

The Effect of Play Therapy on Reducing Post-operative Anxiety and Pain Levels Among Children in a Selected Hospital, Bhubaneswar, Odisha

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ABSTRACT

Background: Post surgery is a painful experience for everyone, children are more vulnerable to stress and it is important to manage anxiety and pain after surgery.

Aim: The aim of this study was to determine the effect of a play intervention in reducing anxiety and pain levels among post-operative hospitalized children admitted in a selected hospital.

Methods: A randomized controlled Trial, 126 participants were recruited from paediatric surgery ward. Ages between 6-12 years, play activities were performed 63 children in intervention group provided play therapy and 63 in control group obtained the daily routine care without any play intervention. Children who received play intervention were less negative and had lower levels of anxiety and pain than children who received normal daily routine care.

Discussion: This study has focused on the effect of play intervention on post operative anxiety levels and pain levels, the results shows that the child in experimental group were experienced significantly decreased level of anxiety and pain levels than control group. However, play therapy is the important resource to help children overcome anxiety and pain during hospitalization

Results: Experimental group was statistically significant difference is post test anxiety result (0.0027) and pain levels post test result (0.006) those who get play therapy lowering the levels of anxiety and pain levels in postoperative children. Statically significant association was found between pain and mother's education. This finding suggests that play therapy had a positive effect on children's anxiety and pain levels after surgery.

Conclusion: The study showed that the children who participated in play therapy in intervention group experienced less anxiety and pain; however, it was effective in reducing both anxiety and pain levels after surgery. Children in the play therapy group significant higher than children in the control group

Key words: Anxiety, Pain, Children, Play therapy, Post operative period.

Introduction

Play is an integral part of the development of children's cognitive, physical, social and emotional well-being. If the child is well he can be able to play. Hospitalized children are stressful experience due to unfamiliar surroundings and medical procedures that leads to uncertainty, anger, anxiety and feeling of helplessness. Post-surgery is a stressful and painful experience for children, and managing anxiety and post-operative pain is important [1]. Anxiety is the most commonly reported negative response, and high levels of anxiety can adversely affect a child's mental and physiological health and lead to coping and uncooperative behavior toward health care provider. Children treated preoperatively had fewer adverse behavioral changes and were significantly calmer postoperatively than children treated regularly. Children were less anxious and experienced fewer negative emotions than those who received only informational preparations before and after surgery [7]. Play is communication between the child and the environment, is inherently moved, internally controlled, and has nothing to do with objective reality. Play therapy during hospitalization in

among 6-12 year children in experience reduction in anxiety it indicate that play therapy has been beneficial among school-aged children [2].

Play therapy plays an important role in the normal growth and development of children and is widely used to relieve stress in hospitalized children. It develops positive attitude towards psychological health, self understanding and adapted to the new environment. Excessive anxiety also impairs children's effectiveness in coping with treatment and increases uncooperative behaviour and negative emotions [3].

Therapeutic play is a structured form of activities that facilitates the progression of anxiety it can diverted the sense of feeling pain mind and it is a framework activities that considers the psychological and cognitive development of children into account in order to facilitate the emotional and physical well-being of hospitalization children. The most natural way for children to express himself / herself is through play. Often we find that the child who is confronted with a major life adjustment [4].

Children's ability to play while being in the hospital constitutes a sign of health in a particularly challenging environments, that's child shows usual activities which may helpful to some goal that is building the interlocking pieces to construct a dream house and solving Jigsaw puzzles, provided that the appropriate play materials. Playing the child communicate with both family and nursing staff while helping them. Nurses must play a key role in helping the children and the family members to cope effectively with hospitalization [5].

Art and play therapy to improve the level of care for hospitalized children. It's cheaper, more convenient, and less talented. Nurses can enhance their capacity to implement Art & Play therapies. This approach as a recreational therapy to help children, it helps professionals and children communicate more effectively and enhance children's co-operation when they are in hospital [11].

The child becomes familiar with the environment of the hospital, express their feeling and their concerns, feel more comfortable, or familiars with the medical procedures (routine dressing). The nurse may use play therapy as a healthcare strategy for hospitalized children in various procedure. Measuring anxiety has a subjective component, it is problematic issue due to the difficulty in their self-reporting at that age, it is no easy task in the case of very small children [6].

Nursing intervention for the post operative pain management is one of the important short term effects of unalleviated pain like, exaggerated levels of stress and anxiety for the children [8]. Children undergone surgery can experience painful situation that increase the level phobia for any procedure like dressing, clinical round and routine care. Post-operative child are painful/discomfort but not every procedure are same characteristics some are no pain, mild pain, moderate pain and severe pain according to the type of surgery pain are differ. Because pain in children is more than just a sensory experience, it is a complex, multidimensional phenomenon, and the emotional component of pain is particularly pronounced in young adults, non-pharmacologic therapies are needed for pain management. Includes. A variety of physical and logical interventions are used [9]. Different distraction methods (distracting cards, listening to the music of cartoon and balloon inflation) were use in pain and anxiety for relief of children phlebotomy. The parents of children were assessed of pain levels by observer reports as well as self-report using the Wong-Baker Faces [10]. Play therapy is a growing therapy for children it becoming increasingly evidence-based in its treatment outcomes for children of all ages, disabilities and diagnoses. Nursing techniques developed to help children towards social integration, emotional modulation and traumatic resolution. Family play therapy can be also effective at strengthening family relationships [13]. Anxiety is common nature of human being that can express worry and it is considered as a sign of depression or psychological problem. Certain procedures are done in hospital some time the child are un-cooperative due to fear of procedure. Play therapy distracts the mind from negative influences and helps to brings about a relationship with the nurse. Educating the child may minimize the emotional trauma during hospitalization [14].

Study Objectives

Primary objectives:

- To assess the effect of play therapy on Post-operative anxiety & pain.

Secondary objectives:

- To associate the post operative anxiety & pain score with the selected socio-demographic variables.

Hypothesis

- There will be significant difference on the level of anxiety and pain between the experimental group and control group.

- There will be significant association between Postoperative anxiety and pain with the selected socio-demographic variables.

Materials and Methods

Study Design and Sample

This study was designed as a randomized controlled trial consisting of 126 children (intervention group n = 63; control group n = 63) and sampling technique was simple random sampling, conducted a study at the Paediatric Surgery Ward of KIMS, Pradyumna Bal Memorial Hospital, Bhubaneswar, data was collected for 15 days.

The play materials used were: Puzzle, Construction sets, Rubik's Cube, consent was taken from parents of the child before commencing the study. The subjects were selected who fulfilled the inclusion and exclusion criteria. The sample was randomly allocated in two groups (experimental group and control group). The data was collected by questioning the demographic data and observation to assess the level of anxiety level and pain level using the tools FAS and VAS.

Sample Selection Criteria

Inclusion criteria: 6-12 years Children who had undergone surgery in last 24 hours, Recovered consciousness after the surgery, Minor surgery (Herniotomy, Circumcision, Excision of a cyst etc)

Exclusion criteria: Parents who are not willing to participant, Children those were not meeting the inclusion criteria, Major surgery (Removal of brain tumors, Correction of bone malformations, Repair of congenital heart disease, transplantation of organs etc)

Outcome measurements

Data were collected by using a data collection from the facial affective scale (FAS), and the visual analogue scale (VAS). The data were collection from the child demographic data, and it has 13 question, which were Age of the child, Gender of the child, Religion, mother's education, Father's education, family monthly income, residence, type of family, mother occupation, father's occupation, duration of hospitalization, presence of caregiver with the child, whether the child is doing any diversional activities during Hospitalization.

The FAS was used to evaluate the post operative level of anxiety, children age between 6-12 years after surgical procedures. The FAS has five facial expression where 0 means "I have no anxiety"; 1 means "I have a little anxiety"; 2 means "I have some anxiety"; 3 means "I have

high levels of anxiety”; and 4 means “I have extremely high levels of anxiety.” In this study, observe the children and choose the appropriate face.

The VAS was used to evaluate the children’s postoperative pain. In this scale numbered from 1 to 10 it was placed in horizontally on the paper, with descriptive words between the 0 point and the 10 point. Here, 0 means “no pain,” 1-3 means “mild pain”, 4-6 means “moderate pain”, 7-9 means “severe pain” and 10 means “worst pain”. In this study, children were observed and choose the appropriate face.

Study Procedure and Data Collection

The study is to identify the effect of play intervention for the post-operative children, the enrolled children were taken 6-12 years and 126 number of total sample. The groups were divided into two groups that is intervention (play intervention) and control (daily routine care)

Before the Procedure

Explain the purpose of the study as well as the scales uses for this study, permission was taken from the HOD of paediatrics Surgery Ward after consulting the strategy of play therapy was selected which is suited for the children over 6-12 years. The participate in this study, written permission was obtained from the parents. The possibility of withdrawing was explain, whenever the children and parent’s wanted. In the intervention group, the children and the parent’s were informed about the strategy of play therapy. The intervention group would play after 24 hours of post-operative procedure. Ullán AM, Belder MH, Fernández E, et al. study reveals that parents who instructed to play with their children outperformed supports. Children in the experimental group scored lower on pain scales than children in the control group. Play therapy programs that encourage children to play can reduce children's perception of pain [9].

The previous study reveal that Salmi¹, Wedad & Hanson, Victoria (2021), Studies show that children who receive hospital play interventions experience less negative emotions and anxiety than those who receive only routine care. Play interventions were effective in reducing anxiety levels and negative emotions in hospitalized children [12]. Play therapy is more effective than art therapy according to the previous study there is statistically difference in post test results [11]. The play materials is suitable for the children’s over 6-12 years, the

children and their parents play over the bed or cardiac table. After explained how to build the construction sets according to booklet which is present in the play set. Allowed the child to play according to his needed.

During the Procedure

In this stage, the children in both group received routine care service for the post-operative protocol, which includes vital signs, analgesics administration (PCM as needed), data was collected only those parent's who is willing to participants. Observed the children for FAS and VAS appropriately according to the level anxiety and pain. The intervention was given 30 minutes for consecutive three days in experimental group where as in control group no intervention was given only routine care was given.

After the Procedure

Children in both groups were taken after 24 hours of post-operative, to rate the anxiety levels on the FAS and pain levels on the VAS. Figure 1 shows the consort flow diagram for the study, Pre-test were done before given intervention and post test was done at the end of third day to assess the level of anxiety.

Ethical Considerations

Before the study was conducted, ethical permission was obtained from the Ethics Committee of the Kalinga Institute of Medical Sciences, KIIT University students of M.Sc. Nursing (CTRI registration number-CTRI/2022/09/045535), and official permission was obtained from the HOD of Paediatrics Surgery. Children and their parents were also informed about the study, written consent was obtained from the parents and verbal consents was obtained from the children. The parent's and children can be withdraw from the study if they wanted at any time.

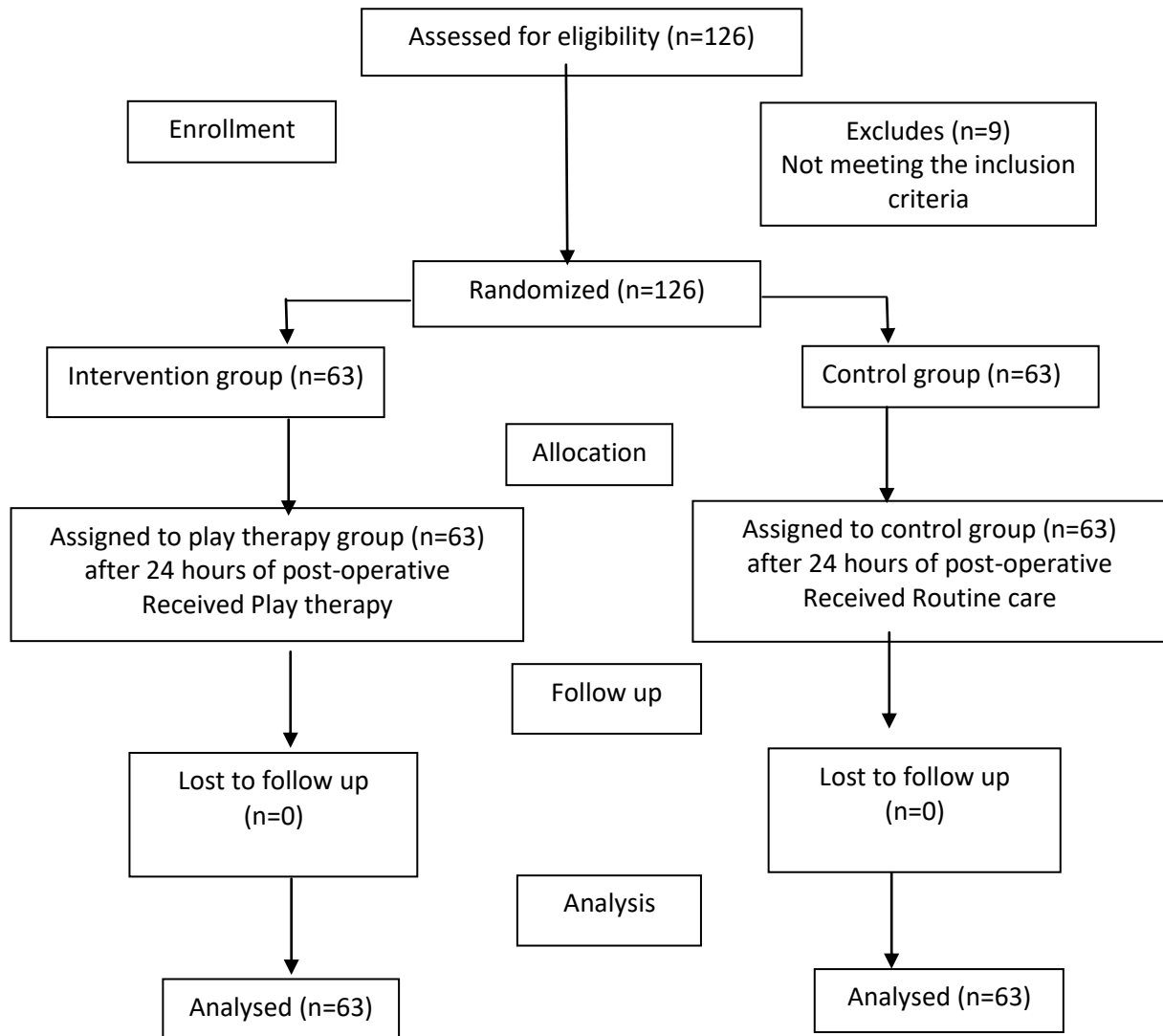


Figure 1: Flow of the study

Statistical analysis

Data was analyzed by using Stata 15.1 statistics software. Percentage, categorical data were summed up. Analysis by calculating mean, mean difference, paired t test and unpaired t test, SD, for significant difference on the level of anxiety and pain score between the experimental group and control group in dependent variables, where p value of anxiety was 0.027 in experimental group, it determined as statistically significant whereas the control group p value was 1.118, it was not statistically significant. In independent variables p value is (<0.001). ANOVA was used to find out the association between the postoperative anxiety and pain score with the socio-demographic variables, only mother's education with pain score was shows statistically significant association with the socio-demographic variables.

Result

Frequency and percentage of distribution of socio-demographic variables in experimental group and control group reveals that majority of children in the study population were 8-9 year old, with percentage of 33(52.38%), and 28(44.44%) in Experimental Group and Control Group respectively. The majority of children in the study population were male, with male percentage of 32(50.79%) in Experimental Group and 34(53.96%) Control Group respectively. The majority of the children in this study were Hindu, 50(79.36%) and 49(77.77%) in Experimental Group and Control Group respectively. Most mother's education were 24(38.09%) in Experimental Group had a diploma and 17 (26.98 %) in secondary education in Control Group. Most father's education 18 (28.57 %) in Experimental Group had a diploma and 27 (42.85 %) in graduate and above education in Control Group. Majority of the children belong to 16 (25.39 %) in family monthly income (≥ 123322) in Experimental Group and 16 (25.39 %) from family monthly income (61663-123321) in Control Group. Majority of the children from urban area, both Experimental Group 32 (50.79 %) and Control Group 33 (52.38 %). The majority of the children in the group were from joint family 44 (69.84 %) in Experimental Group and 45 (71.42 %) were from Control Group. Majority of the mother's were 19(30.15%) self employed in Experimental Group and 25(39.68%) were from Control Group. Majority of the father's were 31(49.20%) self employed in Experimental Group and 38(60.31%) were from Control Group. Majority of the children were 29(46.03%) hospitalized 4 days in Experimental Group and 24(38.09%) were

hospitalized 4 days in Control Group. Most of the children care giver were parents. Most of the children did not engage in any activity, some of the child were watching videos with the parents.

Experimental group, level of anxiety for pre-intervention were 17(26.98%) some anxiety, 23 (36.50%) high level of anxiety, 23 (36.50%) extremely high level of anxiety where as post-intervention were 5 (7.93%) no anxiety, 29 (46.03%) little anxiety, 20(31.74%) some anxiety, 6 (9.52%) high level of anxiety, 3 (4.76%) extremely high levels of anxiety. Control group, level of anxiety for pre-assessment were 19 (30.15%) some anxiety, 24 (38.09%) high level of anxiety, 20 (31.74%) extremely high level of anxiety where as post-assessment were 15 (23.80%) little anxiety, 16 (25.39%) some anxiety, 22 (34.92%) high level of anxiety, 10 (15.87%) extremely high levels of anxiety

Table 1: shows that statistical significant difference in experimental group, pre-test level of anxiety in subjects was (3.09 ± 0.79) similarly, the post-test level of anxiety in subjects were (1.71 ± 0.92) mean difference of anxiety was (1.38), paired 't' test level was (2.26). It was Statistically significant at the level of significance (0.027 **). In the control group, there is no statistical significant difference in control group, pre-test level of anxiety in subjects was (3.02 ± 0.79) similarly, the post-test level of anxiety in subjects were (2.43 ± 1.02) mean difference of anxiety was (0.50) paired 't' test level was (1.58). It was not Statistically significant at the level of significance (1.118)

Table 2: The comparison of difference in anxiety among the groups. There is statistical significant difference in experimental group, post-test level of anxiety in experimental group was (1.71 ± 0.92) similarly, the post-test level of anxiety in control group was (2.42 ± 1.02) mean difference of anxiety was -0.71, unpaired 't' test level was 7.288. It was Statistically significant at the level of significance ($< 0.001^{**}$).

Table 3: Level of pain in experimental group, pre-test level of pain was (7 ± 1.76) and post-test was (3.96 ± 1.67) mean difference of pain was (3.04), paired 't' test level was (2.84) . Statistically significant at the level of significance (0.006**). In the control group, there is no statistical significant difference in control group, pre-test level of pain in subjects was (7.65 ± 1.42) similarly, the post-test level of pain in subjects were (7.44 ± 1.20) mean difference of

pain was (0.21) paired 't' test level was (0.014). It was not statistically significant at the level of significance (0.988).

Experimental group, level of pain in pre-intervention were 24 (38.09%) moderate pain, 32 (50.79%) severe pain, 7 (11.11%) worst pain where as in post-intervention group were 33 (52.38%) mild pain, 30 (47.61%) moderate pain. Control group, pre-assessment were 8 (12.69%) moderate pain, 49 (77.77%) severe pain, 6 (9.52%) worst pain where as in post-assessment 9 (14.28%) moderate pain, 54 (85.71%) severe pain.

Table 4: Level of pain in experimental group, post-test level of pain was (3.96 ± 1.67) and control group, post-test was (7.44 ± 1.20) mean difference of pain was (-3.48), unpaired 't' test level was (7.893). Statistically significant at the level of significance ($< 0.001^{**}$).

There was no relationship identified between the age of the child, gender, religion, father's education, family monthly income, residence, type of family, mother's occupation, father's occupation, duration of hospitalization, presence of care giver with the child, activities during hospitalization, only mother's education with pain score was shows statistically significant association with the socio-demographic variables.

Table 1: Comparison of difference in Anxiety among the groups in dependent variables (N=126)

Anxiety level		Mean \pm SD	Mean difference	Paired 't' test	P value
Experiment group (n1= 63)	Pre-intervention anxiety	3.09 \pm 0.79	1.38	2.263	0.027**
	Post-intervention anxiety	1.71 \pm 0.92			
Control group (n2= 63)	Pre-Assessment anxiety	3.02 \pm 0.79	0.50	1.58	1.118
	Post-Assessment anxiety	2.43 \pm 1.02			

Statistically significant difference at 'p'-value < 0.05

Table 2: Comparison of difference in Anxiety among the groups in Independent variable (N=126)

Group		Mean \pm SD	Mean difference	Unpaired 't' test value	P value
Post-intervention Anxiety N= 126	Experimental group	1.71 \pm 0.92	-0.71	7.288	< 0.001**
	Control group	2.42 \pm 1.02			

Statistically significant difference at 'p'-value < 0.05

Table 3: Comparison of difference in Pain among the groups in dependent variables (N=126)

Pain level		Mean \pm SD	Mean difference	Paired 't' test	P value
Experimental group (n1= 63)	Pre-intervention Pain	7 \pm 1.76	3.04	2.84	0.006**
	Post-intervention Pain	3.96 \pm 1.67			
Control group (n2= 63)	Pre-Assessment Pain	7.65 \pm 1.42	0.21	0.014	0.988
	Post-Assessment Pain	7.44 \pm 1.20			

Statistically significant difference at 'p'-value < 0.05

Table 4: Comparison of difference in Pain among the groups in Independent variable (N=126)

Group		Mean \pm SD	Mean difference	Unpaired 't' test	P value
Post-test Pain (N= 126)	Experimental group	3.96 \pm 1.67	3.48	7.893	< 0.001
	Control group	7.44 \pm 1.20			

Statistically significant difference at 'p'-value < 0.05

Discussion

This study has focused on the effect of play intervention on post operative anxiety levels and pain level, the results reveal that the child in Experimental group were experienced significantly decreased level of anxiety and pain. However, the anxiety reduction was significantly improved in the intervention group. Play therapy is the important resource for helping children overcome stressful and painful procedure during hospitalization. This

activities were given after 24 hrs of post-operative procedure, it was effective in relieving children's postoperative pain. In this study, although statistically significant difference was found in post test of experimental group. This finding suggest that play therapy had a positive effect on the anxiety and pain levels of children after surgery.

Ullán AM, Belver MH, Fernández E, et al. study that the parents who received instructions to play with their children were obtained support the research hypothesis. The child from the experimental group scored lower on pain scale then the child from the control group. The programme which promote the child play can it reduce the children's perception of pain [9].

Salmi¹, Wedad & Hanson, Victoria (2021), Study shows that Children who received the hospital play interventions demonstrated reduced negative emotions and lower levels of anxiety than those children who received the routine care alone. Play intervention was effective in reducing anxiety level and negative emotions among hospitalized children [12].

Bharathi. M and s. Deelip. Natekar study obtained 't' value in experimental group was 11.81*, which is higher than table value $t(0.05, 29df) = 2.045$ at $p < 0.05$ level. Which is lesser than table value. Hence it is proved that play therapy is effective for post operative children [13].

Ünver, Seher & Güray, Özlem & Aral, Seda conduct a study that there is no significant gender or age differences between the two groups ($p=0.348$, $p=0.104$, respectively) post intervention was taken after 60 minutes arrival from the recovery room, 35% of the control group needed to use analgesic, it was found that statistically significant higher than the rate of intervention group (5.9%; $p=0.048$) [1].

Limitation

Some parents doesn't want their child to play, the nature of the play therapy was involved with their parents. Further research should be study in large number of children.

Conclusion

The results of this study indicated that the children who take part in play therapy in intervention groups have lower levels of anxiety and pain; however, it was effective in

decreasing both anxiety and pain levels after surgery. Children in play therapy group are highly significant than those in control group.

Acknowledgements

We thank the children and their parents for willingly participating in this study.

Ethics Approval and Consent To Participate

Ethical Committee Approval: Ethical permission was obtained from the Ethics Committee of the Kalinga Institute of Medical Sciences, Pradyumna Bal Memorial Hospital Bhubaneswar (KIIT/KIMS/IEC/883/2022) and official permission was obtained from the research committee of KIMS KINS/R&D/20/221

Inform Consent: Verbal consent was obtained from the children and written consent was also obtained from the parents.

Authorship Contributions: All investigator (PI and co-authors) conceptualized the study; Primary investigator gathered the data; analyzed the data and wrote the manuscript; all authors interpreted the findings and authorized the final manuscript for submission.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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