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To cite this article: Gonca Özyurt, Özlem Gencer, Yusuf Öztürk & Aylin Özbek (2019) Is Triple P effective in childhood anxiety disorder? A randomized controlled study, *Psychiatry and Clinical Psychopharmacology*, 29:4, 570-578, DOI: [10.1080/24750573.2018.1483790](https://doi.org/10.1080/24750573.2018.1483790)

To link to this article: <https://doi.org/10.1080/24750573.2018.1483790>



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Published online: 18 Jun 2018.



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Is Triple P effective in childhood anxiety disorder? A randomized controlled study

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ABSTRACT

OBJECTIVES: Considering the role of parenting in the aetiology and maintenance of anxiety disorders, working with parents is a promising treatment strategy. Triple P-positive parenting programme is a parent-focused cognitive behaviour therapy. In this study, we aimed to investigate the effectiveness of Triple P in improvement in childhood anxiety disorders and also to assess its effects on behavioural and emotional problems, general anxiety level, severity of the disorder, and general psychosocial functioning. Parents' mental health and general well-being were also evaluated.

METHODS: In this randomized controlled study, the sample consisted of 74 children, aged between 8 and 12 years, who were diagnosed as anxiety disorder by Schedule for Affective Disorders and Schizophrenia for School Age Children Present and Life-time Kiddie (K-SADS-PL). Following randomization into two equal groups, mothers of the first group participated to Group Triple P Programme, while the second group was receiving no treatment. The two groups were compared right before and after the intervention on rates of anxiety symptoms, emotional, and behavioural variables.

RESULTS: Children's general anxiety level was significantly lower in the intervention group following Triple P implementation. Behavioural and emotional problems were also reduced in the intervention group. Parental anxiety and general well-being were not significantly different between two groups.

CONCLUSION: It is considered that Triple P may be useful in the treatment of children's anxiety disorder but further studies about Triple P on children's anxiety disorders are needed.

ARTICLE HISTORY

Received 30 March 2018
Accepted 25 May 2018

KEYWORDS



Anxiety disorders; childhood anxiety; parent child interaction; parent intervention; positive parenting; Triple P

Introduction

Anxiety disorders are one of the most common psychiatric disorders of childhood, with 6.5% of children diagnosed as having at least one anxiety disorder [1]. In a recent study conducted in Turkey, the prevalence of anxiety disorders was found as 13.9% in children [2]. Childhood anxiety disorders induce major risks for future development, such as suicidality and substance abuse during adolescence, and higher rates of psychopathology and educational underachievement in adulthood [3,4]. For that reason, early intervention in childhood, during which behaviour and cognitive development are more modifiable than in adolescence or adulthood, may reduce anxious thoughts and may also avoid negative presentations of self [5,6].

Child-focused cognitive behavioural therapy (CBT) is an effective treatment for childhood anxiety disorders with complete recovery rates of just under 66% [7]. However, the intellectual demands of CBT might be more elusive for children than adolescents. Additionally, existing etiologic literature points out the importance of parenting

in the development and maintenance of childhood anxiety disorders [8]. Recent studies showed that the parenting variable of overprotection is strongly related with childhood anxiety disorder [9]. The relationship between parental behaviours and child anxiety were found in a recent study, independent of genetic confounding [10]. Due to these findings, separate parent sessions were included to the treatment of childhood anxiety, in addition to child-focused CBT [11,12]. Parental interventions may be more acceptable and briefer for families [13] and also they may be seen less stigmatizing especially if the children are reluctant to participate [14]. Stigma is one of the most important trammel for psychological treatment applications and parents consider that their children to be more vulnerable than their parents for stigmatization [15] so parent-focused intervention may be more acceptable than child-focused therapy and in this content, working with parents is a promising treatment strategy. In recent years, as an alternative to child-focused CBT, some parent-based CBT interventions have been found to be effective in reducing symptoms in children with anxiety disorders [16–19].

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The Positive Parenting Programme (Triple P), which is a multilevel system of family intervention for parents, is a preventively oriented programme that aims to promote positive, caring relationships between parents and their children, and to help parents develop effective management strategies for dealing with a variety of childhood behavioural and emotional problems and common development issues [20]. It was shown that several parental risk factors such as family conflict, violence, and poor communication [3] caused internalizing symptoms and disorders among children. Therefore, positive parenting behaviours, which are provided with Triple P, can demonstrate positive results on anxiety symptoms.

In light of this information, we designed this study to investigate the effectiveness of Triple P (eight-session parent-focused group intervention), which has evolved from a programme of clinical research, in reducing behavioural and emotional problems, general anxiety levels, disorder severity, and general psychosocial functioning for childhood anxiety disorders [20,21]. Potential effects of Triple P on parental anxiety and psychological well-being are also evaluated.

It was hypothesized that:

- (1) The anxiety level of children whose parents participated in the intervention would be significantly lower from pre- to post-treatment compared to children whose parents were in the waiting list (WL) group.
- (2) Emotional and behavioural problems of children whose parents participated in the intervention would reduce significantly more from pre- to post-treatment compared to children whose parents were in the WL group.
- (3) The intervention would be useful to decrease parental anxiety and may be helpful for improving maternal mental health.

Method

Sample

In the Department of Child and Adolescent Psychiatry of Dokuz Eylül University Hospital, the WL of the outpatient clinic was analysed and 124 children aged 8–12 years who were diagnosed as having an anxiety disorder according to the criteria of the Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM-IV-TR) were identified in November 2012. The parents of these children were contacted by phone and asked to participate in the study in December 2012. The participants' flow through the trial is summarized in Figure 1. The study protocol was approved by the institutional ethics committee of Dokuz Eylül University (IRB approval date and number: October 15 2012 – 622). Informed consents and assents were obtained from

all children and their parents. The parents of these children and adolescents, who had been living with their children for the last two years, were invited to participate. The exclusion criteria for children were as follows: mental retardation (total intelligence quotient < 70), psychotic disorders, post-traumatic stress disorder, obsessive-compulsive disorder, bipolar disorder, and autism spectrum disorders, and those who had received or were currently receiving psychiatric treatment. Parents who had previously received parent-focused therapies were excluded from the study.

Due to sample size calculations, it was determined that 26 children for the case group and 26 children for the control group constituted the number of samples sufficient for this study as a result of the power analysis performed at 0.05 significance and 95% confidence interval.

After these assessments, 74 families were randomly assigned to either the intervention (Triple P) ($n = 37$) or the WL ($n = 37$) groups. They were randomized with Random Sequence Generator application in the web site of www.random.org on February 8 2013 at 08:18:12. Out of the 74 children whose parents accepted to participate, 55 children and their parents completed the study (26 children for the intervention group and 29 children for the WL group). Sessions took place in March and April 2013. These details were shown in Figure 1.

Measurements

Schedule for Affective Disorders and Schizophrenia for School Age Children Present and Life-time (KIDDISADS-PL): The children's diagnosis was determined by The K-SADS-PL which is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents according to DSM-III-R and DSM-IV criteria. Child and parent ratings are combined in a compound summary [22]. Gökler et al. [23] translated K-SADS-PL into Turkish and completed Turkish forms' validity and reliability in 2004. The clinician who assessed the children and their parents was blind to groups.

The Screen for Anxiety-Related Emotional Disorders (SCARED) instrument consists of 41 items asking the parent (or caregiver) to indicate how often a descriptive phrase regarding how their child may have felt over the course of the previous three months is true. Respondents may select from the options of "Not True or Hardly Ever True," "Somewhat True or Sometimes True," and "Very True or Often True." [24]. Both child and parent's report were used. SCARED Turkish forms' validity and reliability were made by Çakmakçı [25]. Its Cronbach's alpha in the present study is 0.71.

Global Functioning and Severity – The Children's Global Assessment Scale (CGAS) [26] is a widely used measure of overall severity of child disturbance,

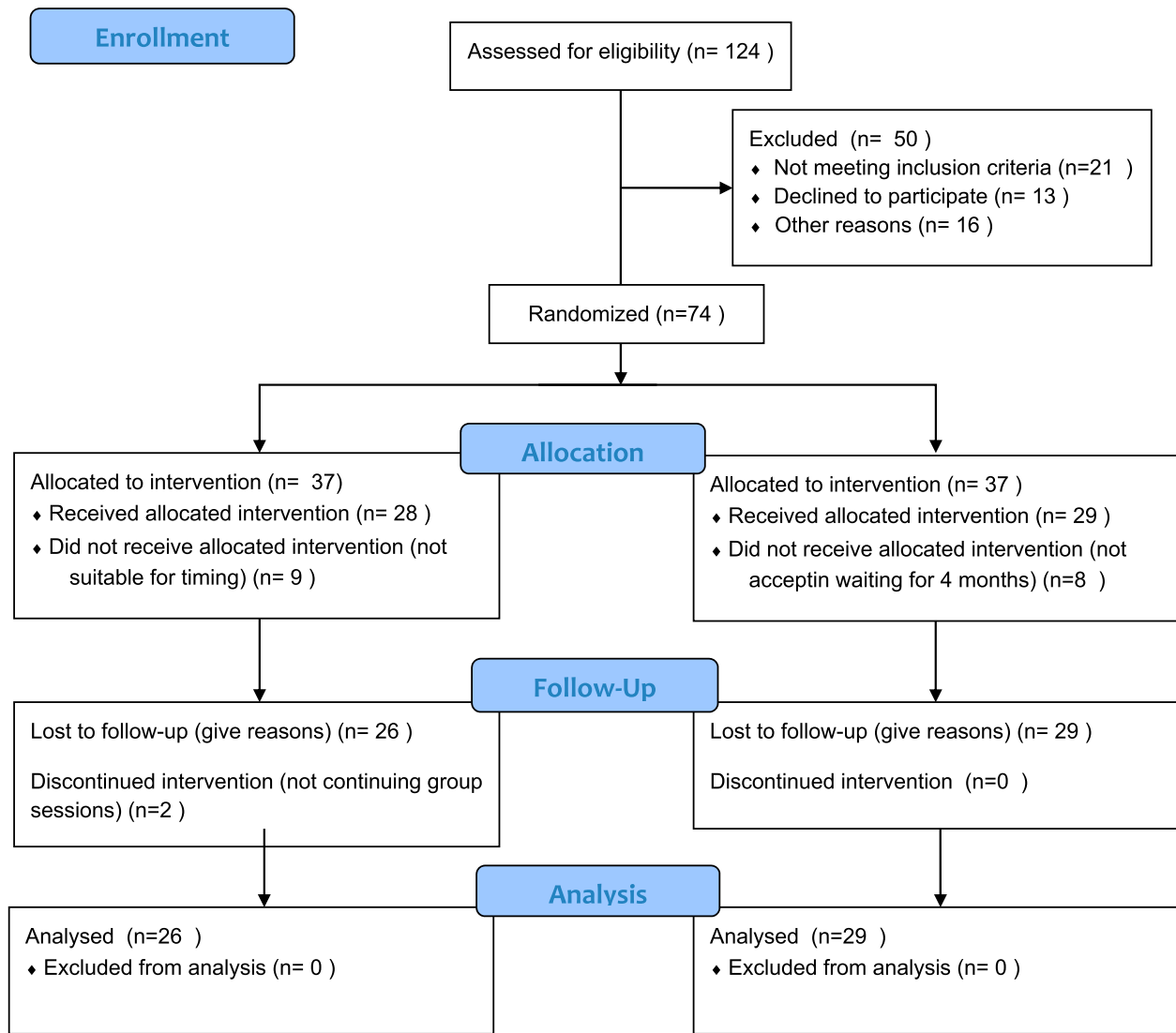


Figure 1. Consort diagram.

providing a clinician-rated index of functioning. Scores range from 0 to 100, with higher scores indicating higher levels of functioning and lower scores indicating greater functional impairments.

The Clinical Global Impression-Severity Scale (CGI-S) is the most widely used clinician-rated measure of treatment-related changes in functioning [27]. The CGI-S score rates illness severity on a 7-point scale, ranging from 1 (“normal”) to 7 (“among the most severely ill patients”). CGAS and CGI-S are usually used in Turkish Child and Adolescent outpatient and inpatient clinics. They are also used in a lot of Turkish clinic studies in this area. CGAS and CGI-S were used to indicate symptom severity in the present study.

The Strengths and Difficulties Questionnaire (SDQ) is a 25-item behavioural screening questionnaire measuring parents’ perceptions of pro-social and difficult behaviours in children aged 3–16 years [28]. Five scales are computed by summing the five items for each scale (emotional problems, conduct problems, inattention/hyperactivity problems, peer problems, and pro-social behaviour). Scores from the SDQ have

been found to discriminate well between low- and high-risk samples [29]. Güvenir et al. [30] translated Turkish forms and made their validity and reliability. Its Cronbach’s alpha is 0.73 and SDQ has been used in recent Triple P studies. In the present study, its Cronbach’s alpha is 0.71.

The General Health Questionnaire (GHQ) is a screening device for identifying minor psychiatric disorders in the general population and within the community or non-psychiatric clinical settings such as primary care or general medical outpatients GHQ-28. A 28-item scaled version assesses somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression [31]. Kilic et al. [32] completed Turkish forms’ validity and reliability in 1996 and its Cronbach’s alpha is 0.94. GHQ was used to examine maternal mental health in this study and its Cronbach’s alpha is 0.88.

The State-Trait Anxiety Inventory (STAI) is a psychological inventory based on a 4-point Likert scale and consists of 40 questions on a self-report basis. The STAI measures two types of anxiety – state anxiety (anxiety about an event) and trait anxiety

(anxiety level as a personal characteristic). Higher scores are positively correlated with higher levels of anxiety [33]. Öner and Le Compte completed Turkish forms' validity and reliability in 1985 [34]. Parental anxiety was measured with STAI. Cronbach's alpha is 0.83–0.92 for state form and 0.83–0.87 for trait form. Its Cronbach's alpha is 0.84 for state form and 0.88 for trait form in the present study.

Intervention

Triple P

Standard Triple P was delivered to parents in the intervention group over the course of eight weeks. It provides moderate to high intensity intervention and focuses on improving parent–child interaction and the application of parenting skills to a broad range of target behaviours [35]. A workbook summarizing the content of every session and suggested homework was given to each parent before the first session. The group sessions included content presentation, video watching, group discussions, and role-play exercises. Triple P uses an active skills training process to teach parents a variety of parenting skills. The programme involves five 2-hour group sessions that educate and actively train skills, and three (15–30 minutes) individual telephone consultations that follow a self-regulatory format to facilitate independent problem solving. The contents of the group session are shown in Table 1 [20].

The facilitators were trained within the context of Balçova project in Izmir, Turkey by Alan Ralph, who is associate professor at parenting and family support centre school of psychology, the University of Queensland Brisbane, in May 2012, and they were accredited in September 2012. The clinician who assessed and diagnosed the children and parents was blind to intervention and WL group. The other two facilitators were leaders for Triple P group sessions together in sessions at Dokuz Eylül University Child and Adolescent Psychiatry Department.

Study design

All children were drug naive. Following randomization into two equal groups, the parents of the intervention group participated in Triple P for eight weeks, whereas the WL group received no therapy. The two groups were compared immediately before and after the implementation regarding sociodemographic, emotional, and behavioural variables. Children in WL group were in usual order to have visits in Child and Adolescent Psychiatry Department. The WL group participated in Triple P after these first eight weeks.

Data analysis

All data analyses were performed using SPSS 15.0. Continuous variables are presented by means of summary statistics. This (unless otherwise stated) refers to the number of patients (*n*), mean, standard deviation (SD). Categorical data are presented using either

Table 1. Contents of Group Triple P sessions.

Session number	Content	Session duration
1. Positive parenting	Working as a group What is positive parenting? Why do children behave as they do? Goals for change Keeping track	120 minutes (group)
2. Helping children develop	Developing good relationships with children Encouraging good behaviour Teaching new skills and behaviours	120 minutes (group)
3. Managing misbehaviour	Managing misbehaviour Developing parenting routines Finalising your behaviour chart	120 minutes (group)
4. Planning ahead	Family survival tips High-risk situations Planned activities Preparing for telephone sessions	120 minutes (group)
5. Using positive parenting strategies 1	Preparing for the session Update on practice Other issues	15–30 minutes (telephone)
6. Using positive parenting strategies 2	Preparing for the session Update on practice Other issues	15–30 minutes (telephone)
7. Using positive parenting strategies 3	Preparing for the session Update on practice Other issues	15–30 minutes (telephone)
8. Program close	Preparing for the session Update on practice Phasing out the program Progress review Keeping up the good changes Problem solving for the future Future goals Final assessment	120 minutes (group)

absolute or relative frequencies. Demographic data were compared using the Chi-square test. To evaluate the effectiveness of Triple P on childhood anxiety disorders, and to assess its effects on behavioural and emotional problems, general anxiety level, disorder severity, and general psychosocial functioning, baseline measurements were compared using the Mann–Whitney *U* test because the scores were not normally distributed. Assumptions of normality were evaluated using the Shapiro–Wilk test. The effects of Triple P on the anxiety and psychological well-being of parents of

children with anxiety disorders were also analysed using the Mann–Whitney *U* test. Wilcoxon signed ranks test was used to find statistical differences in the same group before and after Triple P. All tests were two-tailed with *p* values <.05 considered significant.

Results

Sociodemographic data

There were no significant difference between the case group and WL group in terms of age, gender, and education levels of parents. Demographical characters are shown in Table 2. Clinical diagnosis and comorbidities are shown in Table 3.

Table 2. Sociodemographic features in the intervention and WL group.

	Intervention group	WL group	<i>p</i>
Age	9.96 ± 1.58	9.83 ± 1.33	<i>p</i> = .678*
Sex			
Male	16	19	$\chi^2 = 0.94$, <i>p</i> = .759**
Female	10	10	
Mothers' education			
Less than high school	13	16	
High school and more than high school	13	13	$\chi^2 = 0.147$, <i>p</i> = .701**
Fathers' education			
Less than high school	8	16	
High school and more than high school	18	13	$\chi^2 = 3.319$, <i>p</i> = .068**

*Mann–Whitney *U* test non-parametric test.

** χ^2 (two-side).

Table 3. Psychiatric diagnosis and comorbidities in the intervention and WL group.

Psychiatric diagnosis	Intervention group <i>n</i> (%)	WL group <i>n</i> (%)
Social Anxiety Disorder (SAD)	3 (11.5)	4 (13.8)
Specific Phobia (SP)	0 (0)	2 (6.9)
Separation Anxiety Disorder (SeA)	5 (19.2)	5 (17.2)
Generalize Anxiety Disorder (GAD)	8 (30.8)	8 (27.5)
SA&GAD	2 (7.7)	3 (10.3)
SP&GAD	2 (7.7)	1 (3.4)
SA&SP	2 (7.7)	0 (0)
GAD&SeA	2 (7.7)	3 (10.3)
SA&GAD	0 (0)	2 (6.9)
SeA&SP	2 (7.7)	0 (0)
GAD&Panic Disorder	0 (0)	1 (3.4)
Psychiatric comorbidity ADHD ^a	5 (19.2)	4 (13.8)
Learning Disorder	1 (3.8)	1 (3.4)
Depression	0 (0)	2 (6.9)
No comorbidity	20 (77)	22 (75.8)

^aAttention deficit-hyperactivity disorder.

Comparisons of SDQ subscales

We observed significant reduction in peer relation, emotional problem subscale scores, and total problem score of SDQ between intervention and WL group after Triple P with Mann–Whitney *U* analysis (*p* values, *p* = .02, *p* = .001, *p* = .008, respectively). Comparisons of SDQ subscales are shown in Table 4.

Comparisons of CGAS, CGI-S, SCARED parent and child form, GHQ-28, STAI-S, STAI-T scores

We found statistically significant reduction in SCARED Child and Parent Report Form in the comparison of intervention and WL group after Triple P (*p* < .001 in all analysis). Children's general anxiety level and anxiety disorder severity were significantly lower following Triple-P implementation (*p* values, *p* < .001 and *p* < .001, respectively). Between-group analysis were not significantly different regarding parental anxiety (STAI-S, STAI-T) and general well-being variables (GHQ) (*p* values, *p* = .261, *p* = .380, *p* = .567, respectively). Comparisons of CGAS, CGI-S, SCARED parent and child Form, STAI-S, STAI-T, GHQ scores are shown in Table 5.

Table 6 shows the comparison of all questionnaires' scores in intervention and WL group with Wilcoxon signed ranks test.

Table 4. Comparison of SDQ scores between intervention and WL group before and after Triple P.

SDQ subscales	Intervention Group		WL Group		<i>p</i>		Effect size	Cohen's <i>d</i>
	T1a	T2a	T1b	T2b	T1	T2		
Emotional Problems	6.23 ± 1.86	3.38 ± 1.49	5.20 ± 1.97	5.03 ± 1.99	.412	.001	−0.424	−0.938
Behaviour Problems	2.23 ± 1.55	1.80 ± 1.64	2.17 ± 1.67	2.00 ± 1.64	.904	.624	−0.060	−0.121
Attention Deficit and Hyperactivity Problems	5.80 ± 2.13	1.88 ± 1.58	4.72 ± 2.49	4.34 ± 1.91	.102	.32	−0.574	−1.403
Peer Relation Problems	3.30 ± 1.95	1.88 ± 1.58	3.37 ± 1.76	3.48 ± 1.88	.817	.02	−0.418	−0.921
Social Problems	7.57 ± 1.90	8.38 ± 1.38	8.03 ± 1.45	8.03 ± 1.59	.401	.426	0.116	0.235
Impact score	5.00 ± 2.03	2.46 ± 2.04	3.89 ± 2.35	3.93 ± 1.86	.053	.005	−0.352	−0.753
Total Score	17.57 ± 4.02	11.73 ± 4.19	15.48 ± 5.49	14.86 ± 4.50	.199	.008	−0.338	−0.719

Notes: Mann–Whitney *U* test SDQ: Strengths and Difficulties Questionnaire; T1a: Before Triple-P implementation; T2a: After 8-week Triple P implementation; T1b: The initiation of the study; T2b: 8 weeks following the initiation of the study; *p*: comparison of scores between intervention and waiting list group before Triple P; *p**: comparison of scores between intervention and waiting list group after Triple. The bold values are *p* < 0.001. *p* < 0.05 is significant then they are *p* < 0.001.

Table 5. Results of CGAS, CGI-S, GHQ-28, STAI-S, STAI-T, SCARED parent and child form scores of the intervention and WL groups before and after Triple P.

	Intervention Group		WL Group		<i>p</i> T1	<i>p</i> [*] T2	Effect size	Cohen's <i>d</i>
	T1a	T2a	T1b	T2b				
CGAS	49.76 ± 6.95	65.30 ± 6.16	50.48 ± 6.04	52.13 ± 9.04	.729	<.001	0.648	1.702
CGI-S	3.84 ± 0.73	2.5 ± 0.64	3.65 ± 0.81	3.44 ± 0.9	.315	<.001	−0.515	−1.203
SCARED child	32.88 ± 10.84	20.46 ± 9.27	31.65 ± 9.61	30.34 ± 11.17	.691	<.001	−0.433	−0.962
SCARED parent	31 ± 8.29	21.19 ± 10.43	31.93 ± 9.02	32.13 ± 10.29	.672	<.001	−0.466	−1.055
GHQ-28	4.88 ± 5.50	2.30 ± 3.46	4.34 ± 5.27	3.48 ± 4.58	.538	.567	−0.143	−0.290
STAI-T	43.76 ± 8.25	38.69 ± 6.67	42.65 ± 10.28	41.75 ± 10.57	.502	.38	−0.170	−0.346
STAI-S	37.15 ± 7.96	32.30 ± 6.76	34.93 ± 10.07	34.86 ± 11.49	.367	.261	−0.134	−0.271

Notes: Mann–Whitney *U* test CGAS: Children's Global Assessment Scale, CGI-S: Clinical Global Impression-Severity, SCARED: Screen for Child Anxiety Related Emotional Disorders Parent and Child Forms GHQ-28: General Health Questionnaire-28, STAI-T: State Trait Anxiety Inventory-Trait, STAI-S :State Trait Anxiety Inventory-State, T1a: Before Triple P implementation; T2a: After 8-week Triple P implementation; T1b: The initiation of the study; T2b: 8 weeks following the initiation of the study; *p*: comparison of scores between intervention and waiting list group before Triple P; *p*^{*}: comparison of scores between intervention and waiting list group after Triple P. The bold values are *p* < 0.001. *p* < 0.05 is significant then they are *p* < 0.001.

Discussion

In the present study, we aimed to examine the effectiveness of an eight-session parent-focused group intervention in alleviating anxiety symptoms in children with anxiety disorders aged 8–12 years. The main outcome of this study was that Triple P intervention provided significant improvement in child anxiety symptoms, functional impairments, and decreased the severity of symptoms compared with children in the WL group.

As far as we know, this is one of the first studies to evaluate the effectiveness of Triple P on childhood anxiety disorders. Even though we did not assess the recovery rates of the children, our main result is consistent with the results of Smith et al. [36] who showed that parent-only CBT intervention provided significant reductions in the number of children's anxiety disorder diagnoses, parent-reported and physician-rated severity of anxiety, and maternal protective behaviours post-treatment. Group Triple P is not exactly parental group CBT although the techniques which suggested in Group Triple P are very similar to parent-focused CBT. As it was shown in Table 1, Group Triple P focuses on gaining positive parental behaviour, efficient

communication, and managing children's misbehaviours and emotions. The parenting behaviours play important role in childhood anxiety disorder as modelling of anxious behaviours; avoidance, overinvolvement or overprotection; and negativity [13,37,38]. Substitution of these parental behaviours and communication to positive parental behaviours and efficacious management provide significant improvement in children diagnosed with anxiety disorder as it was found in a recent Triple P study and the present study.

As a strength of our study, different from other studies, the severity of the anxiety symptoms was assessed by a physician using CGAS who did not know whether the children's parents were in the intervention group. This approach has increased the reliability of the results by making the assessment more objective. In our study, the increased CGAS scores after intervention were in line with other parent-only CBT studies [17,18,36,39]. Even though CGAS has been a commonly used scale in these studies, CGI-S has rarely been used. In the Hirshfeld-Becker et al. [40] study, a child and parent-focused CBT intervention was applied in children with anxiety disorder

Table 6. Comparison of SDQ, CGAS, CGI-S, GHQ-28, STAI-S, STAI-T, SCARED parent and child form scores in the intervention and WL groups before and after Triple P with Wilcoxon analysis.

SDQ subscales	Intervention Group		WL Group		<i>p</i> ^{int} T1a–T2a	<i>p</i> ^{WL} T1b–T2b
	T1a	T2a	T1b	T2b		
Emotional Problems	6.23 ± 1.86	3.38 ± 1.49	5.20 ± 1.97	5.03 ± 1.99	<.001	.580
Behaviour Problems	2.23 ± 1.55	1.80 ± 1.64	2.17 ± 1.67	2.00 ± 1.64	.219	.256
Attention Deficit and Hyperactivity Problems	5.80 ± 2.13	1.88 ± 1.58	4.72 ± 2.49	4.34 ± 1.91	.102	.110
Peer Relation Problems	3.30 ± 1.95	1.88 ± 1.58	3.37 ± 1.76	3.48 ± 1.88	.001	.878
Social Problems	7.57 ± 1.90	8.38 ± 1.38	8.03 ± 1.45	8.03 ± 1.59	.006	.871
Impact score	5.00 ± 2.03	2.46 ± 2.04	3.89 ± 2.35	3.93 ± 1.86	<.001	.729
Total score	17.57 ± 4.02	11.73 ± 4.19	15.48 ± 5.49	14.86 ± 4.50	<.001	.098
CGAS	49.76 ± 6.95	65.30 ± 6.16	50.48 ± 6.04	52.13 ± 9.04	<.001	.522
CGI-S	3.84 ± 0.73	2.5 ± 0.64	3.65 ± 0.81	3.44 ± 0.9	<.001	.340
SCARED child	32.88 ± 10.84	20.46 ± 9.27	31.65 ± 9.61	30.34 ± 11.17	<.001	.468
SCARED parent	31 ± 8.29	21.19 ± 10.43	31.93 ± 9.02	32.13 ± 10.29	<.001	.387
GHQ-28	4.88 ± 5.50	2.30 ± 3.46	4.34 ± 5.27	3.48 ± 4.58	.015	.370
STAI-T	43.76 ± 8.25	38.69 ± 6.67	42.65 ± 10.28	41.75 ± 10.57	.001	.172
STAI-S	37.15 ± 7.96	32.30 ± 6.76	34.93 ± 10.07	34.86 ± 11.49	<.001	.564

Notes: Wilcoxon signed ranks test SDQ: Strengths and Difficulties Questionnaire; CGAS: Children's Global Assessment Scale; CGI-S: Clinical Global Impression-Severity; SCARED: Screen for Child Anxiety Related Emotional Disorders Parent and Child Forms; GHQ-28: General Health Questionnaire-28; STAI-T: State Trait Anxiety Inventory-Trait; STAI-S: State Trait Anxiety Inventory-State; T1a: Before Triple P implementation; T2a: After 8-week Triple P implementation; T1b: The initiation of the study; T2b: 8 weeks following the initiation of the study; *p*^{int}: comparison of scores in intervention group before and after Triple P; *p*^{WL}: comparison of scores in waiting list group before and after Triple P. The bold values are *p* < 0.001. *p* < 0.05 is significant then they are *p* < 0.001.

aged between 4 and 7 years and their parents, and the authors found significant decreased CGI-S scores.

The reductions in the scores of SCARED in both children and parents were also consistent with other parent-only CBT intervention studies [18,19]. In a study with a similar design, Monga et al. reported that scores of SCARED parent forms were significantly decreased after 12 weeks of parent-focused CBT group therapy [18]. After an eight-week CBT intervention with parents, similar improvements of anxiety symptoms were determined in children [19]. The evidence from these studies suggests that parent-only CBT interventions including Triple P were effective in reducing the anxiety levels of children.

SDQ is one of the most useful measurements in Triple P studies. In our study, it indicated that Triple P parent-focused therapy decreased the emotional and behavioural problems in children, as it was shown in the scores of SDQ. This finding is similar to the findings of other studies that were performed with Triple P and the SDQ in the relevant literature [21,41–46]. Previous authors determined that the total difficulty scores of children decreased in the strengths and difficulties questionnaire of children and adolescents, just like in our study; however, this decrease was especially caused by the “behavioural problems” subscale scores, which conflicts with our results [21,41–46]. This result could be associated with the fact that children, who participated in our study, were diagnosed with anxiety disorder and did not have apparent behavioural problems. In our study that was conducted on children with more apparent emotional problems, a significant decrease was observed on emotional problems after the Triple P. This result shows that Triple P is efficient in emotional problems just like in behavioural problems.

Parents are introduced to 17 positive parenting strategies including developing good relationships with children, encouraging desirable behaviours, teaching new skills and behaviours, and managing children’s misbehaviour, as well as planned activity routines for high-risk situations to help parents to generalize and maintain parenting skills across settings and over time. In telephone consultations, difficulties that parents encounter or issues that parents want to discuss are reviewed with an accredited Triple P practitioner. Parents are also encouraged to do take-home exercises in every session [20]. Parenting skills, which are gained in group sessions, can be maintained in child–parent relations and parents can cope with children’s emotional and behavioural problems more easily. Increasing the parental capacity to cope with children’s emotional and behavioural problems may reduce the children’s symptoms.

Similar parents’ own anxiety symptoms and general well-being between intervention and WL group are secondary outcomes of our study. The data obtained

from current parent-only intervention studies show conflicting results. Different from our result, improvement in parents’ anxiety symptoms have been determined in a few Triple P studies [47–49], whereas no changes have also been shown [50,51]. In Bodden’s study in which CBT-based parent group intervention was applied, parents’ anxiety level was reduced due to STAI scores [52]. In GHQ-28 scores, like STAI scores, there was no significant difference between intervention and WL group after Triple P. In other Triple P studies, the results were not consistent. In some studies, significant improvement in parents’ mental health was not found after Triple P like our study [42,53,54]. But in a lot of Triple P studies improvements in parents’ mental health, reductions in stress level were found after Triple P [55–58]. These results show that parental behavioural change, without parental own anxiety and general well-being differences, can be enough for anxious children treatment.

Limitations

There are certain limitations to this study. One of the main limitations of the study is having only one outcome after intervention. We cannot assure the stability of these improvements with any degree of certainty because we did not have a follow-up period; follow-up results may better show the effectiveness of the treatment. And also teachers could have been participated to study for transferring the changes of children more objectively. In methodical and statistical limitations, regression to the mean and shared method variance might be made thus response bias and desirability bias might be decreased.

Conclusion

As a result, evidence from recent literature and our study suggest that Triple P parent-focused CBT interventions may be effective in reducing anxiety symptoms and improving functioning of young people.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by Dokuz Eylul University Scientific Research Committee [grant number 2012302].

References

- [1] Polanczyk GV, Salum GA, Sugaya LS, et al. Annual research review: a meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *J Child Psychol Psychiatry*. 2015;56(3):345–365.

- [2] Bilaç Ö, Ercan ES, Uysal T, et al. Prevalence of anxiety and mood disorders and demographic characteristics of elementary school students. *Turk Psik Derg.* 2014;25:171.
- [3] Swadi H, Bobier C. Substance use disorder comorbidity among inpatient youths with psychiatric disorder. *Aust N Z J Psychiatry.* 2003;37:294–298.
- [4] Cartwright-Hatton S, McNicol K, Doubleday E. Anxiety in a neglected population: prevalence of anxiety disorders in pre-adolescent children. *Clin Psychol Rev.* 2006;26:817–833.
- [5] Seligman LD, Ollendick TH. Cognitive-behavioural therapy for anxiety disorders in youth. *Child Adolesc Psychiatr Clin N Am.* 2011;20:217–238.
- [6] Hirshfeld-Becker DR, Biederman J. Rationale and principles for early intervention with young children at risk for anxiety disorders. *Clin Child Fam Psychol Rev.* 2002;5:161–172.
- [7] Warwick H, Reardon T, Cooper P, et al. Complete recovery from anxiety disorders following cognitive behavior therapy in children and adolescents: a meta-analysis. *Clin Psychol Rev.* 2017;52:77–91.
- [8] Ollendick TH, Horsch LM. Fears in clinic referred children: relations with child anxiety sensitivity, maternal overcontrol, and maternal phobic anxiety. *Behav Ther.* 2007;38:402–411.
- [9] Hudson JL, Dodd HF, Lyneham HJ, et al. Temperament and family environment in the development of anxiety disorder: two-year follow-up. *J Am Acad Child Adolesc Psychiatry.* 2011;50:1255.e1–1264.e1.
- [10] Eley TC, McAdams TA, Rijdsdijk FV, et al. The intergenerational transmission of anxiety: a children-of-twins study. *Am J Psychiatry.* 2015;172:630–637.
- [11] Barrett PM, Dadds MR, Rapee RM. Family treatment of childhood anxiety: a controlled trial. *J Consult Clin Psychol.* 1996;64:333–342.
- [12] Cobham VE, Dadds MR, Spence SH. The role of parental anxiety in the treatment of childhood anxiety. *J Consult Clin Psychol.* 1998;66:893–905.
- [13] Cobham VE, Filus A, Sanders MR. Working with parents to treat anxiety-disordered children: a proof of concept RCT evaluating fear-less Triple P. *Behav Res Ther.* 2017;95:128–138.
- [14] Lebowitz ER, Omer H, Hermes H, et al. Parent training for childhood anxiety disorders: the SPACE program. *Cogn Behav Pract.* 2014;21:456–469.
- [15] Dempster R, Wildman B, Keating A. The role of stigma in parental help-seeking for child behavior problems. *J Clin Child Adolesc Psychol.* 2013;42(1):56–67.
- [16] Thirlwall K, Cooper P, Creswell C. Guided parent-delivered cognitive behavioural therapy for childhood anxiety: predictors of treatment response. *J Anxiety Disord.* 2017;45:43–48.
- [17] Comer JS, Puliafico AC, Aschenbrand SG, et al. A pilot feasibility evaluation of the CALM program for anxiety disorders in early childhood. *J Anxiety Disord.* 2012;26:40–49.
- [18] Monga S, Rosenbloom BN, Tanha A, et al. Comparison of child-parent and parent-only cognitive-behavioural therapy programs for anxious children aged 5 to 7 years: short- and long-term outcomes. *J Am Acad Child Adolesc Psychiatry.* 2015;54:138–146.
- [19] van der Sluis CM, van der Bruggen CO, Brechman-Toussaint ML, et al. Parent-directed cognitive behavioural therapy for young anxious children: a pilot study. *Behav Ther.* 2012;43:583–592.
- [20] Turner KMT, Markie Dadds C, Sanders MR. *Facilitator's Manual for Group Triple P.* 3rd ed. Brisbane: The University of Queensland and Health Department of Western and Triple P International Pty. Ltd; 2010; pp. 3–16.
- [21] Sanders MR, Kirby JN, Tellegen CL, et al. The Triple P-positive parenting program: a systematic review and meta-analysis of a multi-level system of parenting support. *Clin Psychol Rev.* 2014;34:337–357.
- [22] Kaufman J, Birmaher B, Brent D, et al. Schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (K-SADS-PL): initial reliability and validity data. *J Am Acad Child Adolesc Psychiatry.* 1997;36:980–988.
- [23] Gökler B, Ünal F, Pehlivanlı B, et al. [Reliability and validity of schedule for affective disorders and schizophrenia for school Age children-present and lifetime version-Turkish version (K-SADS-PL-T)]. *Turk J Child Adolesc Mental Health.* 2004;11:109–116. Turkish.
- [24] Birmaher B, Khetarpal S, Brent D, et al. The screen for child anxiety related emotional disorders (SCARED): scale construction and psychometric characteristics. *J Am Acad Child Adolesc Psychiatry.* 1997;36:545–553.
- [25] Karaceylan Çakmakçı F. The reliability and validity study of the screen for child anxiety related emotional disorders (SCARED) [Unpublished Expertise Thesis] Kocaeli: Department of Child and Adolescent Psychiatry, Faculty of Medicine, Kocaeli University; 2004.
- [26] Shaffer D, Gould MS, Brasic J, et al. Children's global assessment scale (CGAS)(for children 4 to 16 years of age). *Psychopharmacol Bull.* 1985;21:747–748.
- [27] Guy W. Clinical global impression scale. The ECDEU assessment manual for psychopharmacology-revised. Volume DHEW Publ No ADM; 1976;Vol. 338; p. 218–222.
- [28] Goodman R. The strengths and difficulties questionnaire: a research note. *J Child Psychol Psychiatry.* 1997;38:581–586.
- [29] Goodman R. The extended version of the strengths and difficulties questionnaire as a guide to child psychiatric caseness and consequent burden. *J Child Psychol Psychiatry.* 1999;40:791–799.
- [30] Güvenir T, Özbek A, Baykara B, et al. [Psychometric properties of The turkish version of The strengths and difficulties questionnaire (SDQ)]. *Turk J Child Adolesc Mental Health.* 2008;15:65–74. Turkish.
- [31] Goldberg DP, Blackwell B. Psychiatric illness in general practice: a detailed study using a new method of case identification. *Br Med J.* 1970;2(5707):439–443.
- [32] Kiliç C. General health questionnaire: reliability and validity study. *Turk Psikiyatri Derg.* 1996;7:3–11.
- [33] Spielberger CD, Gorsuch RL, Lushene R, et al. *Manual for the state-trait anxiety inventory.* Palo Alto, CA: Consulting Psychologists Press; 1983.
- [34] Öner N, Le Compte WA. *State and trait anxiety handbook.* Istanbul: Boğaziçi University; 1983.
- [35] Sanders MR. Development, evaluation, and multinational dissemination of the Triple P-positive parenting program. *Annu Rev Clin Psychol.* 2012;8:345–379.
- [36] Smith AM, Flannery-Schroeder EC, Gorman KS, et al. Parent cognitive-behavioural intervention for the treatment of childhood anxiety disorders: a pilot study. *Behav Res Ther.* 2014;61:156–161.
- [37] Murray L, Creswell C, Cooper PJ. The development of anxiety disorders in childhood: an integrative review. *Psychol Med.* 2009;39:1413–1423.

- [38] Field AP, Cartwright-Hatton S. Shared and unique cognitive factors in social anxiety. *Int J Cogn Ther.* **2008**;1:206–222.
- [39] Muratori F, Picchi L, Bruni G, et al. A two-year follow-up of psychodynamic psychotherapy for internalizing disorders in children. *J Am Acad Child Adolesc Psychiatry.* **2003**;42:331–339.
- [40] Hirshfeld-Becker DR, Masek B, Henin A, et al. Cognitive behavioural therapy for 4-to 7-year-old children with anxiety disorders: a randomized clinical trial. *J Consult Clin Psychol.* **2010**;78:498–510.
- [41] Monga S, Young A, Owens M. Evaluating a cognitive behavioural therapy group program for anxious five to seven-year-old children: a pilot study. *Depress Anxiety.* **2009**;26:243–250.
- [42] Arkan B, Üstün B, Güvenir T. An analysis of two evidence-based parent training programs and determination of the characteristics for a new program model. *J Psychiatr Ment Health Nurs.* **2013**;20:176–185.
- [43] Sanders MR, Montgomery DT, Brechman-Toussaint ML. The mass media and the prevention of child behavior problems: The evaluation of a television series to promote positive outcomes for parents and their children. *J Child Psychol Psychiatry.* **2000**;41:939–948.
- [44] Sanders MR, Ralph A, Sofronoff K, et al. Every family: a population approach to reducing behavioural and emotional problems in children making the transition to school. *J Prim Prev.* **2008**;29(3):197–222.
- [45] Leung C, Sanders MR, Leung S, et al. An outcome evaluation of the implementation of the Triple P-positive parenting program in Hong Kong. *Fam Process.* **2003**;42:531–544.
- [46] Turner KM, Richards M, Sanders MR. Randomised clinical trial of a group parent education program for Australian indigenous families. *J Paediatr Child Health.* **2007**;43:429–437.
- [47] Bor W, Sanders MR, Markie-Dadds C. The effects of the Triple P-positive parenting program on preschool children with co-occurring disruptive behavior and attentional/hyperactive difficulties. *J Abnorm Child Psychol.* **2002**;30:571–587.
- [48] Turner KM, Sanders MR. Help when it's needed first: A controlled evaluation of brief, preventive behavioural family intervention in a primary care setting. *Behav Ther.* **2006**;37:131–142.
- [49] Sanders MR, Markie-Dadds C, Turner KM, et al. Using the Triple P system of intervention to prevent behavioural problems in children and adolescents. In: Barrett P, Ollendick T, editors. *Handbook of interventions that work with children and adolescents: prevention and treatment.* Chichester: John Wiley; **2004**. p. 489–516.
- [50] Matsumoto Y, Sofronoff K, Sanders MR. The acceptability and effectiveness of the Triple P program with Japanese parents in a cross cultural context: results of an efficacy trial. *Behav Change.* **2007**;24:205–218.
- [51] Nicholson JM, Sanders MR. Randomized controlled trial of behavioural family intervention for the treatment of child behavior problems in stepfamilies. *J Divorce.* **1999**;30:1–23.
- [52] Bodden DH, Bögels SM, Nauta MH, et al. Child versus family cognitive-behavioural therapy in clinically anxious youth: an efficacy and partial effectiveness study. *J Am Acad Child Adolesc Psychiatry.* **2008**;47:1384–1394.
- [53] Connell S, Sanders MR, Markie-Dadds C. Self-directed behavioural family intervention for parents of oppositional children in rural and remote areas. *Behav Modif.* **1997**;21:379–408.
- [54] Markie-Dadds C, Sanders MR. Self-directed Triple P (positive parenting program) for mothers with children at-risk of developing conduct problems. *Behav Cogn Psychother.* **2006**;34:259–275.
- [55] Ralph A, Sanders MR. Preliminary evaluation of the group teen Triple P program for parents of teenagers making the transition to high school. *AeJAMH.* **2003**;2:169–178.
- [56] Zubrick SR, Ward KA, Silburn SR, et al. Prevention of child behavior problems through universal implementation of a group behavioural family intervention. *Prev Sci.* **2005**;6:287–304.
- [57] Leung C, Sanders M, Ip F, et al. Implementation of Triple P-positive parenting program in Hong Kong: predictors of program completion and clinical outcomes. *J Child Serv.* **2006**;1:4–17.
- [58] Joachim S, Sanders MR, Turner KM. Reducing preschoolers' disruptive behavior in public with a brief parent discussion group. *Child Psychiatry Hum Dev.* **2010**;41:47–60.