



Cognitive-behavioral therapy during COVID-19 pandemic in mothers of children with autism spectrum disorder

Zahreh Ghasemi Mehrabadi¹

Department of Psychology, Islamic Azad University, Science and Research Branch, Tehran, Iran

Short Communication

Abstract

BACKGROUND: This study aimed to investigate the effectiveness of cognitive-behavioral therapy (CBT) on anxiety, stress, and post-traumatic stress disorder (PTSD) caused by coronavirus disease 2019 (COVID-19) in mothers of children with autism spectrum disorder (ASD).

METHODS: This experimental study was conducted with a pretest-posttest design with a control group and a two-month follow-up. The statistical population of this study included all mothers of children with ASD in Tehran (Marjan Kindergarten and Psychology Center), Iran, in the year 2021. At first, 30 people were selected by the available sampling method and then randomly divided into experimental and control groups (15 experimental and 15 control). For the experimental group, the CBT was implemented in 10 sessions, each session lasting 90 minutes. The instruments used in this study included the Corona Disease Anxiety Scale (CDAS), the COVID stress scale (CSS), and the PTSD Symptom Scale-Interview (PSS-I). Data analysis was performed using SPSS software in two sections: descriptive [mean and standard deviation (SD)] and inferential [analysis of variance (ANOVA) with repeated measures and Bonferroni post-hoc test].

RESULTS: CBT significantly improved COVID-19 anxiety, COVID stress, and PTSD, and the results had enough consistency in the follow-up period, as well ($P < 0.05$).

CONCLUSION: CBT had a positive effect on reducing anxiety, stress, and PTSD caused by COVID-19 and can be used as an effective intervention to improve the behavior of mothers of children with ASD.

KEYWORDS: Cognitive-Behavioral Therapy; COVID-19; Autism Spectrum Disorder

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Introduction

Autism spectrum disorder (ASD) is characterized by defects in social communication, social interactions, and defects in stereotyped and repetitive behavior.¹ Mothers of these children also experience problems due to their children's problems.^{1,2} Milman et al. concluded that coronavirus disease 2019 (COVID-19) anxiety was

highlighted as an important marker in mental health during the COVID-19 pandemic,³ and was characterized by a handful of physical symptoms such as loss of appetite, dizziness, insomnia, and nausea.³⁻⁵ The conditions caused by the COVID-19 disease have caused stress in many people, especially the mothers of children with autism. One of the interventions that can play an important role in improving the problems of these mothers is cognitive-behavioral therapy (CBT).⁴ The CBT pattern is initiated by correcting misplaced interpretations, guiding negative self-talk, correcting illogical thought patterns and

Corresponding Author:

Zahreh Ghasemi Mehrabadi; Department of Psychology, Islamic Azad University, Science and Research Branch, Tehran, Iran

Email: ghasemimehrabadiz@yahoo.com

ineffective cognitions, efficient and adaptive coping responses, and controlling negative emotions.^{4,5} Abdelaziz et al. reported that CBT showed significant reductions in depression, anxiety, stress, and general psychological distress in mothers of children with autism.⁴ Riahi et al. showed that CBT and supportive intervention improved the mental health of mothers of children with autism.⁵ ASD in children is one of the high-stress problems that involve their mothers.^{1,4} However, there is less research that examines the problems of these mothers during the COVID-19 epidemic. This study aimed to survey the effect of CBT on anxiety, stress, and post-traumatic stress disorder (PTSD) caused by COVID-19 in mothers of children with ASD.

Methods

The present study was applied in terms of purpose and experimental research in terms of method with a pretest-posttest design with a control group and a two-month follow-up. The researcher carried out the process of sampling, distribution of questionnaires, and data collection. The statistical population of the research included mothers of children with ASD in Tehran City (Marjan Kindergarten and Psychology Center), Iran, in the winter of 2021. In the first stage, 30 volunteers were selected by targeted sampling, and these 30 people were divided into two groups by simple random sampling in the second stage (15 people as the experimental group and another 15 people as the control group). Age and sex matching of the control formula was used to control the confounding factor and the effect on the study results. There was no drop in the samples. Informed consent to participate in the research and the passing of at least one year since the child was diagnosed with autism disorder were the criteria for entering the research.⁵

Corona Disease Anxiety Scale (CDAS): This scale consists of 18 questions that are graded

on a 4-point Likert scale, including never (zero), sometimes (1), most of the time (2), and always (3). Its validity was confirmed by the creators of the scale with the factor analysis method, and the root mean square error (RMSE) value was approximately 0.086. The reliability of the scale was checked with Cronbach's alpha method and the coefficients for mental symptoms were 0.88, physical symptoms were 0.86, and the whole scale was 0.99. In this research, the researcher checked the reliability and Cronbach's alpha was 0.81 for all questions.^{6,7}

COVID Stress Scale (CSS): This scale consists of 18 questions. The scoring of the scale is based on a 5-point Likert scale (never: 0 points, rarely: 1 point, sometimes: 2 points, most of the time: 3 points, and always: 4 points). Its validity was confirmed by the creators of scale with factor analysis and exploratory method that the RMSE value was approximately 0.056. The reliability of the scale was checked by Cronbach's alpha method and the coefficients for mental states of stress were 0.92, physical states of stress were 0.82, behaviors related to stress were 0.57, and the whole questionnaire was 0.91. The researcher checked the reliability and Cronbach's alpha was 0.81 for all questions.⁸

PTSD Symptom Scale-Interview Version (PSS-I): This scale consists of 17 questions, whose scoring method is based on a 4-point Likert scale [from 0 points (at all) to 4 points (very much)]. A score of 35 is considered as the cut-off point. The internal consistency method showed that Cronbach's alpha coefficient was 0.77 for the reliability of the scale. To check the reliability of the scale, the internal consistency method was used, and Cronbach's alpha coefficient was calculated as 0.81. The researcher checked the reliability and Cronbach's alpha was 0.81 for all questions.^{9,10}

Statistical methods: Descriptive statistics such as mean and standard deviation (SD) and inferential statistics including analysis of

variance (ANOVA) with repeated measurements and Bonferroni post hoc test were used. The data analysis software was SPSS (version 24, IBM Corporation, Armonk, NY, USA).

Results

In both groups, the highest frequency of mothers' educational level was related to a bachelor's degree, and the lowest frequency was related to a master's degree doctorate degree (chi-square = 0.253, $P = 0.969$). The mothers of the two groups were similar in age (t -test = 0.631, $P = 0.533$). The Shapiro-Wilks test was used to check the normality, and the dependent variables were normal. The assumption of homogeneity of variances (post-test) was checked with Levene's test; this assumption was confirmed in the posttest stage ($P < 0.05$). There was a significant difference in COVID-19 anxiety, COVID-19 stress, and PTSD between the two experimental and control groups during the research stages, which indicates the effect of CBT ($P < 0.001$) (Table 1).

CBT had a significant effect on COVID-19 anxiety, COVID stress, and PTSD in both posttest and follow-up stages ($P < 0.05$). The "average difference between pretest and posttest" and "average difference between pretest and follow-up" were more and more significant than the "average difference between posttest and follow-up", which

showed that CBT effect in the follow-up phase was permanent (Table 2).

Discussion

The main purpose of the study was to survey CBT during the COVID-19 pandemic in mothers of children with ASD. The results showed that CBT was able to significantly improve COVID-19 anxiety, COVID stress, and PTSD. Dehghani reported that CBT was effective in reducing irrational beliefs and improving the general health of mothers of children with autism.¹¹ CBT by applying strategies such as re-evaluating anxiety-provoking thoughts and documents, presenting confrontational thoughts, and doing gradual confrontation provides the basis for facing situations that are perceived as stressful.^{5,11} Therefore, it seems that these mothers, by receiving adequate and appropriate social support during group therapy, have been able to cope with their stress and problems more successfully and favorably, especially about their children, and experience less COVID-19 anxiety.^{8,10} Ersoy et al. reported that mothers of children with autism had a higher level of health anxiety and anxiety about chronic diseases.¹² CBT helps people to recognize their distorted patterns and dysfunctional behaviors, and to change the stress caused by COVID-19, through regular discussions, behavioral assignments, and precisely organized cognitive behavioral tactics.^{5,11}

Table 1. Repeated measurement analysis to investigate the effect of time and group on coronavirus disease 2019 (COVID-19) anxiety, COVID stress, and post-traumatic stress disorder (PTSD)

Dependent variables	Sources change	F	P	Eta squared (η^2)	Statistical power	
COVID-19 anxiety	Intera-group	Time	106.217	0.001	0.719	0.999
		Time*Group	71.748	0.001	0.719	0.999
	Between groups	Group	78.675	0.001	0.738	0.999
COVID-19 stress	Intera-group	Time	86.206	0.001	0.755	0.999
		Time*Group	58.401	0.001	0.676	0.999
	Between groups	Group	60.920	0.001	0.685	0.999
PTSD	Intera-group	Time	100.581	0.001	0.782	0.999
		Time*Group	77.195	0.001	0.734	0.999
	Between groups	Group	43.426	0.001	0.607	0.999

COVID-19: Coronavirus disease 2019; PTSD: Post-traumatic stress disorder

Table 2. The results of Bonferroni's follow-up test of coronavirus disease 2019 (COVID-19) anxiety, COVID-19 stress, and post-traumatic stress disorder (PTSD)

Dependent variables	Adjusted mean	Difference in steps	Mean difference	P	
COVID-19 anxiety	Pretest	35.10	Pretest	4.067*	0.001
	Posttest	31.03	Posttest	4.100*	0.001
	Follow-up	31.00	Follow-up	0.033	0.999
COVID-19 stress	Pretest	35.37	Pretest	4.200*	0.001
	Posttest	31.17	Posttest	3.967*	0.001
	Follow-up	31.40	Follow-up	-0.233	0.999
PTSD	Pretest	50.40	Pretest	5.300*	0.001
	Posttest	45.10	Posttest	5.000*	0.001
	Follow-up	45.40	Follow-up	0.300	0.115

*It is significant at the 0.05 level

COVID-19: Coronavirus disease 2019; PTSD: Post-traumatic stress disorder

Milman et al. reported that alongside the social isolation policies and the use of non-social preventive measures, psychological support reduced coronavirus anxiety.³ In the CBT, the mothers of children with autism spectrum develop skills to change behavior, communicate with others, solve problems, discover distorted thoughts and beliefs, challenge and transform unhelpful beliefs and attitudes, and help in cognitive reconstruction.^{6,7}

It should be noted that the findings of this research were limited to the mothers of children with ASD in Tehran; therefore, the users of the results of this research should be cautious in generalizing the results to the mothers of these children in other cities.

The mothers may have wanted to show they were better than they really were and may have had a bias in answering the questions or have completed the questionnaires carelessly; this carelessness or the bias of the subjects may have affected the results of this research.

Conclusion

CBT improves COVID-19 anxiety, COVID-19 stress, and PTSD, and the results have been lasting in the follow-up period.

Conflict of Interests

Authors have no conflict of interests.

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