

The Effect of Play Activities for COVID-19 Positive and MIS-C Pediatric Patients on the Anxiety and Fear of Children and Their Parents

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Aim: This study aims to determine the effects of play activities for COVID-19 positive and MIS-C pediatric patients on the anxiety and fear of children and their parents.

Methods: This is an experimental study that was prepared through STROBE. The study population consisted of 38 children treated in a university hospital COVID-19 unit. The Children's Anxiety Meter-State and the Children's Fear Scale were administered before and after the play activities. The parents' fear and anxiety were assessed using the COVID-19 Phobia Scale and the Beck Anxiety Inventory. The book and coloring set was prepared in advance and delivered to the experimental group in a package. After the sets were given to the parents, the parents read the book to their children the same day. Afterward, they were asked to color pictures of coronavirus precautions together with the children. SPSS 22.00 package program was used to analyze the study data. The Mann-Whitney U test was used to compare independent groups, and Wilcoxon analysis was used to analyze dependent variables before and after the play activities.

Results: Based on the children's anxiety and fear scores in the experimental group, significant differences were found before and after the play activities and significant differences between the anxiety scores (<0.05) of parents and children. However, no significant difference was found between post-play anxiety and fear scores of children in the experimental group and the scores of the control group.

Discussion: The experimental group had low mean anxiety and fear scores after the play activities. Play activities should be used to reduce the anxiety and fear of children who are treated in isolation in hospitals during the COVID-19 pandemic. Even if children are restricted to isolation rooms, their daily routines should be maintained, and their parents should be supported.

Keywords: COVID-19; HOSPITALIZATION; PEDIATRIC NURSING

INTRODUCTION

The COVID-19 pandemic, affecting the entire world and becoming a social problem, has changed the daily lives of adults but also children. Children's physical activities have been restricted, and their nutrition and sleep patterns changed due to the pandemic (1,2). During the current COVID-19 pandemic, children have developed problems such as excessive attachment to their families (especially to

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their mothers), inattentiveness, irritability, anxiety concerning their health and that of their families, sleep problems, nightmares, enuresis, loss of appetite and are constantly posing questions about the novel coronavirus (3, 4, 5, 6, 7). It has also been reported that acute stress disorder and adjustment problems are more common in children who have been isolated or quarantined during the pandemic, with 30% of them subsequently developing post-traumatic stress disorder (8).

Previous studies have reported that play is an effective method of reducing anxiety, fear, and negative emotions among hospitalized children, contributing to their recovery through physical and emotional comforting, and enabling children to express their feelings and knowledge about their illness while facilitating communication between children and health workers, which is considered important for holistic and high-quality care (9-13).

Forms of communication appropriate for the developmental ages of children are a very important factor in reducing physiological, emotional, and behavioural problems among children hospitalized for COVID-19 or Multisystem inflammatory syndrome in children (MIS-C) during the pandemic (14). Play activities are used in routine care for hospitalized children as a form of preparation for surgical or invasive procedures and also during painful or unpleasant procedures (9, 15-17). Play is an effective way of making hospitalization less difficult for children, reducing their pain and anxiety (9, 12, 18, 19). Play also facilitates harmony and communication between children and health workers (20, 21). The play has an important role in reducing the negative effects of children's hospitalization (17, 22, 23). Children hospitalized due to infection during the pandemic, experience more anxiety and fear due to COVID-19 precautions (the personal protective equipment of health workers, less communication with medical teams, medical equipment, visiting restrictions, not being able to leave their rooms or go to the playroom). Children may also wonder as to the reason for experiencing these conditions and possibly conclude that they are undergoing punishment. Therefore, play is important for reducing anxiety and fear in children brought on by COVID-19.

AIM

This study aims to identify the effects of play activities for COVID-19 positive and MIS-C paediatric patients on the anxiety and fear of children and parents.

We hypothesize that:

- A play activity involving hospitalized children during the covid 19 process reduces anxiety.

- A play activity involving hospitalized children during the covid 19 process reduces fear.
- A play activity involving hospitalized children during the covid 19 process reduces parents' anxiety and fear.

METHODS

Study design and sample

This is an experimental study that has been prepared on the basis of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement (24, 25). The study population consisted of children treated at a university hospital COVID-19 unit from April to June 2021. The inclusion criteria were:

- Voluntary participation in the study,
- A COVID-19 or MIS-C diagnosis,
- At least five years of age,
- No physical or mental disabilities,
- Able to speak Turkish,
- Having a literate parent.

The sample size in the study was determined using power analysis and performed in the G Power 3.0.10 program by selecting the means, i.e., the difference between two independent groups using t-tests. (effect value; alpha: 0.05, power: 0.95). The number of patients in the sample was 38, with 19 in the experimental group and 19 in the control group. The number of paediatric patients who met the inclusion criteria were included in the study and divided equally into two groups. The experimental group read a book about COVID-19 and coloured pictures of COVID-19 precautions. The control group received routine care in the clinic.

Data Collection Tools

A descriptive information form created by the researcher was used to determine the participants' sociodemographic characteristics. The Children's Anxiety Meter-State (CAM-S) and the Children's Fear Scale (CFS) were administered to the experimental group before and after the play activities. The parents' anxiety and fear were assessed using the Beck Anxiety Inventory (BAI) and the COVID-19 Phobia Scale (C19P-S).

Descriptive Information Form: The form was developed by the researchers based on a review of the literature. It contains questions concerning the descriptive characteristics (age, gender, education level, place of residence, etc.) of the paediatric participants.

Children's Anxiety Meter-State (CAM-S): This scale was developed by Ersing et al. in 2013. It was adapted to Turkish by

Gerçeker et al. in 2018. It is used for children aged four to ten years of age who are asked to indicate their feelings of anxiety and anger on a thermometer. The top of the thermometer indicates more anxiety and anger, whereas the bottom indicates less. Scores range from 0-10 (26, 27).

Children's Fear Scale (CFS): This scale was developed by *McMurty* et al. in 2011. It was adapted to Turkish by *Gerçeker et al.* in 2018. The CFS is used to assess a child's fear levels. The CFS items are rated from 0-4. It uses five drawings of facial expressions that range from a neutral expression (0 = no fear) to a frightening expression (4 = severe fear). Family and researchers can use the scale before and during procedures to measure the fear of children aged five to ten years of age. It is a single-item scale. The drawings of fearful expressions are based on photographs of real faces. Face sizes from the Faces Anxiety Scale were reduced for use in the CFS, but the drawings remained unchanged. The guidelines for the Faces Anxiety Scale were modified for the CFS to be more appropriate for children's smaller fear-related vocabularies (27, 28). In this study, both the children and their accompanying parents evaluated the children's anxiety and fear.

COVID-19 Phobia Scale (C19P-S): This is a 5-point Likert-type self-assessment scale. It uses 20 items for measuring coronavirus phobia. Scale scores range from 20 to 100. Higher scores indicate a more severe coronavirus phobia (29).

Beck Anxiety Inventory (BAI): This inventory was developed by Beck et al. (1988). The associated Turkish reliability and validity study was carried out by *Ulusoy et al.* (1993). The BAI assesses the frequency of anxiety symptoms. It is a self-assessment scale with 21 items with a 0-3 score range. The items are questions about the frequency of recent feelings of distress. Scores range from 0 to 63 and indicate the severity of anxiety (30, 31).

Data Collection

The data were collected from paediatric patients hospitalized in the COVID-19 clinic between April and June 2021 due to COVID-19 infection or MIS-C. Participation in the study was voluntary, and parents who agreed to participate were included. Before collecting the data, a questionnaire about sociodemographic characteristics and disease information was filled out with the paediatric patients and their families, including written and verbal consent obtained from the paediatric patients and their parents. The data were collected in two stages. First, the anxiety and fear of the children were evaluated by the children and their parents. The parents were also asked to evaluate their fear and anxiety. The book and colouring sets were prepared in advance and delivered to the experimental group. The set contained the book, *What is*

TABLE 1. Sociodemographic Characteristics of the Children and Their Parents (n:38)

Sociodemographic Characteristics		Experimental Group		Control Group	
Children's mean age		X±SD (min-max) 7.9±1.8 (5-11)		X±SD (min-max) 9.2±2.4 (5-12)	
Parents' mean age		X±SD (min-max) 35.7±5.6(27-47)		X±SD (min-max) 36.7±6.6 (20-46)	
		n	%	n	%
Children's gender	Female	8	42.1	7	36.8
	Male	11	57.9	12	63.2
Children's chronic diseases	Yes	3	15.8	3	15.8
	No	16	84.2	16	84.2
Parents' gender	Female	18	94.7	11	57.9
	Male	1	5.3	8	42.1
Parents' education level	Primary school	6	31.6	3	15.8
	Middle school	6	31.6	4	21.1
	High school	4	21.1	5	26.3
	University	3	15.8	7	36.8
Economic status	Less income than expenses	5	26.3	4	21.1
	Equal income and expenses	10	52.6	10	52.6
	More income than expenses	4	21.1	5	26.3
Source of information about COVID-19	Health personnel	12	63.2	14	73.7
	Social media	16	84.2	11	57.9
	TV	18	94.7	15	78.9
	Internet	17	89.5	12	63.2

Coronavirus? A Coronavirus Guide for Kids, written by *Aslı Zülal* and published by TÜBITAK. It is a ten-page colouring book on how to avoid infection and includes 12 colouring pencils. The products were supplied as part of the COVID-19 measures, cleaned with surface disinfectants, and gloves were worn when placed into the book and colouring sets. After the parents received the book and colouring sets, they were asked to read the book to their children that same day. Afterward, they were asked to colour pictures of coronavirus precautions (social distancing, hand hygiene, and wearing masks) with the children. Subsequently, the fear and anxiety of the children and their parents were assessed again. The routine care for control groups was continued. Their fear and anxiety were only assessed once.

Ethical Considerations

Approval and institutional permission were received from the University Clinical Research Ethics Committee. Prior to

TABLE 2. Comparison of the Participants' Anxiety and Fear Scores

Mean Anxiety and Fear Scores	Experimental Group Pre-test	Experimental Group Post-test	Control Group
	X±SD (min-max)	X±SD (min-max)	X±SD (min-max)
Children's anxiety	5.2±3.5 (1-10)	4.2±3.5 (0-10)	5.8± 2.8 (2-10)
Parents' evaluation of their children's anxiety	5.7±3.8 (1-10)	4.7±3.9 (0-10)	6.4±2.7 (1-10)
Children's fear	2.4±1.5 (0-4)	1.5±1.4 (0-4)	2.4±1.3 (0-4)
Parents' evaluation of their children's fear	2.5±1.5 (0-4)	1.7±1.6 (0-4)	2.4±1.4 (1-4)

Mean Anxiety and Fear Scores	Experimental Group Pre-and Post-test Comparison	Experimental Group Post-test and Control Group Comparison
	Children's anxiety	Z=-2.3, p=0.02*
Parents' evaluation of their children's anxiety	Z=-2.5, p=0.01*	Z=-1.2, p=0.19**
Children's fear	Z=-2.4, p=0.01*	Z=-2.0, p=0.04**
Parents' evaluation of their children's fear	Z=-2.5, p=0.01*	Z=-1.3, p=0.16**

* Wilcoxon test; ** Mann-Whitney U test

TABLE 3. Comparison of the Parents' Mean BAI and C19P-S Scores

Parents' Mean BAI and C19P-S scores	Experimental Group Pre-test	Experimental Group Post-test	Control Group
	X±SD (min-max)	X±SD (min-max)	X±SD (min-max)
BAI	18.5±14.2 (1-47)	15.5±13.8 (0-48)	18.7±17.7 (1-57)
C19P-S	56.7±18.9 (22-93)	54.6±19.5 (22-91)	57.3±12.9 (33-75)

Parents' Mean BAI and C19P-S Scores	Experimental Group Pre-and Post-test Comparison	Experimental Group Post-test and Control Group Comparison
	BAI	Z=-1.7, p=0.07*
C19P-S	Z=-0.5, p=0.60*	Z=-0.4, p=0.65**

* Wilcoxon test; ** Mann-Whitney U test; BAI = Beck Anxiety Inventory; C19P-S = COVID-19 Phobia Scale

data collection, the paediatric patients were informed about the study in a manner adapted to their ages. Their parents were also informed, and their written and verbal consent was obtained. Participation was voluntary, and the children and parents who agreed to participate were included in the study.

Statistical Analysis

The SPSS 22.00 software package was used to analyse the study data. Frequencies, percentage distributions, and descriptive statistics were used for the demographic characteristics of the participants. Given that the sample size was less than 30, non-parametric tests were used. The Mann-Whitney U test was used to compare independent groups, and Wilcoxon analysis was used to analyse dependent variables before and after the play activities.

RESULTS

The mean age of the children in the experimental group was 7.9±1.8 and 57.9% of them were male. The control

group's mean age was 9.2±2.4 and 63.2% were male. Of the children in both groups, 84.2% had no chronic diseases. While 94.7% of the parents in the experimental group were women, only 57.9% of the parents in the control group were women. Of the parents in the experimental group, 31.6% had completed primary school. Of the parents in the control group, 36.8% were university graduates. Of the parents in both groups, 52.6% said their incomes equalled their expenses. In all, 63.2% of the experimental group parents, and 73.7% of the control group parents obtained their information about COVID-19 from the healthcare team (Table 1).

The children's anxiety scores before the play activities were 5.2±3.5 for the experimental group and 5.8±2.8 for the control group. After the play activities, the children's anxiety score for the experimental group was 4.2±3.5. Significant differences were found between the children's and parents' evaluations of anxiety scores before and after the play activities in the experimental group ($p < 0.05$). The children's fear scores were 2.4±1.5 before the play activities for the experimental group and 2.4±1.3 for the control group. The

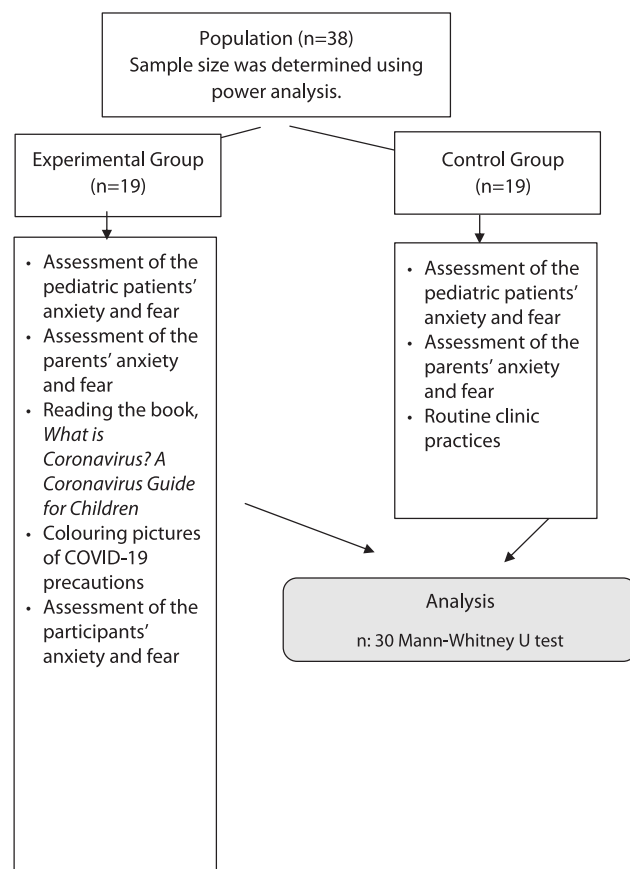


FIGURE 1. Data Collection

children's fear score of the experimental group after the play activities was 1.5 ± 1.4 . Significant differences were found between the children's and parents' evaluations of fear scores before and after the play activities in the experimental group ($p < 0.05$) (Table 2). However, no significant difference was found between the post-test play activity anxiety and fear scores of the children in the experimental group and the control group scores.

The parents in the experimental group had a mean BAI pre-test score of 18.5 ± 14.2 . Their post-test score was 15.5 ± 13.8 . The control group's mean BAI score was 18.7 ± 17.7 . The parents in the experimental group had a mean C19P-S pre-test score of 56.7 ± 18.9 . Their mean post-test score was 54.6 ± 19.5 . The control group's mean score was 57.3 ± 12.9 . There were no statistically significant differences in the mean BAI and C19P-S scores of the experimental and control groups ($p > 0.05$) (Table 3).

DISCUSSION

The experimental group's mean fear and anxiety scores were lower than those of the control group. Previous studies have reported that children experience symptoms such as anxiety, depression, impaired social interaction, and re-

duced appetite due to COVID-19 (3, 6, 8, 32). Children in isolation rooms due to COVID-19 may be even more susceptible to mental health problems due to the risk of infection, including grief and fear caused by loss or separation from parents (4, 13). Another study reported that children who were socially isolated or quarantined due to illness during the pandemic were more likely to develop acute stress disorder, anxiety disorder, and adjustment disorder and that 30% of them also develop post-traumatic stress disorder (7, 33). Play can be an important way to reduce the negative psychosocial effects of illness and hospitalization for children who are isolated for COVID-19. Many studies have shown that play activities with hospitalized children effectively reduce their anxiety, fear, and pain (9, 18, 34). Studies have also reported that distracting play activities effectively reduce pain and fear during invasive procedures (17, 21, 35). It has also been shown that preoperative play activities reduce fear, anxiety, and pain levels (16, 36-38). *Mohammadi et al.* (2017) reported that play activities effectively reduced the pain, anxiety, and fatigue levels of children hospitalized for chemotherapy (16). *Potasz et al.* (2013) found that children who participated in play activities in hospitals had lower cortisol levels in their urine (39).

In this study, the experimental group of parents who were isolated with their children due to COVID-19 had lower fear and anxiety scores than the control group. However, these differences were not statistically significant. This may be due to the small sample size in this study. Previous studies have revealed that parents who participate in play activities with their children during invasive procedures or before surgery had less anxiety and higher health care satisfaction (19, 20, 36) *Wong et al.* (2018) reported that therapeutic play effectively reduces the anxiety of children having plaster casts removed and increases parent satisfaction with these procedures (40). *Yayan et al.* (2020) found that preoperative play therapy reduced both children's pain and parents' anxieties after surgery (20). *Coşguntürk and Gözen* (2018) reported that preoperative education using therapeutic play for 6-12-year-old surgery patients reduced the postoperative anxiety levels of children and their mothers (23). *Büyük and Bolışık* (2018) determined that, compared to a control group, mothers who received education and played with their children had lower anxiety levels before and after surgery (41).

Limitations

The study does not cover the two-year duration of the pandemic. It was conducted in 2021. The specific timing of the study during the pandemic may have affected its results. In addition, due to the sample size in the study, the study findings cannot be generalized to the entire population.

CONCLUSIONS

After the play activities, the children and parents in the experimental group had low mean anxiety and fear scores. However, there were no differences in their mean anxiety and fear scores after such activities.

Children and young people are a significant part of the world's population. They should be provided with psychosocial support to reduce the short- and long-term effects of the pandemic. Healthcare professionals should know and be aware of their duties and responsibilities to protect and improve the health of children diagnosed with COVID-19. Nurses who care for children and parents need to be sensitive to the occupants of isolation rooms and provide individualized and holistic nursing care. Nurses have important responsibilities, such as guiding children to play activities, enabling children to express their feelings, and providing age-appropriate education. Play activities should be used to reduce the anxiety and fear in children treated in isolation in hospitals during the COVID-19 pandemic. Even if children are restricted to isolation rooms, their daily routines should be maintained, and their parents should be supported.

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SAŽETAK

Učinak igre na anksioznost i strah pedijatrijskih pacijenata pozitivnih na COVID-19 i pacijenata s MIS-C-om te njihovih roditelja

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Cilj: Ova studija imala je za cilj utvrditi učinke igre na anksioznost i strah pedijatrijskih pacijenata pozitivnih na COVID-19 i pacijenata s MIS-C-om te njihovih roditelja

Metode: Ovo je eksperimentalna studija koja je pripremljena putem STROBE smjernica. Ispitanu populaciju činilo je 38 djece koja su liječena u odjelu sveučilišne COVID-19 bolnice. Dječji mjerač anksioznosti

Rezultati: Utvrđene su značajne razlike dječje anksioznosti i straha u eksperimentalnoj skupini prije i nakon igre te značajne razlike između rezultata anksioznosti roditelja i djece (<0,05). Međutim, nije pronađena značajna razlika između rezultata anksioznosti i straha nakon igre djece u eksperimentalnoj skupini i rezultata kontrolne skupine.

Diskusija: Eksperimentalna skupina imala je niske prosječne rezultate anksioznosti i straha nakon igre.

Ključne riječi: COVID-19; HOSPITALIZACIJA; PEDIJATRIJSKA MEDICINSKA SESTRA