



A COVID-19 study: Child-parent relationship therapy for children's behavioral problems

Sarah Pishdadian¹; *Seyyed Mohsen Asgharinekah², Seyedeh Soleil Ziaee³

¹M.Sc. in psychology, Islamic Azad University, Shahrood Branch, Shahrood, Iran.

²Associate professor of psychology, Department of Counseling and Educational Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.

³Assistant professor of clinical psychology, Institute for Islamic Studies in Humanities, Ferdowsi University of Mashhad, Mashhad, Iran.

Abstract

Introduction: This study aimed to investigate the effectiveness of a virtual intervention in a parent-child play therapy program on children's behavioral problems in COVID-19 quarantine.

Materials and Methods: In the present study conducted in Shahrood City, Iran, in 2020, twenty-six mothers with 3-9 year-old children suffering from behavioral problems volunteered to enter the study through a call on social networks. They were randomly divided into intervention and waiting groups. The intervention program included a training package of play therapy based on the parent-child relationship adapted from the Landreth's model, which was administered in ten weekly virtual 90-minute group sessions. The research instruments included Eyberg Child Behavior Inventory (ECBI) and House-Tree-Person Test (HTP). Data were analyzed via the MANCOVA model.

Results: Finally, 18 mothers completed the research process. Comparing two groups, the scores of problem intensity ($F(1,16) = 45.17, P = 0.001, \eta^2 = 0.94$) and behavioral problem ($F(1,16) = 34.02, P = 0.001, \eta^2 = 0.97$) were significantly different. The results showed that child-parent relationship therapy significantly reduced the children's behavioral problems.

Conclusion: It seems that child-parent relationship therapy can effectively improve children's behavioral problems in quarantine conditions similar to the COVID-19 pandemic.

Keywords: Behavioral problem, Children, COVID-19, Play therapy

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Introduction

Coronavirus, causing respiratory infections ranging from mild colds to severe conditions like SARS and MERS, has significantly impacted daily lives worldwide (1). The World Health

Organization warns of its threat to physical and mental health, particularly affecting family routines (2). Quarantine measures, while effective against the virus, bring familial and psychological challenges, especially for

*Corresponding Author:

Department of Counseling and Educational Psychology, Ferdowsi University of Mashhad, Mashhad, Iran.
asghari-n@um.ac.ir

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children, who are susceptible to anxiety and other mental health issues due to disrupted routines and increased stress (3). Stress weakens the immune system, leaving individuals more susceptible to diseases like COVID-19 (4). Changes in parent-child interactions due to pandemic conditions also influence children's behavioral problems, highlighting the importance of qualified communication and emotional support in preventing adverse outcomes (5-8). Psychologists emphasize the crucial role of parental relationships in children's cognitive-emotional development and mental well-being (9).

In the family setting, interactions between members play a crucial role in mitigating or exacerbating problems (10,11). Research indicates that parental well-being, maternal role, lifestyle, family conflicts, and communication patterns significantly predict children's behavioral issues (12,13). Mothers with better parenting experiences tend to have fewer conflicts and depression, resulting in fewer behavioral problems in their children (14). The mother-child relationship, the primary bond in the early years, profoundly affects a child's development. More than paternal distress, maternal emotional well-being may influence children's behavioral disorders (15). Mothers lacking sufficient knowledge on interacting with their children, especially during critical situations like quarantine, can exacerbate behavioral problems (16). Thus, educating mothers on effective communication and parenting skills is crucial, particularly during pandemic situations. Parental behavioral education programs have been introduced as a preventive measure for addressing children's behavioral issues (16). Play therapy emerges as a natural remedy for various psychological problems in children, including anxiety, aggression, and conduct disorders (17). Previous research highlights the importance of addressing family dynamics and supporting parents and children to foster healthy relationships and reduce behavioral issues (18,19).

While various studies (20-26) have highlighted the effectiveness of Child-Centered Play Therapy (CCPT) in addressing a range of psychological issues in children, Child-Parent Relationship Play Therapy (CPRT) integrates play therapy training for parents, emphasizing the importance of the parent-child relationship, strengthening its effect size (27). The CPRT training intervention program is an approach that

provides practical play therapy training to mothers based on the parent-child relationship and is designed based on Landreth's 10-session model (27). In addition to emphasizing the use of parents in treating children's problems, this approach has given great importance to play as a therapeutic approach for children aged three to nine. Landreth combines increasing parenting skills with CCPT in the child therapy approach. Previous studies demonstrated the effectiveness of CPRT-trained caregivers in treating orphaned and abused children, leading to significant reductions in child-caregiver conflicts (28).

Parenting programs, including CPRT, aim to enhance parenting skills, improve parent-child relationships, and increase parenting self-efficacy and happiness. These programs have become particularly relevant during the COVID-19 pandemic, which has exacerbated emotional and behavioral issues in families while limiting access to traditional psychological services. Consequently, the study aimed to assess the effectiveness of CPRT in addressing behavioral problems in children aged three to nine years within quarantine conditions.

Materials and Methods

The current study was conducted in Shahrood City, Iran, during the 2020 COVID-19 pandemic. Convenience sampling was used, a non-probability sampling method in which units are selected for inclusion because of geographical proximity, availability at a given time, or willingness to participate in the research (29). Roscoe (1975) proposes a sample size between 10 and 20 for simple experimental research with non-random sampling (30). The sample size in this study was considered to be eight to ten participants. Due to the 2020 quarantine period and the fact that it was impossible to meet face-to-face, the research announcement was made on social networks (Telegram and WhatsApp), and eligible mothers who lived in Shahrood filled out the questionnaires online. 26 mothers who complained about their children's behavioral problems (aged 3 to 9 years according to the Landreth model) participated in this study. These mothers were then randomly divided into intervention and waiting groups. Eight mothers were excluded from the study due to COVID-19 disease or failure to attend more than three sessions. Therefore, this study was performed with nine participants in each intervention and waiting group. Inclusion criteria were

considered as the child's age between 3 and 9 years old, the mother and child lived in quarantine conditions for at least the last three months, having access to cyberspace, volunteering to participate in the research, no-use of psychiatric medicine by the mother or her child, difficulties in the mother-child interaction during quarantine (checked by direct questioning from mothers and the significant result of the HTP test for the child's behavioral problems. Exclusion criteria included the presence of psychiatric illness or drug use by the mother or child (checked by direct questioning from mothers) and dissatisfaction with continuing the study. The research project was performed by a child psychologist (Master's Degree) with the direct supervision of an associate professor of psychology at Ferdowsi University of Mashhad. First, the House-Tree-Person Painting Test (HTP) screened the children's behavioral problems. Mothers took an HTP from the child using the evaluation method and sent their children's painting story via WhatsApp to the researchers. Then, the parents who had announced their readiness through WhatsApp were told to prepare the paper, pencil, sharpener, and pencil eraser and ask the child to draw a house, a tree, and a person. The child is then asked to make up a story about the painting, and the mother should number the priority of the drawn items and write down the child's story. Finally, the mothers sent the painting's photos and the child's story to the researcher on WhatsApp.

Child-Parent Relationship Therapy (CPRT, Landreth, 2009) was obtained from the research of Mostafavi et al. (31) and administered in 10 weekly virtual 90-minute group sessions with a complementary virtual support group. After each session, the saved audio file was provided to the mothers in the intervention group.

No intervention was performed for the waiting group between the pre-test and post-test. However, after performing the post-test for both groups, an educational intervention program was offered to the waiting group. The Eyberg Child Behavior Inventory (ECBI) in the pre-test and post-test sessions and the House-Tree-Person Test (HTP) as a screening tool for inclusion criteria were performed virtually. Finally, pre-test and post-test data were analyzed using covariance analysis.

Research instruments

A) Eyberg Child Behavior Inventory (ECBI): The ECBI is a 36-item self-report tool used in

this study to measure behavioral problems in pre-test and post-test. The ECBI was designed in 1978 by Eyberg and Ross to measure common problematic and bullying behaviors in children and adolescents on two scales of severity and problem (32). Parents rate this list on a 7-point Likert scale, from "never" to "always." Also, by rating each item as "yes" or "no," the child's problematic behavior was assessed. This measure comprises two subscales: the intensity scale (where the parent indicates how often each behavior currently occurs) and the scale of the problem (where the parent indicates whether or not the identified behavior is a problem). In the study by Conres et al. the alpha coefficient of the intensity scale was 0.95, the problems scale was 0.91 and the validity was acceptable (33). The validity of the Persian version of ECBI was also approved (N=200). The alpha coefficient of the severity scale was 0.93, and the scale of the problem was 0.92 (34).

B) House-Tree-Person Test (HTP): The HTP is a graphic test used in the present study for initial screening. The HTP was initially developed by John Buck (1948) (35). It is based on the psychological hypothesis that, like the human figure drawing test, the HTP test can also represent some of the psychological and emotional aspects of the child through paintings. Some evidence suggests that projective paintings have been the most successful as an approximate indicator of mental development, and medium success has been achieved in the general ratings (level of adaptation, impulsivity, anxiety). Optimal reliability and validity have been obtained for the test. The validity of this test has been reported to be between 0.42 and 0.78, and the alpha coefficient was equal to 0.80 (36).

Results

After excluding eight participants, nine mothers participated in each intervention and control group (n= 18). The children's age in each intervention (5.89 ±1.96) and control groups (6.44 ±1.59) and the mother's age in the intervention (36.78 ±2.44) and the control group (37.44 ± 2.74) were assessed. The children consisted of three boys and six girls in the intervention group and four boys and five girls in the control group. In the intervention group, 33.3% of mothers had a bachelor's degree, 55.6% had a master's degree, and 11.1% were at the doctorate level. In the control group, 44.4%

of mothers had a bachelor's degree, 33.3% had a master's degree, and 22.2% were at doctorate level. Four mothers in the intervention group and three mothers in the control group had one child.

Differences in demographic variables (mother's and child's age and mother's education) in the two groups were examined. An independent t-test was used for age and dependent variables in pre-test scores, and a U Mann-Whitney test was used for educational variable. The two groups in terms of mother age ($t(16) = -0.545$, $P = 0.593$), child age ($t(16) =$

0.659 , $P = 0.519$), and education level ($Z = 0.096$, $P = 1.000$) were not significantly different. Moreover, at the baseline, the intervention group and the control group did not significantly differ in terms of problem intensity ($t(18) = 1.1463$, $P = 0.2685$) and behavioral problems ($t(16) = 0.398$, $P = 0.695$) scores.

Table 1 shows the behavioral problems descriptive data in two groups. At the post-test stages, the intervention group's scores in problem intensity and the child's behavioral problems were significantly decreased.

Table 1. Descriptive data of problem severity and behavioral problems scales in each group

| Variable | Pre-test | | | | Post-test | | | |
|--------------------------|--------------|-------|---------|------|--------------|-------|---------|------|
| | Intervention | | Control | | Intervention | | Control | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Problem intensity score | 81.11 | 12.29 | 86.67 | 7.79 | 64 | 13.24 | 86.67 | 7.79 |
| Behavioral problem score | 8.44 | 4.53 | 9.22 | 3.73 | 3.56 | 3.24 | 9.33 | 3.84 |

As Table 2 shows, the normal data distribution was also examined. The Kolmogorov-Smirnov test was insignificant for any variables ($P > 0.05$). Therefore, the normality of data distribution was approved.

In examining the homogeneity of regression slopes, the Interaction effect of group factor and pre-test scores of behavioral intensity ($F = 0.0966$; $P = 0.761$) and behavioral problems subscales ($F = 3.755$; $P = 0.73$) were insignificant. So, the homogeneity of regression slopes was confirmed. Table 2 shows Levene's test for the variance homogeneity of the problem intensity and behavioral problem scores. The homogeneity of variance between the two groups in the pre-test stage was approved ($P >$

0.05). Also, the scree plot showed no outliers. Table 3 shows that Pillai's trace test statistic shows that CPRT significantly affects behavioral problems. Comparing the two groups using MANOVA test, the post-test scores differed significantly regarding problem intensity scale [$F(1,16) = 45.17$, $P = 0.001$, $\eta^2 = 0.94$] and the behavioral problem scale [$F(1,16) = 34.02$, $P = 0.001$, $\eta^2 = 0.97$]. Also, the pre to post-test change scores for the problem intensity scale [$F(1,16) = 51.22$, $P = 0.001$, $\eta^2 = 0.61$] and the behavioral problem scale [$F(1,16) = 36.53$, $P = 0.001$, $\eta^2 = 0.20$] was significantly different between two groups. These results show that CPRT could significantly reduce the children's behavioral problems.

Table 2. Levene's test results

| Variable | F | Degree of freedom 1 | Degree of freedom 2 | P |
|--------------------------|-------|---------------------|---------------------|-------|
| Problem intensity score | 2.358 | 1 | 16 | 0.144 |
| Behavioral problem score | 2.22 | 1 | 16 | 0.138 |

Table 3. Multivariate analysis of covariance of F ratios for the interactive effect of CPRT training on behavioral problems

| Effect | Value | F | Df ¹ | Df ² | P | μ^2 | |
|--------|------------------|-------|-----------------|-----------------|----|---------|-------|
| Group | Pillai | 0.804 | 26.671 | 2 | 13 | 0.00 | 0.804 |
| | Wilkes lambda | 0.196 | 26.671 | 2 | 13 | 0.00 | 0.804 |
| | Hotelling | 4.103 | 26.671 | 2 | 13 | 0.00 | 0.804 |
| | The largest root | 4.103 | 26.671 | 2 | 13 | 0.00 | 0.804 |

Discussion

The prevalence of COVID-19 disease has led to fatalities, limitations, and opportunities. One of these opportunities was the experience of psychological interventions for children and families with psychological issues. Limited psychological services were provided during the coronavirus pandemic. In this regard, the present

study was conducted to determine the effectiveness of a virtual play therapy intervention based on parent-child interaction on behavioral problems in children during COVID-19 quarantine. Our study showed that this virtual intervention reduced children's behavioral problems. Since the COVID-19 pandemic health

protocols were unprecedented globally, this study provided a virtual play therapy program using social media. Although the CPRT in the present study had strong limitations compared with common virtual interventions, it showed significant effectiveness. The present results showed behavioral improvement, which was in line with the previous studies showing the effectiveness of CPRT in Iran (17,21,24-26,28,37,38) and worldwide (23,27,39-41).

The present results had similarities and differences with the previous research. All the papers reviewed highlight the significant impact of CPRT on reducing behavioral problems in children with diverse behavioral problems and psychological disorders. Landreth et al. conducted comprehensive review and meta-analysis and found the overall benefits of play therapy in elementary schools, including behavioral, self-efficacy, and academic improvements (27). Among Iranian studies, Abbaslo and Hafezi et al. demonstrated that play therapy training for mothers effectively reduces behavioral issues in children. Abbaslo's study focused on a smaller sample size of fifteen mothers, while Hafezi et al. included 30 mothers, providing a broader perspective (24,25). Similar to the present research, these studies underscore the efficacy of therapeutic interventions involving parents in addressing behavioral problems in children, highlighting the importance of parental involvement in therapeutic processes. However, unlike the present study, the previous research was not limited to online intervention and quarantine conditions. Consistent with the present research, the virtual CPRT literature showed effectiveness across different contexts. Chau and Baggerly and Hanif and Gul both demonstrated significant improvements in children's behavior and parenting skills despite being conducted in different cultural contexts (Hong Kong and Pakistan, respectively). This suggests that online CPRT can be effective across diverse populations (42,43). Wisen-Vincent and Bokoch focused on the PlayStrong Neuro-Filial Parenting Program, which also showed positive outcomes, particularly in mindful parenting and social support. This indicates that various online therapeutic programs can be beneficial, even with different focal points (44). Using different instruments across studies highlights the importance of selecting appropriate tools for measuring outcomes. Chau and Baggerly used the Portal Parental Acceptance Scale, while

Hanif and Gul employed the CATS-C and CABI. Wisen-Vincent and Bokoch utilized a combination of standardized measures and surveys, demonstrating a comprehensive approach to data collection. The sample sizes varied significantly, with Chau and Baggerly having the largest sample (158 parents), which enhances the generalizability of their findings. Hanif and Gul had a moderate sample size (60 mothers), providing a balanced perspective. Wisen-Vincent and Bokoch had a smaller sample (eleven parents), which may limit the generalizability but still offers valuable insights into the program's effectiveness (42-44). The methodological approaches differed. Chau and Baggerly and Wisen-Vincent and Bokoch used mixed-method designs, combining quantitative and qualitative data. This approach provides a more holistic understanding of the impact of intervention. Hanif and Gul used a semi-experimental design, which is robust for evaluating the effectiveness of interventions but may benefit from additional qualitative insights (42-44). Consistent with the present result, these studies collectively underscore the potential of online therapeutic interventions to support parents and improve children's behavioral outcomes, especially during challenging times like the COVID-19 pandemic. The diversity in sample sizes, instruments, and methods across these studies highlights the adaptability and effectiveness of such programs in various cultural and contextual settings.

Compared with the above studies, the present research encountered a series of limitations, such as small sample sizes, short-term follow-ups, and potential biases in data collection due to using self-report instruments. Also, it focused solely on mothers, which limited the generalizability. Due to the virtual CPRT, only volunteer mothers with sufficient skills and access to cyberspace participated in the study. This study was limited to auditory-visual communication, which likely affects parents' dynamics and face-to-face involvement. In face-to-face meetings, participants usually act faster, more efficiently, and clearly when expressing ideas and conversations. As a result, they received more diverse feedback, which is likely to be limited and reduced in virtual sessions. Moreover, it was impossible to review playing videos in meetings due to cyberspace limitations, which can also affect the treatment goals. Some mothers' occasional weak internet connection also creates problems in receiving

information. The authors tried to address these issues by recording the meetings and by complementary interactions in the support group. Future research should address these limitations by including larger, more diverse samples, employing long-term follow-up assessments, and utilizing rigorous, standardized measurement tools.

Conclusion

This study demonstrates that virtual CPRT can serve as an effective solution for managing behavioral issues in Iranian children during critical situations such as the COVID-19 pandemic. CPRT helps reduce stress and anxiety in children during crises by improving parent-child communication and communication skills. By creating a safe and accepting environment for children, this approach strengthens their emotional interaction and communication with others, potentially addressing stressors and behavioral problems. The study confirmed that parental psychological involvement, as an influential factor in children's growth and development, can expedite behavioral

improvements in children.

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Conflict of Interest

The authors declare no conflicts of interest.

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Ethical Considerations

Ferdowsi University of Mashhad and Shahrood Islamic Azad University approved this research.

Code of Ethics

IR.IAU.SHAHROOD.REC.1400.018

Authors' Contributions

Dr Seyed Mohsen Asgharinekah revised the Child-Parent Relationship Therapy (CPRT) framework and supervised the play therapy sessions. He also contributed to the manuscript writing process. Sarah Picardian performed the CPRT, conducted the data analysis, and drafted the manuscript. Seyyedeh Soleil Ziaee provided Research consolation reviewed.

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