PUBLIC HEALTH

EFFECTIVENESS OF AN ONLINE PARENTING PROGRAM FOR CHILDHOOD ANXIETY IN NORTH MACEDONIA

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Abstract

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Anxiety is considered a basic and adaptive emotion. However, anxiety problems are one of the most prevalent mental health problems, with multiple negative effects and a tendency to worsen with age. The high prevalence rates and their negative consequences accent the importance of developing timely and effective prevention strategies. The aim of the study was to evaluate the effectiveness of an online parenting program in reducing anxiety symptoms in young children in the Republic of North Macedonia. Materials and methods: A controlled randomized controlled study was conducted including parents of children aged 2-9 years old in North Macedonia. Eligible parents were assessed at baseline and post-intervention, using self-report questionnaires on sociodemographic characteristics and childhood anxiety (CBCL anxiety scale, CBCL-A; CBCL anxiety/ depression scale, CBCL-AD). Parents were assigned to five group sessions of a parenting program, as the intervention group, or a structured group presentation, as a control group. Results: A total of 288 parents were included in the study. The findings showed significant reductions in childhood anxiety symptoms reported by parents in both the parenting program and the active control condition. However, between-group comparisons showed no significant differences between the two conditions. Conclusions: The study is the first to evaluate the effectiveness of an online group parenting program in reducing anxiety symptoms in young children in North Macedonia. The findings demonstrate that it is possible to achieve a significant change in child anxiety problems, using technology-assisted methods of intervention delivery in the country.

ЈАВНО ЗДРАВЈЕ

ЕФЕКТИВНОСТ НА ОНЛАЈН ПРОГРАМА ЗА РОДИТЕЛСТВО ВО НАМАЛУВАЊЕ НА АНКСИОЗНОСТ КАЈ ДЕЦА ВО СЕВЕРНА МАКЕДОНИЈА

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Извадок

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Печатарски права: *2023. Иво Куновски, Марија Ралева. Оваа статија е со отворен пристап дистрибуирана под условите на нелокализирана лиценца, која овозможува неограниченупотреба, дистрибуција и репродукција на било кој медиум, доколку се цитираат оригиналниот(ите) автор(и) и изворот.

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Анксиозноста се смета за основна и адаптивна емоција. Но, анксиозните проблеми се едни од најзастапените ментално-здравствени проблеми, со негативно влијание врз функционирањето и со тенденција да се влошуваат со возраста. Високите стапки на застапеност и негативните последици ја истакнуваат потребата од развивање навремени и ефективни стратегии за превенција. Целта на студијата беше да ја процени ефективноста на онлајн програма за родителство во намалување на анксиозни симптоми кај мали деца во Република Северна Македонија. Материјали и методи: рандомизирана контролирана студија беше спроведена која вклучи родители на деца од 2-9-годишна возраст во Северна Македонија. Родителите беа проценети пред и по интервенцијата, користејќи прашалници за самопроценка во однос на социодемографските карактеристики и анксиозноста (CBCL скала за анксиозност, CBCL-A; CBCL скала за анксиозност/депресија, CBCL-AD) кај деца. Родителите беа рандомизирани во групна програма за родителство од пет сесии, како интервентна група, или еднократна презентација за родителство, како контролна група. Резултати: Вкупно 288 родители беа вклучени во студијата. Резултатите покажаа статистички значајни намалувања на анксиозните симптоми кај децата во програмата за родителство и во активната контролна група. Но, споредбата меѓу групите не покажа статистички значајни разлики. Заклучок: Студијата е прва која ја проценува ефективноста на онлајн програмата за родителство за намалување анксиозност кај мали деца во Северна Македонија. Резултатите ја демонстрираат можноста да се достигнат значајни подобрувања во анксиозни симптоми кај деца во државата, користејќи технолошко-поддржани методи на спроведување.

Introduction

Anxiety is considered a basic and adaptive emotion that is strongly influenced by the family environment¹. Yet, anxiety problems are also known to emerge early in development, as early as in preschoolaged children². They are considered one of the most prevalent mental health problems³, with a tendency to worsen with age¹. Child anxiety problems interfere with later academic. professional, family, and social functioning⁴, and increase the risk for developing additional mental health problems⁵. Their high prevalence and negative consequences accent the importance of developing timely and effective prevention strategies⁶. However, there is a gap in the delivery of evidence-based prevention programs for mental health problems in children, which are especially scarce in low- and middle-income countries7. Evidence-based prevention programs for childhood anxiety in North Macedonia are currently unavailable.

A high priority is given to prevention research on childhood mental health problems, due to their high costs to society, families and individuals8. Research indicates that the family environment is essential in targeting child internalizing problems^{9,10}. Accordingly, parenting programs are shown as a viable prevention option through their impact on parenting practices and improving parentchild interactions, which may lead to changes in emotional and behavioral problems in children⁶. A recent meta-analysis, conducted by Yap et al.11, examined the effects of parenting interventions for internalizing problems in children. Their results

indicate that programs directed at parents are a beneficial prevention option with small yet significant effects. Overall small and significant effects have also been found in a similar earlier review of parentchild interventions for anxiety, indicating the importance of involving parents in preventive programs for children¹². However, parenting programs can be a costly and culturally inappropriate prevention method in low-resource settings¹³. This calls for the development of accessible and affordable methods of delivery for parents in need14.

The aim of the current study was to evaluate the effectiveness of an online parenting program in reducing anxiety in preschool and schoolaged children in North Macedonia. It was hypothesized that compared to an active control, the parenting program would lead to significantly lower anxiety symptoms in children.

Materials and methods

Study design

A randomized controlled study was conducted in order to examine an online parenting program for parents of children aged 2-9 years old in North Macedonia. Parents were recruited through kindergartens, primary schools, leaflets, social media advertisements, and community referrals. Inclusion criteria required parents to be at least 18 years old, to live in the same household as the target child, and to report emotional and/or behavioral problems about their child. Once considered eligible through a telephone screening process, parents were sent a link to complete the baseline assessments, which included self-report questionnaires on sociodemographic characteristics and childhood anxiety. Participants were randomly assigned to the parenting program or the active control condition, using an online software (www.randomizer.org). Upon the completion of the groups, parents were once again sent a link to complete the assessments.

Outcome measures

At baseline and posttreatment, parents were asked to share demographic and socioeconomic characteristics, including parent and child age and gender, number of children and adults living in the household, level of completed education, marital status, and employment status. Data was also collected on attendance rates.

Childhood anxiety was assessed using available subscales of the Child Behavior Checklist (CBCL^{15,16}): the CBCL anxiety problems scale (CBCL-AP¹⁷) and the CBCL anxiety scale (CB-CL-A¹⁸) for children aged 6-9, and the CBCL anxiety/depression scale (CB-CL-AD1^{5,16}) for children aged both 2-5 and 6-9. The scales are parent-rated with response options given on a 3-point range (0 = not true, 1= somewhat or sometimes true, 2 = very true or often true), where higher scores indicate higher severity of problems. The CBCL-AP assesses anxiety-specific problems in school-aged children, the CBCL-A assesses anxiety and functional somatic symptoms, while the CBCL-AD assesses anxiety with depressive symptoms. The scales are shown to discriminate between children with and without anxiety19,20,21. However, the internal consistency of the CBCL-AP scale was low (Cronbach's alpha= 0.50) for the current sample. Therefore, the CBCL-AP was not included in the analysis.

Parenting program

The parenting program represents an adapted version of an initiative by the World Health Organization, UNICEF, Clowns Without Borders, and several universities²², aiming to reduce child maltreatment and improve child mental health wellbeing. The analyzed program consists of five group sessions delivered on a weekly basis, engaging parents in learning positive parenting skills and reinforcing positive behaviors in their children. It aims to build on the parent-child relationship, giving positive reinforcements, and learning positive discipline strategies. The content offers structured and facilitated activities, including illustrated comics presenting key positive parenting skills, group discussions on presented skills, homework assignments for practice, as well as simple stress management activities for parents. The covered skills include spending time with the child, praising and rewarding positive behaviors, setting rules and routines, as well as dealing with challenging behaviors. The program was administered using the internet platform Zoom.

Control condition

The parents allocated in the control group received a structured presentation, covering challenges of parenting and typical child development. The presentation was delivered in one 2-hour session, with contents including stages of development,

risk and protective factors, as well as some useful tips for parents to promote child well-being. An effort was made to avoid overlapping information that could make it similar to the parenting program. In order to avoid methodological limitations, research indicates that active or alternative control conditions may be more adequate, compared to waitlist conditions, in evaluating the effectiveness of technologically-assisted parenting interventions^{11, 23}.

Data analyses

Preliminary analyses were conducted to confirm the equivalence of the intervention and control groups at baseline on all sociodemographic variables using analysis of variance (ANOVA) for continuous variables and chi-square tests for categorical variables. All data were analyzed using the principle of intention-totreat, where all cases were included in the analysis. Pre/post assessment differences were analyzed using paired t-tests, comparing baseline and post-assessment scores for both participants in the parenting program and the active control condition. Differences between the parenting program and active control were examined using the univariate analysis of covariance (ANCOVA), with post-assessment scores as dependent variables and baseline data included as covariates.

Results

A total of 288 parents participated in the study, out of which 148 were allocated to the parenting program and 140 to the active control condition. The majority of participants in the total sample were women (95.1%), they were married and lived together with their partner (85.1%), had completed university (72.2%), and were employed (88.2%). The target children were mostly boys (59%) with an average age of 5.4 years (SD= 2.2). The preliminary analyses indicate that significantly more parents dropped out in the control condition at baseline, compared to the parenting program ($\chi^2 = 13.64$, p = 0.000). Table 1 shows the sociodemographic characteristics of the sample in the parenting program and the active control.

Table 1. Sociodemographic characteristics of the sample in the parenting program and control condition

	Parenting	program	Active	control		
	M	SD	M	SD	F	p
Age						
Parent	36.82	4.76	37.16	4.82	0.36	0.548
Child	5.41	2.23	5.32	2.21	0.12	0.730
Household size						
Adults	2.40	0.89	2.38	0.87	0.04	0.846
Children	1.58	0.74	1.57	0.73	0.01	0.911

Childhood anxiety						
CBCL-AD (age 2-5)	50.39	10.09	50.32	11.27	0.00	0.972
CBCL-AD (age 6-9)	54.29	11.14	54.44	10.69	0.01	0.939
CBCL-A (age 6-9)	3.67	3.22	3.21	2.21	0.9	0.342
	N	%	N	%	X2	р
Parent gender						_
Male	5	3.4	9	6.4	1.45	0.229
Female	143	96.6	131	93.6	1.43	0.229
Child gender						
Male	87	58.8	83	59.3	0.01	0.931
Female	61	41.2	57	40.7	0.01	0.931
Education level						
Completed elementary school	2	1.4				
Completed high school	5	3.4	5	3.6		
Some vocational school	1	0.7				
Completed vocational school	21	14.2	12	8.6	7.26	0.298
Some university			2	1.4		
Completed university	103	69.6	105	75.0		
Other	16	10.8	16	11.4		
Marital status						
Single	4	2.7	5	3.6		
In a relationship and living together	4	2.7	5	3.6		
In a relationship and not living	1	0.7				
together	1	0.7				
Married and living together	122	82.4	123	87.9	4.30	0.636
Married and not living together	1	0.7				
Separated or divorced	12	8.1				
Widowed	4	2.7				

In terms of effectiveness, the results show that there were significant reductions in childhood anxiety symptoms reported by parents in the parenting program, including on CBCL-AD for ages 2-5 (t= 3.92, p= 0.000), CBCL-AD for ages 6-9 (t= 5.99, p= 0.000), and CBCL-A for ages 6-9 (t= 3.15, p= 0.003). Moreover, significant reductions were also reported by parents in the active control group, including on CBCL-AD for ages 2-5 (t= 5.48, p= 0.000), CBCL-AD for ages 6-9 (t= 4.28, t= 0.000), and CBCL-A

for ages 6-9 (t= 2.52, p= 0.016). However, the between-group comparisons showed no significant differences between the two conditions on all measures, including on CBCL-AD for ages 2-5 (F= 1.11, p= 0.293), CBCL-AD for ages 6-9 (F= 0.01, p= 0.919), and CBCL-A for ages 6-9 (F= 1.61, p= 0.208). Table 2 shows the withinand between-group differences from baseline to post-assessment.

Table 2. Within- and between-group comparisons of the parenting program and active control conditions

	Parenting program				Active control						
	Pre		Post		_	Pı	re	Post			
	М	SD	М	SD	t	М	SD	М	SD	t	F
CBCL-AD	50.54	10.21	45.67	8.53	3.92**	50.67	12.11	42.81	7.63	5.48**	1.11
CBCL-AD	54.11	11.125	47.58	9.46	5.99**	53.72	11.04	48.23	9.39	4.28**	0.01
CBCL-A	3.70	3.19	2.61	2.91	3.15*	3.00	2.22	2.13	1.89	2.52*	1.61

^{*}p<0.01, **p<0.001

Discussion

The current study is the first to evaluate the effectiveness of an online parenting program in reducing anxiety symptoms in young children in North Macedonia. The results showed that both the parenting program and the active control group contributed to significantly lower anxiety symptoms in preschool and school-aged children at post-assessment. However, contrary to expectations, the parenting program did not show significantly greater reductions in anxiety compared to the active control condition.

Although the findings add to the evidence of the efficacy of online parenting programs for anxiety problems, the current study did not show the between-group differences as presented in similar studies. For example, Morgan et al.24 conducted a randomized controlled trial with parents of children aged 3-6 years in evaluating the effectiveness of an internet-delivered group parenting program for preventing anxiety disorders. Their study showed that the intervention group had significantly greater improvements in childhood anxiety symptoms compared to a waitlist control group, with a small to moderate effect. A similar study testing the effectiveness of an internet-delivered positive parenting program, conducted by Sanders *et al.*²⁵ with parents of children aged 2-9 years with behavioral problems, showed significant improvements in the intervention group on emotional symptoms compared to an internet-use-as-usual control group.

Unlike the aforementioned studies, the present study incorporates an active control condition. As metaanalytic research shows that most studies on parenting interventions for child internalizing problems do not include an active control condition¹¹. it is recommended that more studies include an active control condition in their study designs to better demonstrate treatment effectiveness^{11, 26}. An interesting finding of the current study was that significantly more parents dropped out from the control condition at baseline, which may reflect a greater interest and preference of parents for the parenting program.

The findings should also be interpreted with some limitations. Firstly, data was collected predominantly from mothers and with a very limited involvement of fathers. Secondly, since the majority of participants were employed and highly educated, parents of lower socioeconomic status were underrepresented in the

study. Thirdly, there may be cultural variations in the expression of problems and how measures were interpreted in the context of research, which could make it harder to detect differences 27. Lastly, there may be confounding factors that contribute to improvements in both conditions, yet they were not assessed in the study. Nevertheless, the present study demonstrated that it was possible to achieve a significant change in child anxiety problems, using technology-assisted methods of intervention delivery in North Macedonia.

Conclusion

The present study evaluated the effectiveness of an online group parenting program in reducing anxiety symptoms in children aged 2-9 years in North Macedonia. The findings showed that parents in the intervention group reported significant improvements in child anxiety symptoms at post-assessment, yet no significant differences were found in the reduction of symptoms between the intervention and control group. Future research could explore additional variables that contribute to treatment effectiveness, include more fathers and parents of lower socioeconomic status as participants, as well as incorporate active control conditions in study designs.

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