and adolescents suffer from anxiety problems (Wong & Tung Wah Group of Hospitals, 2013). Another study with a sample of Grade 7–9 students in Hong Kong revealed that 30.2% of the participants had any anxiety disorders using the symptom criteria of DMS- IV, and the figure dropped to 6.9% when an additional impair- ment criterion was applied (P. W. L. Leung et al., 2008). Childhood anxiety is relatively stable, and without appropriate intervention, can interfere with academic performance (de Li- jster et al., 2018) and adaptive functioning (Swan & Kendall, 2016; Swan et al., 2018). Moreover, childhood anxiety may persist into adulthood (Cartwright-Hatton, McNicol, & Double- day, 2006).

Several studies have found that Chinese children and adolescents experience higher levels of anxiety problems than those in other countries. Specifically, Chinese adolescents in Mainland China displayed higher anxiety symptoms than adolescents in Holland, Germany (Zhao, Xing, & Wang, 2012) and Italy (Delvecchio, Mabilia, Di Riso, Miconi, & Li, 2015). This difference may be related to strict socialization processes resulting in possibly excessive self-control and emotional re- straints, fear of disobedience of authorities, and fear of poor academic performance (Delvecchio et al., 2015). Surprisingly, despite these findings, very few studies have investigated the effectiveness of psychological intervention for Chinese adolescents with anxiety problems.

Empirically supported cognitive-behavior therapy (CBT) has been widely practiced in different countries. The Coping Cat program designed by Kendall (1994) is one of the most widely evaluated CBT programs for childhood anxiety. Another pro- gram, an adaptation of Coping Cat called FRIENDS, has a prevention focus for treatment of adolescents with negative emotions (Barrett, 1998). The Cool Kids program developed by Rapee et al. (2006) is aimed at helping children and their parents learn practical skills in dealing with children's anxiety symptoms. Common core components of these CBT programs include (a) recognizing anxious feelings and physical reactions to anxiety; (b) developing a coping plan; (c) learning adaptive cognitive and behavioral strategies to deal with anxiety symp- toms (e.g., cognitive restructuring); and (d) exposure tasks. In particular, cognitive restructuring and exposure can substan- tially reduce youth anxiety (Peris et al., 2015).

Studies have established CBT as the preferred choice of psychological treatment for anxiety disorders in children and adolescents (Reynolds, Wilson, Austin, & Hooper, 2012; Vil- labø, Narayanan, Compton, Kendall, & Neumer, 2018). More- over, CBT has been recommended by the National Institute for Clinical Excellence and the American Academy of Child and Adolescent Psychiatry as a first-line treatment for anxiety dis- orders in children and adolescents (NICE, 2008). One meta- analysis found moderate to large effect sizes for CBT for childhood anxiety (Compton et al., 2004). Another meta- analysis of 55 randomized controlled trials on childhood anxiety indicated the overall effect size was moderate to large for CBT intervention and not significant for non-CBT interventions (Reynolds et al., 2012). In addition, studies have found maintenance effects of CBT for childhood anxiety ranging from 1 to 19 years (Kendall & Peterman, 2015; Wolk, Kendall, & Beidas, 2015).

Despite its benefits, there are unanswered questions. First, many CBT studies for childhood anxiety included both children and adolescents (Reynolds et al., 2012). However, recent studies found that the effectiveness of CBT for adolescents and children may be different, with effect size for CBT for adolescents being larger than that of CBT for young children (e.g., Reynolds et al., 2012). The differences found in the effective- ness may be due to that children and adolescents are at different stages of cognitive development and engage in cognitive processing differently (Hess, Magnuson, & Beeler, 2012). Thus it is suggested that it is beneficial to separate the two groups to meet their differential developmental needs (Waite & Creswell, 2014). However, a literature search found very few studies on the effectiveness of CBT for Chinese adolescents with anxiety problems (Ng & Wong, 2018). In Hong Kong, Lau, Chan, Li, and Au (2010) evaluated the Coping Cat program for children with anxiety problems in the clinic settings and found significant decreases in anxiety problems and significant improvements in coping skills among participants from pre- to post- treatment, and to 3- and 6-month follow-up (Lau et al., 2010). An evaluation of the FRIENDS program for students aged 8 –10 in Hong Kong revealed significantly greater reductions in anxiety symptoms and externalizing behaviors in the treatment group than in control group at posttreatment (Siu, 2007). In Taiwan, Yen et al. (2014) adapted the Coping Cat program to treat children aged between 7 and 12 years with a diagnosable anxiety disorder in hospital settings. The results indicated a significant improvement in anxiety. One feature of these studies was that they only focused on children aged below 12 years.

Wong, Kwok, Low, Man, and Ip (2018) developed a culturally attuned CBT model for adolescent anxiety in Hong Kong. Significant decreases in anxiety symptoms at posttest were observed in the experimental group but not the control group. The drawbacks of this study were

(a) nonrandomization of the samples, (b) absence of a follow-up test, and (c) the sample only included those aged 12 to 15 years. Therefore, there is a strong need to examine the effectiveness of CBT on anxiety problems of the Chinese adolescent group. In this study, we evaluated the effectiveness of CBT for Chinese adolescents with anxiety problems.

Second, CBT has been applied to community settings (e.g., school-based setting), using a prevention approach to target children and adolescents at risk of developing anxiety disorders (e.g., Barrett, 1998). This attempt is driven by the past findings that most children and adolescents with high levels of anxiety do not seek treatment and suffer from untreated conditions (van Starrenburg, Kuijpers, Hutschemaekers, & Engels, 2013). Stud- ies have found that children who were "at risk" of mild to moderate anxiety could benefit from a school-based CBT intervention (Neil & Christensen, 2009). In a school setting, children and adolescents can receive CBT programs in their natural environment, which is considered less threatening and stigmatizing (Barrett & Pahl, 2006). The current study took a prevention approach targeting the at-risk population of Chinese adolescents.

Finally, earlier attempts involving parents in the treatment of anxiety have focused on teaching generic parenting skills such as problem solving (Lebowitz, Omer, Hermes, & Scahill, 2014). However, existing studies have not supported the additive benefits of parental involvement in CBT for childhood anxiety (Breinholst, Esbjørn, Reinholdt-Dunne, & Stallard, 2012; Wei & Kendall, 2014). This may be due to differences in the format and contents of treatment (Wei & Kendall, 2014). To address this issue, researchers have identified variables in parental involvement that may affect the successful implementation of CBT for childhood anxiety including parental anxiety, family accommodations1, parental overinvolvement and exposure coaching (Taboas, Mckay, Whiteside, & Storch, 2015). Built on these ideas, Lebowitz et al.

(2014) developed a parent-only CBT intervention. Initial findings showed significant improvements in child anxiety and family accommodation from pretest to posttest. However, one limitation of this study was the absence of a control group.

In Chinese culture, parental involvement in a child's welfare is highly valued because parents are perceived as important agents for children's development (Ma, Siu, & Tse, 2018; Wong, Zhuang, & Ng, 2019). Chinese parents are highly concerned about children's academic achievements and exert close monitoring and high demands on them (Ma et al., 2018). Given these expectations, some Chinese parents may experience high anxiety, which in turn may adversely affect children's well- being (Way et al., 2013). Past studies have found parental anxiety to be a predictor of childhood anxiety (Fjermestad, Nilsen, Johannessen, & Karevold, 2017; Hughes, Hedtke, & Kendall, 2008). Following the work of Lebowitz et al. (2014), this study developed a parental involvement component in CBT to target parents' parental anxiety, family accommodation, pa- rental overinvolvement, and exposure coaching.

This outcome study evaluated the effectiveness of Group CBT intervention with and without parental involvement for Chinese adolescents with anxiety problems in Hong Kong. There were three treatment conditions: the child-focused CBT condition, the CBT plus parental involvement (CBT-PI) condition, and the social activity condition. Social activity condition has been widely adopted to be an active control condition to various intervention conditions (e.g., Manassis et al., 2010). And the provision of a social activity group helped to control for the effects of group treatment (Zhuang et al., 2018). The CBT intervention in this study (a) was culturally attuned to suit the needs of Chinese adolescents; (b) was run as an afterschool program; (c) adopted a prevention approach and recruits adolescents at risk of having anxiety disorders; and (d) used a group format. Previous studies have found no significant differences between individual and

Group CBT for childhood anxiety (e.g., Wergeland et al., 2014). However, a group approach has other therapeutic effects such as mutual support and sharing of information (Yalom & Leszcz, 2005). We hypothesized that (a) the participants in the CBT-PI and child-focused CBT conditions would have greater decreases in anxiety symptoms and the use of negative cognitive emotional strategies and greater increases in self-esteem and the use of positive cognitive emotional strategies compared with the participants in the control condition; (b) the participants in the CBT-PI condition would have would have greater decreases in anxiety symptoms and the use of negative cognitive emotional strategies and greater increases in self-esteem and the use of positive cognitive emotional strategies compared with those in the child- focused CBT condition.

Method

Participants and Procedure

This study used a randomized controlled design with pre-, post-, and 6-month follow-up assessments. Sample size was calculated based on a moderate effect size of .70 for outcome research. For 80% power, an OI error of .05, and a test of three independent groups, the required sample size was 105 participants.

The inclusion criteria for participating adolescents were (a) Chinese students aged 12 to 19, (b) able to understand Canton- ese or Chinese, (c) currently experiencing symptoms of anxiety as indicated by a score of 9 or above on the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A; Y.-F. Chan, Leung, Fong, Leung, & Lee, 2010; White, Leach, Sims, Atkinson, & Cottrell, 1999), and (d) willing to complete the treatment. Those who had severe anxiety (i.e., a diagnosable anxiety disorder), severe mental illness (e.g., psychosis), special educational needs (e.g., autistic spectrum disorder, attention deficit and hyperactivity

disorder), and/or a suicidal at- tempt or ideation in the past three months were excluded. Moreover, the inclusion criteria for parents were (a) the primary caregivers of the participating adolescents, (b) willing to jointly participate with their children, (c) able to understand Cantonese or Chinese, and (d) willing to complete the treatment. Parents with severe mental illness (e.g., psychosis) and/or suicidal attempt or ideation in the past three months were excluded.

Participants were screened by the school social workers from Lutheran Social Services, which was a local social service agency providing social work services for a number of secondary schools in Hong Kong. The school social workers screened for and confirmed with the form teacher appropriate cases using the HADS-A and identify students who scored 9 or above on the scale. During the screenings, students with severe anxiety symptomology and in need of clinical treatment were reported to their school social worker team for further follow-up and clinical treatment referral. The screenings were conducted during the school day around two months before commencement of each round of groups. In total, we accessed and screened 954 students, with 594 students not meeting inclusion criteria (see Figure 1 for the reasons). There were 219 eligible students who declined to participate, among which 192 showed no interests to our program, 25 reported time clash with their personal schedules and 2 claimed to have busy schoolwork. Besides, there were 5 other eligible students whose parents did not permit them to participate. Therefore, we recruited 136 participants as our final research sample. The level of anxiety as indicated by the HADS-A score did not significantly differ between the 136 participants and 224 eligible students who did not participate. Randomization was conducted after the baseline assessment to ensure allocation concealment. The 136 adolescents were randomly assigned to the CBT-PI (n = 46), CBT (n = 45), and social activity (n = 45) conditions. For the CBT-PI condition, one parent of each adolescent was recruited. Questionnaires were

administered by a research assistant blinded to the treatment allocation. Informed student assent and parental consent were obtained from all participants. This study received ethical approval from the Human Research Ethics Committee of the University of Hong Kong. Figure 1 illustrates the CONSORT table of the progress through the phases of the study.

Treatment

Cognitive-behavior therapy (CBT). The Group CBT intervention followed the contents of the original Coping Cat pro- gram developed by Kendall (1994) and Kendall and Hedtke (2006a, 2006b) and was culturally adapted to meet the needs of Chinese adolescents (Wong et al., 2018). Specifically, the workbook was written in Chinese with relevant case examples and activities to facilitate participants' interests. Video clips of cartoons and movies in Chinese were selected to illustrate various CBT concepts. Different types of cognitive distortions related to anxiety reactions (e.g., catastrophizing, arbitrary inference, assumption of responsibility) were translated into colloquial terms to help participants remember and understand them (Wong et al., 2018).

The intervention was provided by school social workers trained by two experienced CBT therapists. Six CBT groups were conducted, and each group had six to 10 adolescents. The intervention included eight 2-hr sessions. The first four sessions covered topics on (1) recognizing anxious feelings and physical reactions to anxiety, (2) developing a coping plan, (3) and learning adaptive cognitive and behavioral strategies to deal with anxiety symptoms (e.g., cognitive restructuring). The remaining sessions helped participants practice exposure tasks and other skills such as assertion and problem solving. To accommodate the common practice of afterschool activities for students in Hong Kong, the group sessions were reduced from 16 1-hr sessions to eight 2-hr sessions. Similar modifications have been successfully implemented in Hong Kong (Lau et al., 2010; Wong et al., 2018).

Cognitive-behavior therapy plus parental involvement (CBT-PI). Adolescents in the CBT-PI condition received the same treatment as those in the CBT condition. However, in this condition one parent of each adolescent received five 2-hr psychoeducation group sessions. Six CBT-PI groups were run, and each group had six to 10 parents. The protocol adopted in the current parent intervention was developed based on the treatment manual developed by Lebowitz et al. (2014) and the first author's previous extensive experiences on working with parenting style of Chinese parents with children with special educational needs or with other clinical experiences. The sessions covered topics on parental anxiety, family accommodation, parental overinvolvement, and tips on exposure coaching. The first four sessions were parallel to the first four Group CBT sessions for adolescents. In the fourth session, parents were equipped with the exposure coaching skills so that they could help their children conduct exposure activities. The fifth session was parallel to the sixth Group CBT session for adolescents. Such design aimed to facilitate parents to consolidate their experience in helping their adolescents to carry out exposure. Only five sessions were offered because some parents had difficulties to attend more sessions due to other life commitments.

Social activity. Social activity groups served as the control condition. Six social activity groups were conducted, and each group consisted of five to 10 adolescents. There were eight 2-hr sessions. In each session, social workers led participants in social activities with no CBT elements such as board games, card games, and hiking.

Treatment Fidelity

All sessions were videotaped and two experts in CBT with no affiliation with the project watched five randomly selected video clips and rated the level of compliance to the manual according to a self-constructed checklist of critical components and techniques that needed to be covered in the

CBT program for our anxious adolescents. A high score reflected great compliance and fidelity to treatment protocol by the school social workers. A high concordance rate between the two experts represented the reliability of the evaluation of the treatment fidelity.

Therapist Training

All school social workers involved had to hold an undergraduate social work degree with a minimum of three years of social work experience. They were provided with a 3-day training to learn specific CBT skills for running the CBT and CBT-PI groups. They also received regular group supervision.

Measures

Adolescents completed a questionnaire measuring the primary outcomes, secondary outcomes, and demographic characteristics. Parents in the CBT-PI condition completed a questionnaire assessing their demographic characteristics.

Primary Outcomes

The anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A). The HADS-A developed by Zigmond and Snaith (1983) contains seven items scored on a 4-point scale ranging from 0 to 3. The total subscale score ranges from 0 to 21, with a higher score representing a higher level of anxiety. This study adopted the Chinese version of the HADS-A validated by C. M. Leung, Wing, Kwong, Lo, and Shum (1999). The HADS-A has been widely adopted as a screening instrument for anxiety among both clinical and nonclinical populations around the world (Y.-F. Chan et al., 2010). Different cut-off scores for identifying possible and probable psychiatric cases have been reported for different populations in different cultures. For adolescents, White et al. (1999) suggested that a score of 8 or less indicates noncases, 9 to 11

indicates possible cases, and 12 or above indicates probable cases. The study by Y.-F. Chan et al. (2010) using a large community sample of adolescents in Hong Kong (N = 5,857) adopted the cut-off scores suggested by White et al. (1999) found similar prevalence of possible (30%) and probable cases (10%) of anxiety to those reported by White et al. (1999) as well as to other studies on anxious adolescents in Hong Kong (P. W. L. Leung et al., 2008). Therefore, in the present study, we also adopted the cut-off points recommended by White et al. (1999). The numbers and percentages of possible and probable cases of anxiety of in the current sample at pretest are presented in Table 1. The HADS-A showed adequate internal consistency reliability at pretest (Ol = .72), posttest (Ol = .76), and 6-month follow-up (Ol = .73).

The Spence Children's Anxiety Scale (SCAS). The SCAS constructed by Spence (1997) includes 44 items, of which 38 assess anxiety symptoms and 6 are positive filler items to eliminate negative response bias. The SCAS measures six do- mains of childhood anxiety: separation anxiety (6 items), social phobia (6 items), obsessive– compulsive (6 items), panic/ago-raphobia (9 items), physical injury fears (5 items), and generalized anxiety (6 items). Each item is rated on a 4-point scale range from 0 (never) to 3 (always). A higher score denotes greater severity of anxiety. This scale has been used in adolescents (Muris, Merckelbach, Ollendick, King, & Bogie, 2002). In this study, the Chinese version of the SCAS validated by Li, Lau, and Au (2011) was used. The total scale had high internal consistency reliability at pretest (Ol = .92), posttest (Ol = .94), and 6-month follow-up (Ol = .94). The six subscales had acceptable internal consistency reliability at pretest (Ols = .56 –.82), posttest (Ols = .64 –.87), and 6-month follow-up (Ols =.65–.85).

Secondary Outcomes

Rosenberg Self-Esteem Scale (RSES). The RSES devised by Rosenberg (1965) is a 10-item

measure of global self-esteem. All items are scored on a 4-point scale ranging from 1 (strongly

agree) to 4 (strongly disagree). A higher score indicate a higher level of self-esteem. This study

employed the Chinese version of the RSES validated by Cheng and Hamid (1995). The RSES

had satisfactory internal consistency reliability at pretest (Ol = .82), posttest (Ol =

.84), and 6-month follow-up (Ol = .87).

Cognitive Emotion Regulation Questionnaire (CERQ). The CERQ developed by Garnefski,

Kraaij, and Spinhoven (2002) is a 36-item instrument measuring specific cognitive emotion

regulation strategies in response to stressful events. The CERQ consists of nine 4-item subscales

tapping four negative strategies (self-blame, rumination, catastrophizing, and blaming others)

and five positive strategies (acceptance, positive refocusing, refocus on planning, positive

reappraisal, and putting into perspective). Each item is measured on a 5-point scale ranging from

1 (almost never) to 5 (almost always). The Chinese version of the CREQ validated by S. M.

Chan, Chan, and Kwok (2015) was adopted in this study. The internal consistency reliability was

good for the total negative strategies scale at pretest (Ol = .84), posttest (Ol = .87), and 6-month

follow-up (Ol = .90) and for the total positive strategies scale at pretest (Ol = .88), posttest (Ol

= .89), and 6-month follow-up (Ol = .90). The nine subscales had acceptable internal consistency

reliability at pretest (Ols = .60 –.82), posttest (Ols = .59 –.78), and 6-month follow-up (Ols

= .61–.86).

Data Analysis

Data were analyzed according to the intention-to-treat (ITT) principle. We used multilevel

modeling (MLM) with full max-means of combined groups (Cohen, Cohen, West, & Aiken,

2003). To examine the hypothesized differences in changes in outcome variables over time across the three treatment conditions, two cross-level interaction effects (Time X Contrast 1 and Time X Contrast 2) were entered. Simple effects of time on outcome variables for each treatment condition was examined by coding treatment as dummy variables (Kahn & Schneider, 2013). To facilitate the interpretation of the coefficients, all continuous variables were standardized prior to the inclusion in the multilevel models. The partially standardized coefficients were used as effect sizes (Lorah, 2018).

Additionally, because treatment effects may decrease at the end of the intervention (Kahn & Schneider, 2013), we tested the possibility of the quadratic effect of time (time2) and the differences in the quadratic effect of time across the three treatment conditions (Time2 X Contrast 1 and Time2 X Contrast 2). A quadratic growth curve with fixed slopes and random intercepts was tested, because it requires at least four measurement occasions to test random slopes in a quadratic growth curve (Mroczek & Griffin, 2007). The change in -2 log- likelihood statistic (-2LL) was used to evaluate whether adding these effects improved the model fit.

Results

Table 1 presents the pretreatment demographic characteristics of the participants. The results of chi-square tests of independence found no significant differences among the three conditions in the adolescents' demographic characteristics. Adolescent participants attended an average of six sessions across the three treatment conditions. Parents attended an average of four sessions out of the total five sessions.

Descriptive statistics for outcome variables by time and treatment condition are shown in Table 2. The results of MLM analyses for primary and secondary outcomes are summarized in Table 3.

It was found that the Time X Contrast 2 interaction effect on the SCAS physical injury fears score was significant, suggesting that the CBT-PI condition showed a significantly greater reduction in the SCAS physical injury fears score (y = -.14, p = .042) compared with the CBT condition. Besides, three interaction effects were in the expected directions but not statistically significant. In particular, CBT-PI condition showed a greater reduction in the SCAS generalized anxiety score (y = -.06, p = .073) compared with the CBT condition. Moreover, the CBT-PI condition exhibited greater increases in the RSE score (y = .11, p = .088) and the CERQ refocus on planning score (y = .16, p = .081) compared with the CBT condition.

Simple effects of time on outcome variables for each treatment condition are shown in Table 3. It was revealed that the HADS-A score, the SCAS total and most subscale scores de- creased over time in all three treatment conditions. Moreover, the RSES score increased over time in the CBT-PI condition. Regarding cognitive emotion regulation strategies, decreases in CERQ negative strategies total and the rumination subscale scores were found in the CBT-PI condition, decreases in CERQ negative strategies total and all of the four subscale scores were found in the CBT condition, and no changes were found in the social activity condition.

In addition, we tested the possible quadratic effects of time and the differences in the quadratic effects of time across the three treatment conditions. As the quadratic interaction terms (Time2 X Contrast 1 and Time2 X Contrast 2) did not significantly improve the fit of the models, they were not included in the models. Adding the quadratic effect of time (time2) improved the model fit for RSES score (y= -.34, -2LL = 5.79, p = .016) and CERQ positive reappraisal scores (y = -.41, -2LL = 4.46, p = .035), suggesting that the increases in these two outcomes decelerated over time. The quadratic effects of time on other outcomes were not significant.

Discussion

This study was the first to evaluate the effectiveness of culturally attuned CBT and CBT-PI for Chinese adolescents with anxiety problems. The current results indicate that CBT-PI was more effective in alleviating one dimension of anxiety than child- focused CBT. Reductions in anxiety symptoms were observed in all three conditions, and decreased use of negative cognitive emotional strategies was observed in the CBT-PI and child-focused CBT conditions. Also of note, the reductions in anxiety symptoms did not decelerate over time, suggesting that the treatment effects were sustainable.

Consistent with prediction, the findings revealed a significantly greater decrease in physical injury fears in the CBT-PI condition than in the child-focused CBT condition. However, the improvements in other outcomes did not significantly differ between the CBT-PI and child-focused CBT conditions. Past studies conducted in Western countries did not identify additive benefits of parental involvement in CBT for childhood and adolescent anxiety (Breinholst et al., 2012; Wei & Kendall, 2014). The present findings suggest that involving parents in CBT for anxious Chinese adolescents may provide a small improvement in treatment efficacy. Perhaps these findings may be explained in terms of the characteristics of Chinese parenting. Chinese culture places a strong emphasis on parents' responsibilities in educating and disciplining their children (Ma et al., 2018). In comparison with Western parents, Chinese parents tend to be more authoritarian, controlling, and overinvolved (Ma et al., 2018; Wong et al., 2019). Chinese parents also have high expectations for their children's academic achievement (Ma et al., 2018). Overinvolvement, overcontrol and academic pressure from Chinese parents have been documented as risk factors for Chinese adolescent anxiety (Wong et al., 2019). Besides, Chinese parents are highly anxious about how to raise their children to perform well in school (Way et al., 2013), and parental anxiety has been established as a predictor of child- hood and adolescent

anxiety (Fjermestad et al., 2017; Hughes et al., 2008). Therefore, involving parents in the treatment of adolescent anxiety is expected to be more beneficial for Chinese adolescents than Western adolescents. However, our findings suggest that the advantage of CBT-PI over child-focused CBT for anxious Chinese adolescents may be small. Future work is needed to verify the benefits of involving parents in CBT for Chinese anxious adolescents.

Unexpectedly, this study revealed that the efficacy of CBT-PI and child-focused CBT in eliminating anxiety symptoms among Chinese adolescents did not significantly differ from that of social activity. Participants in all three conditions exhibited significant reductions in anxiety. It is somewhat surprising that the effects of social activity on adolescent anxiety were comparable to CBT and CBT-PI. There are several possible reasons for these unexpected findings. Specifically, participation in social activities is conducive to adolescents' adjustment (Dumont & Provost, 1999). Moreover, social activities may generate social support, which in turn may mitigate adolescents' anxiety symptoms (Compas, Slavin, Wagner, & Vannatta, 1986). Furthermore, as Hong Kong adolescents spend a large amount of time in school and on homework and have a packed daily schedule with extracurricular activities and supplementary tutoring (Sivan, Tam, Siu, & Stebbins, 2019), they may regard the social activity group as an opportunity to avoid academic stress. Future studies are suggested to examine the impact of social activities on Chinese adolescents' anxiety symptoms.

This study had some limitations. First, this study did not assess changes in parental factors (e.g., parenting strategies) across the three conditions. Previous studies on CBT-PI for childhood or adolescent anxiety have rarely measured parental factors (Breinholst et al., 2012; Wei & Kendall, 2014), but assessing parental factors would allow the analysis of whether the superior efficacy of CBT-PI relative to traditional CBT is due to improvements in parental variables (Khanna &

Kendall, 2009). Future research is recommended to measure parental factors apart from adolescent outcomes. Second, this study only included Chinese adolescents with anxiety problems. Further research is needed to determine whether parental involvement may enhance the treatment effect of CBT for both Chinese children and adolescents with anxiety problems and anxiety disorders.

References

Barrett, P. M. (1998). Evaluation of cognitive-behavioral group treatments for childhood anxiety disorders. *Journal of Clinical Child Psychology, 27,* 459 – 468. http://dx.doi.org/10.1207/s15374424jccp2704_10

Barrett, P. M., & Pahl, K. M. (2006). School-based intervention: Examin- ing a universal approach to anxiety management. *Journal of Psychologists and Counsellors in Schools, 16,* 55–75.

Breinholst, S., Esbjørn, B. H., Reinholdt-Dunne, M. L., & Stallard, P. (2012). CBT for the treatment of child anxiety disorders: A review of why parental involvement has not enhanced outcomes. *Journal of Anxiety Disorders, 26,* 416 – 424. http://dx.doi.org/10.1016/j.janxdis.2011.12.014

Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical Psychology Review, 26,* 817– 833. http://dx.doi.org/10.1016/j.cpr.2005.12.002

Chan, S. M., Chan, S. K., & Kwok, W. W. (2015). Ruminative and catastrophizing cognitive styles mediate the association between daily hassles and high anxiety in Hong Kong adolescents. *Child Psychiatry and Human Development, 46,* 57– 66. http://dx.doi.org/10.1007/s10578-014-0451-9

Chan, Y.-F., Leung, D. Y. P., Fong, D. Y. T., Leung, C.-M., & Lee, A. M.(2010). Psychometric evaluation of the Hospital Anxiety and Depression Scale in a large community sample of adolescents in Hong Kong. *Quality of Life Research: An International Journal of Quality of*

Life Aspects of Treatment, Care & Rehabilitation, 19, 865– 873.

http://dx.doi.org/10.1007/s11136-010-9645-1

Cheng, S. T., & Hamid, P. N. (1995). An error in the use of translated scales: The Rosenberg

Self-Esteem Scale for Chinese. *Perceptual and Motor Skills, 81,* 431– 434.

http://dx.doi.org/10.1177/003151259508100214

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation*

analysis for the behavioral sciences (3rd ed.). Mahwah, N.J.: L. Erlbaum Associates.

Compas, B. E., Slavin, L. A., Wagner, B. M., & Vannatta, K. (1986). Relationship of life events

and social support with psychological dysfunction among adolescents. *Journal of Youth and*

Adolescence, 15, 205–221. http://dx.doi.org/10.1007/BF02139123

Compton, S. N., March, J. S., Brent, D., Albano, A. M., Weersing, V. R., & Curry, J. (2004).

Cognitive-behavioral psychotherapy for anxiety and depressive disorders in children and

adolescents: An evidence-based medicine review. *Journal of the American Academy of Child*

& Adolescent Psychiatry, 43, 930 –959.

http://dx.doi.org/10.1097/01.chi.0000127589.57468.bf

de Lijster, J. M., Dieleman, G. C., Utens, E. M. W. J., Dierckx, B., Wierenga, M., Verhulst, F.

C., & Legerstee, J. S. (2018). Social and academic functioning in adolescents with anxiety

disorders: A systematic review. *Journal of Affective Disorders, 230*, 108 –117.

http://dx.doi.org/10.1016/j.jad.2018.01.008

Delvecchio, E., Mabilia, D., Di Riso, D., Miconi, D., & Li, J. B. (2015). A comparison of anxiety

symptoms in community-based Chinese and Italian adolescents. *Journal of Child and Family*

Studies, 24, 2418 – 2431. http://dx.doi.org/10.1007/s10826-014-0045-y

Dumont, M., & Provost, M. A. (1999). Resilience in adolescents: Protec- tive role of social

    support, coping strategies, self-esteem, and social activities on experience of stress and

    depression. *Journal of Youth and Adolescence, 28,* 343–363.

    http://dx.doi.org/10.1023/A:1021637011732

Fjermestad, K. W., Nilsen, W., Johannessen, T. D., & Karevold, E. B. (2017). Mothers' and

    fathers' internalizing symptoms influence parental ratings of adolescent anxiety symptoms.

    Journal of Family Psychology, 31, 939 –944. http://dx.doi.org/10.1037/fam0000322

Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). *Manual for the use of the Cognitive Emotion*

    Regulation Questionnaire. Leiderdorp, the Netherlands: DATEC.

Hess, R., Magnuson, S., & Beeler, L. (2012). *Counseling children and adolescents in schools.*

    Thousand Oaks, CA: SAGE Publications.

Hughes, A. A., Hedtke, K. A., & Kendall, P. C. (2008). Family functioning in families of

    children with anxiety disorders. *Journal of Family Psychology, 22,* 325–328.

    http://dx.doi.org/10.1037/0893-3200.22.2.325

Kahn, J. H., & Schneider, W. J. (2013). It's the destination and it's the journey: Using multilevel

    modeling to assess patterns of change in psychotherapy. *Journal of Clinical Psychology, 69,*

    543–570. http://dx.doi.org/10.1002/jclp.21964

Keenan, T., & Evans, S. (2009). *An introduction to child development* (2nd ed.). Los Angeles,

    CA: SAGE.

Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical

trial. *Journal of Consulting and Clinical Psychology, 62,* 100 –110.

http://dx.doi.org/10.1037/0022-006X.62.1.100

Kendall, P. C., & Hedtke, K. (2006a). *Cognitive-behavioral therapy for anxious children:*

Therapist manual (3rd ed.). Ardmore, PA: Workbook Publishing.

Kendall, P. C., & Hedtke, K. (2006b). *Coping cat workbook* (2nd ed.). Ardmore, PA: Workbook

Publishing.

Kendall, P. C., & Peterman, J. S. (2015). CBT for adolescents with anxiety: Mature yet still

developing. The American Journal of Psychiatry, 172, 519 –530.

http://dx.doi.org/10.1176/appi.ajp.2015.14081061

Khanna, M. S., & *Kendall, P. C. (2009). Exploring the role of parent training in the treatment of*

childhood anxiety. Journal of Consulting and Clinical Psychology, 77, 981–986.

http://dx.doi.org/10.1037/a0016920

Lau, W. Y., Chan, C. K. Y., Li, J. C. H., & Au, T. K. F. (2010). Effectiveness of group

cognitive-behavioral treatment for childhood anxiety in community clinics. *Behaviour*

Research and Therapy, 48, 1067–1077. http://dx.doi.org/10.1016/j.brat.2010.07.007

Lebowitz, E. R., Omer, H., Hermes, H., & Scahill, L. (2014). Parent training for childhood

anxiety disorders: The SPACE program. *Cognitive and Behavioral Practice, 21,* 456 – 469.

http://dx.doi.org/10.1016/j.cbpra.2013.10.004

Leung, C. M., Wing, Y. K., Kwong, P. K., Lo, A., & Shum, K. (1999). Validation of the

Chinese-Cantonese version of the hospital anxiety and depression scale and comparison with

the Hamilton Rating Scale of Depression. *Acta Psychiatrica Scandinavica, 100*, 456 – 461.

http://dx.doi.org/10.1111/j.1600-0447.1999.tb10897.x

Leung, P. W. L., Hung, S. F., Ho, T. P., Lee, C. C., Liu, W. S., Tang, C. P., & Kwong, S. L.

(2008). Prevalence of DSM–IV disorders in Chinese adolescents and the effects of an

impairment criterion: A pilot community study in Hong Kong. *European Child & Adolescent*

Psychiatry, 17, 452– 461. http://dx.doi.org/10.1007/s00787-008-0687-7

Li, J. C. H., Lau, W. Y., & Au, T. K. F. (2011). Psychometric properties of the Spence

Children's Anxiety Scale in a Hong Kong Chinese community sample. *Journal of Anxiety*

Disorders, 25, 584 –591. http:// dx.doi.org/10.1016/j.janxdis.2011.01.007

Lorah, J. (2018). Effect size measures for multilevel models: Definition, interpretation, and

TIMSS example. *Large-Scale Assessments in Education, 6,* 8.

http://dx.doi.org/10.1186/s40536-018-0061-2

Ma, Y., Siu, A., & Tse, W. S. (2018). The role of high parental expectations in adolescents'

academic performance and depression in Hong Kong. *Journal of Family Issues, 39,* 2505–

2522. http://dx.doi.org/10.1177/0192513X18755194

Manassis, K., Wilansky-Traynor, P., Farzan, N., Kleiman, V., Parker, K., & Sanford, M. (2010).

The feelings club: Randomized controlled evaluation of school-based CBT for anxious or

depressive symptoms. *Depression and Anxiety, 27,* 945–952.

http://dx.doi.org/10.1002/da.20724

Mroczek, D. K., & Griffin, P. W. (2007). The use of growth-curve modeling in estimating

stability and change in well-being over time. In A. D. Ong & M. M. van Dulmen (Eds.),

Oxford handbook of methods in positive psychology (pp. 467– 476). New York, NY: Oxford University Press.

Muris, P., Merckelbach, H., Ollendick, T., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety Questionnaires: Their reliability and validity in a normal adolescent sample. *Behaviour Research and Therapy, 40,* 753–772. http://dx.doi.org/10.1016/S0005-7967(01)00056-0

Neil, A. L., & Christensen, H. (2009). Efficacy and effectiveness of school-based prevention and early intervention programs for anxiety. *Clinical Psychology Review, 29,* 208 –215. http://dx.doi.org/10.1016/j.cpr.2009.01.002

Ng, T. K., & Wong, D. F. K. (2018). The efficacy of cognitive behavioral therapy for Chinese people: A meta-analysis. *The Australian and New Zealand Journal of Psychiatry, 52*, 620 – 637. http://dx.doi.org/10.1177/0004867417741555

NICE. (2008). *Summary of cognitive behavioural therapy interventions recommended by NICE.* London, England: National Institute for Health and Care Excellence.

Peris, T. S., Compton, S. N., Kendall, P. C., Birmaher, B., Sherrill, J., March, J., . . . Piacentini, J. (2015). Trajectories of change in youth anxiety during cognitive-behavior therapy. *Journal of Consulting and Clinical Psychology, 83,* 239 –252. http://dx.doi.org/10.1037/a0038402

Rapee, R. M., Lyneham, H. J., Schniering, C. A., Wuthrich, V., Abbott, M. A., Hudson, J. L., & Wignall, A. (2006). *Cool kids: Child and adolescent anxiety program therapist manual.* Sydney, Australia: Centre for Emotional Health, Macquarie University.

Reynolds, S., Wilson, C., Austin, J., & Hooper, L. (2012). Effects of psychotherapy for anxiety in children and adolescents: A meta-analytic review. *Clinical Psychology Review, 32,* 251– 262. http://dx.doi.org/10.1016/j.cpr.2012.01.005

Rosenberg, M. (1965). *Society and the adolescent self-image.* Prince ton, NJ: Princeton University Press. http://dx.doi.org/10.1515/ 9781400876136

Siu, A. F. Y. (2007). Using FRIENDS to combat internalizing problems among primary school children in Hong Kong. *Journal of Cognitive and Behavioral Psychotherapies, 7,* 11–26.

Sivan, A., Tam, V., Siu, G., & Stebbins, R. (2019). Adolescents' choice and pursuit of their most important and interesting leisure activities. *Leisure Studies.* Advance online publication. http://dx.doi.org/10.1080/ 02614367.2018.1539867

Spence, S. H. (1997). Structure of anxiety symptoms among children: A confirmatory factor-analytic study. *Journal of Abnormal Psychology, 106,* 280 –297. http://dx.doi.org/10.1037/0021-843X.106.2.280

Swan, A. J., & Kendall, P. C. (2016). Fear and missing out: Youth anxiety and functional outcomes. Clinical Psychology: *Science and Practice, 23,* 417– 435. http://dx.doi.org/10.1111/cpsp.12169

Swan, A. J., Kendall, P. C., Olino, T., Ginsburg, G., Keeton, C., Compton, S., . . . Albano, A. M. (2018). Results from the child/adolescent anxiety multimodal longitudinal study (CAMELS): Functional outcomes. *Journal of Consulting and Clinical Psychology, 86,* 738 –750. http://dx.doi.org/10.1037/ccp0000334

Taboas, W. R., McKay, D., Whiteside, S. P. H., & Storch, E. A. (2015). Parental involvement in youth anxiety treatment: Conceptual bases, controversies, and recommendations for intervention. *Journal of Anxiety Disorders, 30, 16 –18.* http://dx.doi.org/10.1016/j.janxdis.2014.12.005

van Starrenburg, M. L. A., Kuijpers, R. C. W. M., Hutschemaekers, G. J. M., & Engels, R. C. M. E. (2013). Effectiveness and underlying mechanisms of a group-based cognitive behavioural therapy-based in- dicative prevention program for children with elevated anxiety levels. *BMC Psychiatry, 13,* 183. http://dx.doi.org/10.1186/1471-244X-13-183

Villabø, M. A., Narayanan, M., Compton, S. N., Kendall, P. C., & Neumer, S. P. (2018). Cognitive-behavioral therapy for youth anxiety: An effec- tiveness evaluation in community practice. *Journal of Consulting and Clinical Psychology, 86, 751–764.* http://dx.doi.org/10.1037/ ccp0000326

Waite, P., & Creswell, C. (2014). Children and adolescents referred for treatment of anxiety disorders: Differences in clinical characteristics. *Journal of Affective Disorders, 167,* 326 – 332. http://dx.doi.org/10.1016/ j.jad.2014.06.028

Way, N., Okazaki, S., Zhao, J., Kim, J. J., Chen, X. Y., Yoshikawa, H.,... Deng, H. H. (2013). Social and emotional parenting: Mothering in a changing Chinese society. Asian American *Journal of Psychology, 4,* 61–70. http://dx.doi.org/10.1037/a0031204

Wei, C., & Kendall, P. C. (2014). Parental involvement: Contribution to childhood anxiety and its treatment. *Clinical Child and Family Psychology Review, 17,* 319 –339. http://dx.doi.org/10.1007/s10567-014-0170-6

Wergeland, G. J. H., Fjermestad, K. W., Marin, C. E., Haugland, B. S. M., Bjaastad, J. F., Oeding, K.,... Heiervang, E. R. (2014). An effectiveness study of individual vs. group cognitive behavioral therapy for anxiety disorders in youth. *Behaviour Research and Therapy, 57,* 1–12. http://dx.doi.org/10.1016/j.brat.2014.03.007

White, D., Leach, C., Sims, R., Atkinson, M., & Cottrell, D. (1999). Validation of the Hospital Anxiety and Depression Scale for use with adolescents. *The British Journal of Psychiatry, 175*, 452– 454. http://dx.doi.org/10.1192/bjp.175.5.452

Wolk, C. B., Kendall, P. C., & Beidas, R. S. (2015). Cognitive-behavioral therapy for child anxiety confers long-term protection from suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry, 54,* 175–179. http://dx.doi.org/10.1016/j.jaac.2014.12.004

Wong, D. F. K., Kwok, S. Y. C. L., Low, Y. T., Man, K. W., & Ip, P. S. Y. (2018). Evaluating effectiveness of cognitive-behavior therapy for Hong Kong adolescents with anxiety problems. *Research on Social Work Practice, 28,* 585–594. http://dx.doi.org/10.1177/1049731516658351

Wong, D. F. K., & Tung Wah Group of Hospitals. (2013). *Research report on anxiety among primary school students: The perspective of parents and teachers.* Hong Kong: Tung Wah Group of Hospitals (in Chinese).

Wong, D. F. K., Zhuang, X. Y., & Ng, T. K. (2019). Is parental control beneficial or harmful to the development of young children in Hong Kong? *Journal of Child and Family Studies, 28,* 831– 838. http://dx.doi.org/10.1007/s10826-018-1301-3

Yalom, I. D., & Leszcz, M. (2005). *The theory and practice of group psychotherapy* (5th ed.). New York, NY: Basic Books.

Yen, C. F., Chen, Y. M., Cheng, J. W., Liu, T. L., Huang, T. Y., Wang, P. W., . . . Chou, W. J. (2014). Effects of cognitive-behavioral therapy on improving anxiety symptoms, behavioral problems and parenting stress in Taiwanese children with anxiety disorders and their mothers. *Child Psychiatry and Human Development, 45*, 338 –347. http://dx.doi.org/10.1007/s10578-013-0403-9

Zhao, J., Xing, X., & Wang, M. (2012). Psychometric properties of the Spence Children's Anxiety Scale (SCAS) in Mainland Chinese children and adolescents. *Journal of Anxiety Disorders, 26,* 728 –736. http://dx.doi.org/10.1016/j.janxdis.2012.05.006

Zhuang, X. Y., Wong, D. F. K., Ng, T. K., Jackson, A. C., Dowling, N. A., & Lo, H. H. (2018). Evaluating the effectiveness of an integrated cognitive-behavioural intervention (CBI) model for male problem gam- blers in Hong Kong: A matched-pair comparison design. *Journal of Gambling Studies, 34,* 969 –985. http://dx.doi.org/10.1007/s10899-018-9747-1

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica, 67,* 361–370. http://dx.doi.org/10.1111/j.1600-0447.1983.tb09716.x

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Table 1

Demographic Characteristics of the Participants at Pre-test

Variable	CBT-PI n (%)	CBT n (%)	SA n (%)	χ^2
Gender				.60
Male	19 (42.2)	22 (47.8)	18 (40.0)	
Female	26 (57.8)	24 (52.2)	27 (60.0)	
Age				8.64
12-14	7 (15.6)	13 (28.9)	18 (40.0)	
15-16	28 (62.2)	22 (48.9)	23 (51.1)	
17-19	10 (22.2)	10 (22.2)	4 (8.9)	
Birth place				5.71
Hong Kong	39 (86.7)	39 (86.7)	32 (71.1)	
Mainland China	6 (13.3)	1 (2.2)	2 (4.4)	
Others	0 (0.0)	6 (13.3)	13 (28.9)	
Health status				5.37
Healthy	32 (71.1)	25 (58.1)	36 (80.0)	
Mental illness	5 (11.1)	8 (18.6)	3 (6.7)	
Others	8 (17.8)	10 (23.3)	6 (13.3)	
Grade				7.61
Form 1-2	2 (4.4)	8 (17.8)	9 (20.0)	
Form 3-4	27 (60.0)	27 (60.0)	28 (62.2)	
Form 5-6	16 (35.6)	10 (22.2)	8 (17.8)	
Living with mother				2.57
Yes	39 (86.7)	42 (93.3)	43 (95.6)	
No	6 (13.3)	3 (6.7)	2 (4.4)	
Living with father				.31
Yes	34 (75.6)	32 (71.1)	34 (75.6)	
No	11 (24.4)	13 (28.9)	11 (24.4)	
Living with sibling				1.82
Yes	25 (61.0)	21 (46.7)	21 (52.2)	
No	16 (39.0)	24 (53.5)	20 (48.8)	

Household income				5.00
HK$10,000 or below	7 (19.4)	8 (21.6)	5 (12.8)	
HK$10,001-$20000	16 (44.4)	10 (27.0)	15 (38.5)	
HK$20,001-$30000	7 (19.4)	7 (18.9)	6 (15.4)	
HK$30,001 or above	6 (16.7)	12 (32.4)	13 (33.3)	
Domestic helper				.54
Yes	5 (11.6)	5 (11.6)	7 (16.3)	
No	38 (88.4)	38 (88.4)	36 (83.7)	
Parent's gender				
Male	6 (13.3)			
Female	39 (86.7)			
Parent's age				
40 years or below	7 (15.6)			
41-50 years	28 (62.2)			
51 years or above	10 (22.2)			
Parent's birth place				
Hong Kong	26 (57.8)			
Mainland China	18 (40.0)			
Others	1 (2.2)			
Parent's marital status				
Single	1 (2.2)			
Married	35 (77.8)			
Separated/Divorced	8 (17.8)			
Widowed	1 (2.2)			
Parent's health status				
Healthy	33 (73.3)			
Mental illness	6 (13.3)			
Others	6 (13.3)			
Parent's education				
Primary or below	3 (6.7)			
Junior secondary	16 (35.6)			
Senior secondary	22 (16.1)			

Tertiary or above	4 (8.8)
Parent's employment status	
Full-time	16 (36.4)
Part-time or temporary	10 (22.7)
Self-employed	1 (2.3)
Unemployed	17 (12.5)

Note. None of the group differences was significant. CBT = Cognitive-behaviour therapy; CBT-PI = Cognitive-behaviour therapy plus parental involvement; SA = Social activity.

Table 2

Descriptive Statistics for Outcome Variables by Time and Treatment Condition

	CBT-PI			CBT			SA		
	Pre-test	Post-test	6-month follow-up	Pre-test	Post-test	6-month follow-up	Pre-test	Post-test	6-month follow-up
Outcome variable	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
HADS-A	10.96 (3.18)	9.64 (3.63)	8.39 (3.45)	10.79 (3.31)	9.40 (3.73)	8.89 (2.63)	10.41 (2.45)	9.60 (2.95)	8.41 (3.75)
SCAS	49.91 (19.79)	46.60 (21.26)	41.09 (20.84)	47.05 (18.96)	49.54 (21.29)	42.32 (17.61)	47.22 (14.45)	46.23 (21.10)	40.59 (18.95)
Separation anxiety	6.15 (3.88)	6.03 (3.82)	5.32 (3.76)	6.22 (3.95)	6.35 (3.85)	5.32 (3.46)	5.52 (3.71)	6.51 (4.45)	5.03 (3.81)
Social phobia	10.24 (3.60)	9.62 (4.08)	8.58 (3.99)	10.13 (3.71)	10.25 (3.94)	9.42 (3.58)	9.11 (2.04)	9.11 (3.41)	7.81 (3.81)
Obsessive-compulsive	8.15 (4.25)	7.64 (4.05)	7.14 (3.82)	8.14 (3.89)	8.82 (4.18)	7.10 (3.86)	9.16 (3.54)	8.33 (4.03)	7.57 (3.20)
Panic/agoraphobia	9.15 (6.06)	8.54 (6.45)	8.49 (6.79)	8.16 (5.05)	8.80 (6.32)	7.53 (4.65)	8.79 (5.03)	8.19 (6.04)	7.43 (5.61)
Physical injury fears	6.26 (2.87)	5.24 (2.89)	4.56 (3.21)	5.58 (3.03)	5.68 (3.35)	5.36 (3.20)	6.49 (2.99)	6.31 (3.51)	5.78 (3.03)
Generalised anxiety	9.96 (4.43)	8.78 (4.07)	7.86 (4.29)	9.25 (3.95)	9.59 (3.65)	8.00 (3.71)	8.40 (3.28)	8.11 (3.71)	7.40 (3.87)
RSES	22.16 (4.87)	23.71 (4.59)	23.84 (4.35)	23.22 (5.66)	24.33 (5.98)	23.79 (6.25)	23.45 (3.63)	24.44 (3.84)	24.85 (5.36)
CERQ Negative strategies	46.65 (10.83)	45.85 (11.09)	44.32 (12.27)	46.69 (9.99)	46.90 (9.69)	43.59 (9.72)	46.57 (8.94)	46.53 (10.17)	45.46 (11.60)
Self-blame	13.48 (3.05)	11.71 (3.55)	11.54 (3.32)	13.31 (3.21)	12.28 (3.00)	11.00 (2.80)	13.38 (3.08)	12.03 (3.19)	11.86 (3.73)
Rumination	11.78 (3.72)	13.00 (3.87)	12.84 (3.83)	11.56 (4.08)	13.68 (2.96)	12.67 (3.13)	11.60 (3.21)	13.19 (3.11)	12.86 (3.10)
Catastrophizing	9.54 (3.77)	11.00 (3.42)	10.84 (3.75)	9.76 (3.56)	10.93 (3.63)	10.77 (3.43)	9.36 (2.97)	11.29 (3.17)	11.00 (3.64)
Blaming others	11.85 (3.81)	9.60 (3.40)	9.11 (3.81)	12.07 (3.23)	10.23 (3.55)	9.15 (3.08)	12.09 (2.86)	9.89 (3.33)	9.75 (4.20)
CERQ Positive strategies	57.57 (12.81)	59.80 (13.84)	59.83 (14.22)	60.38 (12.36)	60.23 (9.69)	59.95 (11.34)	61.07 (12.23)	62.23 (13.09)	60.61 (13.41)

Acceptance	12.27 (2.85)	12.21 (3.10)	11.83 (3.26)	13.38 (2.48)	13.05 (2.43)	12.55 (2.36)	12.51 (2.53)	12.86 (2.98)	12.33 (2.92)
Positive refocusing	10.28 (2.91)	11.00 (3.21)	11.03 (3.55)	10.80 (3.75)	10.80 (3.07)	11.05 (3.43)	11.49 (3.36)	11.81 (3.28)	11.59 (3.47)
Refocus on planning	11.87 (3.54)	12.80 (3.28)	13.00 (3.98)	12.76 (3.47)	12.67 (2.93)	12.51 (3.09)	12.60 (3.54)	12.72 (3.44)	12.56 (3.25)
Positive reappraisal	11.00 (3.67)	12.07 (3.48)	11.59 (3.78)	11.31 (3.92)	12.03 (3.17)	11.97 (3.66)	12.19 (2.99)	12.58 (3.52)	12.11 (3.65)
Putting into perspective	11.91 (3.12)	11.95 (3.23)	11.65 (3.23)	12.13 (3.27)	11.85 (2.32)	11.72 (2.85)	12.18 (3.32)	12.37 (3.35)	12.09 (3.74)

Note. CBT = Cognitive-behaviour therapy; CBT-PI = Cognitive-behaviour therapy plus parental involvement; CERQ = Cognitive Emotion Regulation Questionnaire; HADS-A = Anxiety subscale of the Hospital Anxiety and Depression Scale; RSES = Rosenberg Self-Esteem Scale; SCAS = Spence Children's Anxiety Scale; SA = Social activity.

Table 3

Results of Multilevel Modelling

Outcome variable	Time × Contrast 1	Time × Contrast 2	Simple effect of time		
			CBT-PI	CBT	SA
HADS-A	-.06	.04	-.29***	-.21**	-.25**
SCAS	-.31	.17	-1.13**	-.73*	-.90*
Separation anxiety	-.03	-.01	-.14*	-.12*	-.12†
Social phobia	-.08	.04	-.23*	-.13*	-.17*
Obsessive-compulsive	.05	.03	-.12*	-.16*	-.19*
Panic/agoraphobia	.01	.02	-.10	-.10	-.12
Physical injury fears	-.11*	.03	-.19**	-.06†	-.09*
Generalised anxiety	-.10*	-.04	-.24**	-.18*	-.13*
RSES	.12	-.09	.22*	.06	.15†
CERQ Negative strategies	.06	-.29†	-.26*	-.46*	-.17
Self-blame	.06	-.12†	-.04	-.15*	-.04
Rumination	.01	-.04	-.08*	-.11*	-.06
Catastrophizing	-.01	-.02	-.10	-.10*	-.08
Blaming others	.01	-.13†	-.03	-.10*	.02
CERQ Positive strategies	.29	.07	.22	-.03	-.11
Acceptance	.01	-.07	-.06	-.10	-.04
Positive refocusing	.05	.05	.08	.05	.00
Refocus on planning	.15†	-.02	.13†	-.04	-.02
Positive reappraisal	.02	.11	.05	.08	-.03
Putting into perspective	-.02	-.03	-.05	-.05	-.01

Note. Time was coded as a continuous variable (pre-test = 0, post-test = 2, 6-month follow-up = 8). Treatment was represented by two orthogonal contrast-coded variables (contrast 1 and contrast 2). Contrast 1 compared the CBT-PI condition with the CBT and SA conditions (CBT-PI = ⅔, CBT = -⅓, SA = -⅓). Contrast 2 compared the CBT condition with the SA condition (CBT-PI = 0, CBT = ½, SA = -½). CBT = Cognitive-behaviour therapy; CBT-PI = Cognitive-behaviour therapy plus parental involvement; CERQ = Cognitive Emotion Regulation Questionnaire; HADS-A = Anxiety subscale of the Hospital Anxiety and Depression Scale; RSES = Rosenberg Self-Esteem Scale; SCAS = Spence Children's Anxiety Scale; SA = Social activity.

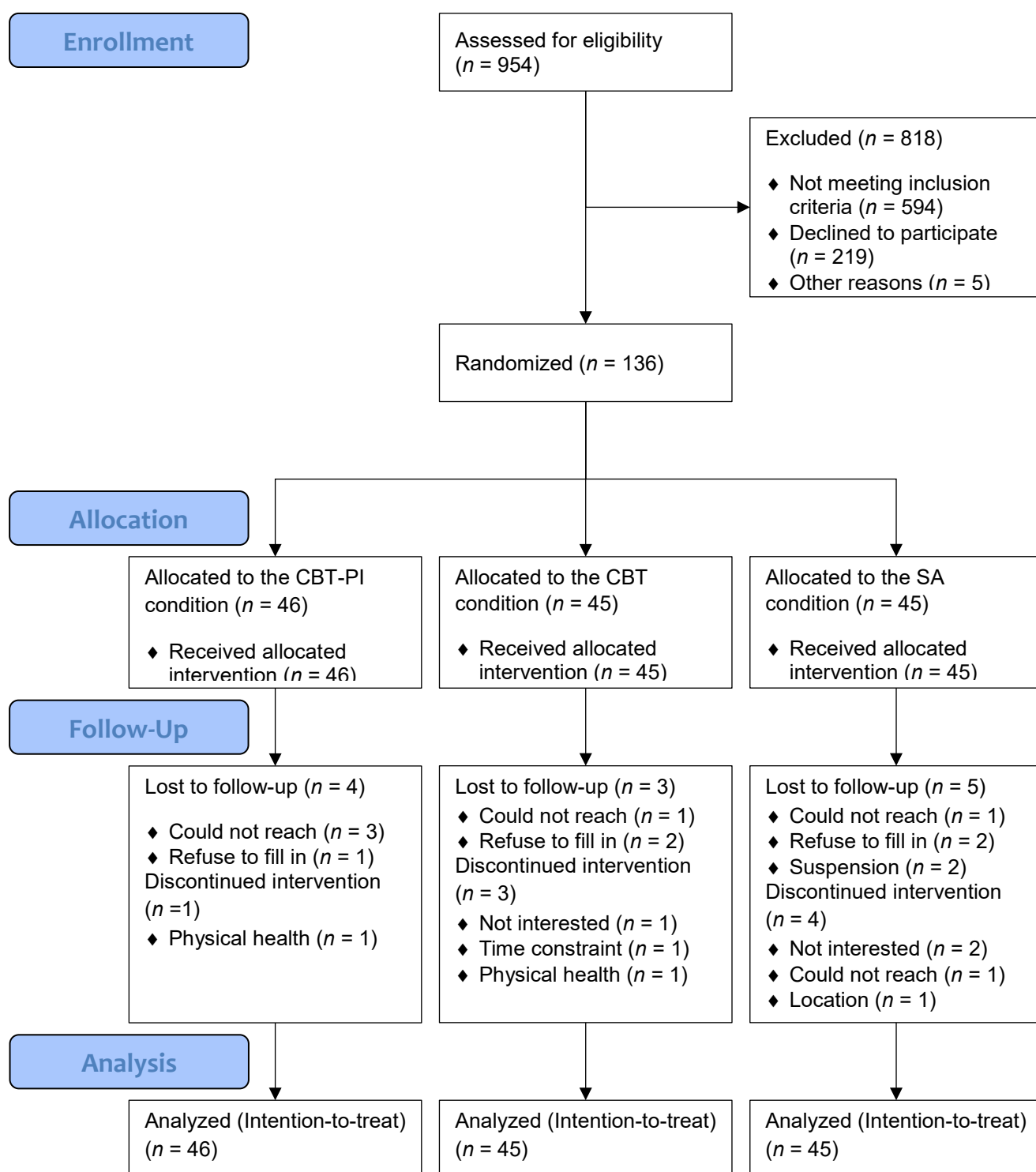†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

Figure 1. Flow diagram of the progress through the phases of the study. CBT = Cognitive-behaviour therapy; CBT-PI = Cognitive-behaviour therapy plus parental involvement; SA = Social activity.