Original Research

Investigating The Effect Of Creativity-Based Play Therapy On Reducing Pain Intensity And Behavioral Problems Of Hospitalized Children

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Abstract

Background: The purpose of this research is to investigate the effect of creativity-based play therapy on reducing pain intensity and behavioral problems of hospitalized children.

Method: This research uses a semi-experimental method with a pre-test-post-test design with a control group. The statistical population includes all 4-6-year-old children hospitalized in the pediatric surgery department of Imam Hossein (AS) and Al-Zahra Hospital in Isfahan. 30 children were randomly selected and fifteen were placed in two experimental and control groups. The tools used in this research include cognitive-behavioral avoidance questionnaire and pain measurement scale checklist. The analysis of the obtained data was done using covariance analysis.

Results: The results indicate that creativity-based play therapy has a significant effect on reducing pain intensity and behavioral problems of hospitalized children.

Conclusion: Based on this, creativity-oriented play therapy can play an important role in reducing pain intensity and behavioral problems of hospitalized children and can be effectively used in psychological interventions for children.

Keywords: Creativity-Based Play Therapy, Pain Intensity, Children's Behavioral Problems, Hospitalized Children.

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Introduction

Playing is one of the intervention methods that gives the child the opportunity to reveal his unpleasant feelings and internal problems through it, and many researchers believe that the game is the best way to treat disorders of learning and natural communication processes[1]. Play therapy as a safe and compatible treatment with the developmental characteristics and conditions of children has always been assigned a share of educational, psychological and rehabilitation interventions, and in this sense, research and development in this field has been initiated. It is a kind of scientific investment [2]. Play therapy is an active approach that can be used individually or in groups; In general, different approaches have been used in play therapy for children. But regardless of their specific orientation, almost all of them have a common belief, the use of games or play environment is an inevitable feature of diagnosis and treatment for children who have problems [3]. The game provides opportunities for children to improve useful social skills. Also, the game gives children the opportunity to play new roles and try different problem solving approaches in a reliable environment [4]. Using art and playing with creativity is one of the interventions that are used today to improve the developmental level and reduce children's problems [5]. This type of creativity-oriented play therapy was introduced by Liana Lavinstein (1999). Creativity-based play therapy is a kind of movement from the abstract intellectual world to the imaginary world, freedom, enthusiasm and excitement of childhood, along with metaphor and creativity [6]. Art-based games and methods enable children to laugh, encourage teamwork as a system, learn more about each other, discover different thoughts and feelings and experiences in each other's relationships[7]. Studies show that acquiring these skills can help children improve their individual skills and reduce problems [4]. Hence, in this research, an attempt has been made to use this approach to reduce pain intensity and behavioral problems of hospitalized children. Illness and hospitalization is one of the first crises that children face during their life, and due to changes in their natural health status and normal environmental conditions, they are prone to crises caused by illness and hospitalization[8]. Although many advances have been made in the care of children, many of the cares necessary to treat the disease are traumatic, painful and uncomfortable. Therefore, pain is one of the important nursing diagnoses in children undergoing surgery, and all therapists, including the medical and nursing teams, should prioritize pain control. Postoperative pain causes adverse physiological effects that lead to complications in many body systems [9]. In addition, it also has psychological effects and is considered the main source of fear and anxiety, feeling helpless, despair, and behavioral problems in patients, especially at younger ages. This feeling of helplessness caused by pain in hospitalized children can lead to interpersonal and psycho-social problems, which leads to their restlessness and aggression [10]. Long-term, aggressive and painful treatments for sick children increase the severity of existing psychological problems; As the previous studies have shown that between 50 and 80 percent of patients with severe diseases suffer from a psychiatric disorder at the same time. Play therapy, as a therapeutic method to divert the child's mind and focus on an external issue, can separate the child from pain in order to increase his/her adaptation [11].

In their research, Karamti et al. (1401) designed a game model based on interpersonal skills (individual abilities, effective communication and psychological adaptation and emotional intelligence) of children. The findings show that interpersonal skills are the tools that enable a person to adapt socially, create and maintain interpersonal relationships, which are learned from the first years of life, and have short-term and long-term effects during ones life. People whose interpersonal skills develop, achieve self-satisfaction and are socially responsible and useful people [12].

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In their research, Mikayili et al. (2019) [13] compared thought diversion techniques (watching cartoons and making bubbles) in reducing pain caused by chemotherapy in children with cancer. The results of Tukey's test show that in pain, the average scores of the "bubble making group" and the average scores of "both experimental groups" are significantly higher the control group. These results mean that watching cartoons and making bubbles helps to reduce the child's pain during chemotherapy. Also, these results show that the method of making bubbles has helped reduce pain in children during chemotherapy more than the method of watching cartoons. In general, the results showed that the thought diversion method is one of the effective non-pharmacological interventions in pain relief. In addition to having few or even no complications compared to pharmaceutical methods, this method is also inexpensive. It does not have harmful physical and psychological effects for the child, it is easy to use, it requires less training and it does not take much time to perform for the child, and more importantly, it is very attractive for children and by using this method, the child will endure less pain. Finally, the findings of the present study suggest the possibility of using thought diversion methods as effective non-pharmacological treatments to reduce pain in different hospital departments [13].

Mousavi et al. (2018) [14] conducted a research titled the effectiveness of guided play on the intensity of pain caused by changing burn bandage in children: a randomized clinical trial. The results of the research indicate that the two investigated groups had a statistically significant difference in terms of pain intensity while changing the burn bandage, and the average of both indicators was high in the control group. There was no statistically significant difference in the mean percentage of arterial blood oxygen saturation during burn bandage change in two groups. Therefore, guided play effectively reduces the pain associated with changing burn bandage in children. This technique is cost-effective; therefore, it can be widely used for pain management in children with burns [14].

In their research, Bao et al. (2022) [15] studied the effect of outdoor play spaces in city parks on children's social anxiety. The results showed that the variety of service facilities, amenities and attractiveness of the environment had a negative relationship with children's social anxiety. Also, there was a significant difference between types of activity and social anxiety [15].

In a research, Dodd and Lester (2021)[16] introduce adventurous play as a mechanism to reduce the risk of childhood anxiety. When children play in an adventurous way, climbing trees, riding bikes and jumping over rocks, they experience fear and excitement, excitement and adrenaline. The positive, exciting, and playful emotions associated with this type of child-led play facilitate exposure to fearful situations and, in doing so, provide opportunities for children to learn about physiological arousal, uncertainty, and coping. These learning opportunities, over time, reduce children's risk of developing anxiety by increasing their expectations and ability to cope with anxiety, reducing intolerance of uncertainty, and preventing catastrophic misinterpretations of physiological arousal.

Methods

This research is a semi-experimental method with a pre-test-post-test design with a control group. The statistical population includes all children aged 4-6 admitted to the pediatric surgery department of Imam Hossein (AS) and Al-Zahra Hospital in Isfahan. 30 children were randomly selected and fifteen were placed in two experimental and control groups. The tools used in this research are as follows:

- Cognitive-Behavioral Avoidance Questionnaire: The cognitive-behavioral avoidance scale (CBAS) has thirty-one items that are answered on a Likert scale (one) to (five). This scale has four subscales: social cognitive avoidance, non-social cognitive avoidance, social behavioral avoidance, and avoiding antisocial behavior [17]. In this research,

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Cronbach's alpha of the entire questionnaire was 0.74.

- Checklist of pain measurement scale: for measuring the pain of children in the period of infancy and childhood, which was set by Sally and his colleagues in 1992 in the Department of Surgery of the University of Massachusetts Medical Center with Cronbach's alpha of 0.88 as a validity test. And it is reliable. This checklist has 7 items; there are 3 items related to verbal expressions of pain, 3 items related to facial expressions of pain, and 1 item related to physical expressions of pain. Its overall score is between 0-7 and all these items must be reviewed within 5 minutes of observation [18].

In order to carry out the research, tests were first conducted for each child as a pre-test by the researcher. The games were played every day for ten sessions and each session lasted thirty minutes. After the sessions, the tests were re-read for the subjects as a post-test, raw scores were recorded. In the end, the results were calculated using SPSS software.

In

Results

the present study, 30 people was examined, and 15 were placed in each group after matching in terms of age. The age range is between 4 and 6 years with an average of 4.65 ± 1.523 years. Independent t-test was utilized to check the difference between the two groups in terms of age in the baseline and there was no significant difference in the two groups in terms of the variables mentioned in the baseline (P=0.48). Levine's test was used to check the normality of the variable distribution.

The results show that in the two experimental and control groups, the condition of equality of variance is acceptable from the point of view of the research variables.

Based on the descriptive findings, the dispersion indices and central tendency of the research variables by group and test type are shown in Tables 1 and 2

The obtained results show that the average scores of pain intensity and behavioral problems in the control and experimental groups are almost equal, and the results show that the experimental and control groups are not very different.

The findings of the table show that the average scores of the variables in the experimental group are lower than the control group. In other words, creativity-based play therapy has reduced the mean scores in the variables of pain intensity and behavioral problems, while no significant difference was observed in the control group.

The results of the first hypothesis test that "creative play therapy has an effect on pain intensity" are presented as follows:

According to the obtained results, after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=33.45, P=0.001). The scores show that the average of the experimental group that has been exposed to the treatment has decreased, significantly. Therefore, it can be concluded that creativity-based play therapy has an effect on the amount of behavioral problems of hospitalized children and increases it, significantly. Therefore, the first hypothesis of the research is confirmed.

The results of the second hypothesis test that "creative play therapy has an effect on the pain intensity of hospitalized children" are presented in Table 5.

The obtained results show that after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=14.41, P=0.001). The scores show that the average of the experimental group that has been exposed to the treatment has decreased, significantly. Therefore, it can be concluded that creativity-based play therapy has an effect on the intensity of pain in hospitalized children and increases it, significantly. Therefore, the second hypothesis of the research is confirmed.

Discussion

The aim of this research is to investigate the effect of creativity-based play therapy on reducing pain intensity and behavioral problems of hospitalized

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children. The results obtained from the hypothesis test are as follows:

-Creativity-based play therapy has an effect on the amount of behavioral problems of hospitalized children and reduces it, significantly. According to the obtained results, after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=33.45, P=0.001). Therefore, the first hypothesis of the research is confirmed.

-Creativity-based play therapy has an effect on the intensity of pain in hospitalized children and reduces it, significantly. The obtained results show that after adjusting the pre-test scores, there is a significant effect in the factor between the subjects of the group (F=14.41, P=0.001). Therefore, the second hypothesis of the research is confirmed.

Conclusion

This type of play therapy is a valuable tool in psychotherapy with children, which has been found to be effective in the treatment of mental illnesses and behavioral problems. In play therapy, the therapist guides the child through play and the child expresses thoughts and feelings that are difficult to communicate with others. Play therapy has been used in different structures and formats for children with diseases. Creativity-oriented play therapy is considered in psychological therapies. So that it seems that the effective element of play therapy can include emotional and emotional elements as well as cognitive and behavioral elements. In play therapy, the child expresses his negative emotions through interaction with an experienced therapist with a sense of security, and through this projection of emotions, he actually tries to regulate his emotions and behavior. Playing makes children mentally and physically ready. This preparation created in a child suffering from serious diseases can help his skill in controlling thoughts and behavior in order to reduce the intensity of pain. The research results are consistent with the findings of [11].

Among the limitations of the research, we can mention the lack of proper cooperation of some children and the avoidance of conversation with them. Also, the limited sample size and the implementation of the research in a limited age group are among the most important limitations of this research. In order to carry out future research, it is suggested to compare the effect of creativity-based games with the effect of games accompanied by music on reducing the intensity of children's pain

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References

1. Xiang X, Foo S. Recent advances in deep reinforcement learning applications for solving partially observable markov decision processes (POMDP) problems: Part 1—fundamentals and applications in games, robotics and natural language processing. Machine Learning and Knowledge Extraction. 2021;3(3):554-81.
2. Rabiei Khalidi F, Ghorban Shiroudi S, Abul Qasimi S, Zarbakhsh Bahri MR. Comparing the effectiveness of Friends program training and play therapy on the response to pain in children with cancer, Mashhad University of Medical Sciences Faculty of Medicine Journal. 2022;65(3).
3. Cochran NH, Nordling WJ, Cochran JL. Child-Centered Play Therapy: A Practical Guide to Therapeutic Relationships with Children. Taylor & Francis; 2022.
4. Nik Nishan S, Gol Paror M, Abedi A, Nasri P, Famouri F. The effectiveness of cognitive-behavioral play therapy and resilience-based play therapy on sleep disorder in children with functional abdominal pain, Journal of Nursing

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Rehabilitation Research. 2019;7(1):75-85.
5. Smith S, Stokes P. Signs and wonders. European Journal of Training and Development. 2015.
6. Al-Jayyousi OR, Durugbo CM. Co-creative learning in innovation laboratories using Lego Serious Play workshops. International Journal of Innovation and Technology Management. 2020;17(07):2050051.
7. Ocampo-González AA, Tovar-Cuevas JR, Arteaga-Diaz G. The game and creative cognition. A proposal of intervention. Psicología Educativa. Revista de los Psicólogos de la Educación. 2019;25(1):59-65.
8. Zengin M, Yayan EH, Düken ME. The effects of a therapeutic play/play therapy program on the fear and anxiety levels of hospitalized children after liver transplantation. Journal of PeriAnesthesia Nursing. 2021;36(1):81-5.
9. Boric K, Dosenovic S, Jelicic Kadic A, Batinic M, Cavar M, Urlic M, Markovina N, Puljak L. Interventions for postoperative pain in children: An overview of systematic reviews. Pediatric Anesthesia. 2017;27(9):893-904.
10. Thomas S, White V, Ryan N, Byrne L. Effectiveness of play therapy in enhancing psychosocial outcomes in children with chronic illness: A systematic review. Journal of Pediatric Nursing. 2022;63:e72-81.
11. Dorado MA, Dorado LB. Effects of Play Therapy on the Pain Management of Post-Operative Pediatric Patients. Printed In The Philippines Issn 2599-5456. 2018; 5.
12. Karamati M, Mohammadi A, Haghitghat S. Designing a game model based on interpersonal skills (individual abilities, effective communication and psychological adaptation and emotional intelligence) of children, Journal of the Faculty of Medicine of Mashhad University of Medical Sciences. 2022;2(65).
13. Mikayili N, Fathi A, Kanani S, Samadifard H. Comparison of distraction techniques (watching cartoons and making bubbles) in reducing pain caused by chemotherapy in children with cancer, Cancer Care Journal. 2019;1(1):15-23.
14. Mousavi A, Asgari S, Rahimi Y, Mohammad Qoli Mazerji N. Effectiveness of guided play on pain intensity caused by changing burn dressings in children: a randomized clinical trial. Avicenna Journal of Nursing and Midwifery Care. 2018;27 (3):178-186.
15. Bao Y, Gao M, Luo D, Zhou X. The influence of outdoor play spaces in urban parks on children's social anxiety. Frontiers in Public Health. 2022;10:1046399.
16. Dodd HF, Lester KJ. Adventurous play as a mechanism for reducing risk for childhood anxiety: a conceptual model. Clinical child and family psychology review. 2021;24(1):164-81.
17. Ottenbreit ND, Dobson KS. Avoidance and depression: the construction of the Cognitive–Behavioral Avoidance Scale. Behaviour research and therapy. 2004;42(3):293-313.
18. Tarbell SE, Cohen IT, Marsh JL. The Toddler-Preschooler Postoperative Pain Scale: an observational scale measuring postoperative pain in children aged 1–5. Preliminary report. Pain. 1992;50(3):273-80.

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Tables:

Table 1. Presumption of normality of distribution of variables

Group	Number	Mean±SD	Levin	
		Age	Pain intensity	Behavioral problems
Test	15	4.65±1.523	0.151	0.285
Control	15	4.65±1.523		

Table 2. Mean and standard deviation of the variables before creativity-based play therapy in the two experimental and control groups

Variables	Mean (SD) Test group	Mean (SD) Control group
Pain intensity	(2.20) 73.7	(2.80) 74.23
Behavioral problems	(2.04) 24.50	(1.70) 23.30

Table 3. Mean and standard deviation of the variables after creativity-based play therapy in the two experimental and control groups

Variables	Mean (SD) Test group	Mean (SD) Control group
Pain intensity	(2.62) 67.83	(4.01) 73.90
Behavioral problems	(2.04) 19.36	(1.26) 23.70

Table 4. Results of univariate covariance analysis on the pre-test-post-test scores of the behavioral problems variable

Source of changes	Sum of squares	Degree of freedom	Mean of squares	F	Sig.
Pre-test	19.00	1	19.00	7.00	0.05
Group	102.06	1	102.06	33.45	0.001
Error	96.73	27	2.71		
Total	208.08	30			

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Table 5. Results of univariate covariance analysis on pre-test-post-test scores of pain intensity variable

Source of changs	Sum of squares	Degree of freedom	Mean of squares	F	Sig.
Pre-test	6.56	1	6.56	0.50	0.34
Group	127.38	1	127.38	14.41	0.001
Error	310.96	27	11.30		
Total	136416.11	30			

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