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Effectiveness of origami on anxiety among children admitted in tertiary hospital

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Abstract

Introduction: Anxiety is an unpleasant and stressful experience experienced by pediatric patients during hospitalization. Origami is a form of folding paper and making paper craft to make forms like boat, airplane, flower or hat. The aim of study was to assess the effectiveness of origami on anxiety among children admitted in a hospital.

Method: A pre-experimental (one group pre-test and post-test) design was conducted among 27 admitted children in the Pediatric ward of Patan Hospital, Lalitpur, Nepal. Visual Analog Scale for Anxiety (VAS-A) was used to assess the anxiety before and after 15 minutes of intervention. The collected data was analyzed by descriptive and inferential statistics using SPSS version 16. Wilcoxon Signed Rank test was used for comparing anxiety before and after intervention whereas Fischer's Exact Test was used to find out association between socio-demographic variables with level of anxiety before intervention.

Result: The present study revealed that the anxiety after intervening origami (median = 2, Q1= 1, Q3= 3) was lower than before origami (median = 6, Q1= 5, Q3= 8) with p value 0.000 and effect size 0.62. Also, there is no any statistically significant association between selected demographic variables (age, gender, previous hospitalization) with level of anxiety before intervening origami.

Conclusion: Based on the findings of the study, it is concluded that origami was effective in reducing anxiety during hospitalization of child. Therefore, study findings might help nurses working with children to use non-pharmacological method (origami) for reducing anxiety in children due to hospitalization and supporting in recovery process.

Keywords: Anxiety; Children; Effectiveness; Origami

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Introduction

Hospitalization is an unpleasant and stressful experience, especially for children.[1] Different studies have shown that hospitalization increases anxiety among children.[1-5] The main causes of anxiety among children during hospitalization include fear of medical examinations, painful medical procedures, fear of separation from parents and family members, loss of control and death.[4,6] Origami is a form of folding paper and making paper craft to make forms like boat/ airplane/ flower/ hat.[7]

Several studies conducted in Indonesia have shown that origami is an effective method for reducing anxiety among hospitalized children.[8-12] Similarly, a pre-experimental study done in India among 40 children have also revealed that there is significant difference between anxiety score before and after intervention of origami ($p < 0.05$).[13] Likewise, a pre-experimental study conducted in Nepal among 30 children, showed significant difference on anxiety score before and after intervening origami ($p < 0.001$).[14]

The main aim of the study is to assess the effectiveness of origami on anxiety among hospitalized children. Origami is an inexpensive and non-pharmacological intervention and does not require special playing toys or a separate playroom. In order to get co-operation from children for the procedures, effective play therapy like origami will be useful and make child hospital stays less unpleasant. The findings of study might be helpful for nurses in order to provide interventions in reducing anxiety of hospitalized children as well as it would be reference material for future studies in providing baseline data and evidence that encourages experimental studies in nursing.

Method

This pre-experimental (one group pre-test and post-test) design was conducted from 24th July to 3rd September, 2022 in the Pediatric ward of Patan Hospital, Patan Academy of Health Sciences, Lalitpur, Nepal for the effectiveness of origami on anxiety among children. Ethical approval of the study was obtained from Institutional Review Committee of PAHS (Ref: PNM2206281648).

Convenience sampling technique was used to select the eligible children for study. Both male and female children, aged 6 to 14 years were included in study. Likewise, child admitted within 48 hours and willing to participate in the study were included in the study. Written informed consent was obtained from all the parents of the child for which generic PAHS format in Nepali was used. Verbal assent was taken from the child. Parents and children were explained about the type and purpose of the study, issues of confidentiality and voluntary participation. Also, the significance, benefits and harms of the study, liberty to withdraw from study and intervention process were well explained to parents and children before their participation in the study. The rights and confidentiality of the participants were respected in all phases of the study. Confidentiality was maintained throughout the study by coding in the questionnaire separately and using the data only for necessary academic purpose. No financial burden for buying the paper was on parents as paper was provided by the researcher.

Pilot study was done among 10% of the sample size among children admitted to Pediatric ward of Patan Hospital to test the applicability of tool and to estimate the time needed. There were no modifications done after conducting pilot study. The sample size was determined by using power analysis.[15] The total sample size was 27 in the study. Socio-demographic characteristics including age, gender and previous hospitalization were assessed by interviewing parents. Anxiety level was assessed before intervention using Visual Analogue Scale for Anxiety (VAS-A).[16] VAS-A is a validated tool and found in free public domain. It is a line 10 centimeters in length where 0 indicates “not at all anxious” and 10 indicates “extremely anxious” at the left and right ends respectively. The participant was told to put a cross (×) at the point that indicates how they feel right now. The scale was scored by measuring the distance of the participant’s mark from the “not at all anxious” end of the scale. Then, child was involved in making origami (boat/ airplane/ flower/ hat as per his or her preference) with the help of researcher for 15 minutes. Then immediately after intervention, anxiety was assessed using same scale used before intervention which was Visual Analogue Scale for Anxiety. COVID-19 safety protocol such as hand washing, wearing mask, face shield, physical distance as mentioned in the guidelines of Ministry of Health and Population, Nepal was maintained. After data collection, printed copies was stored in personal locked cupboard and saved on personal laptop in a password protected file. Data was used for research purpose only and was not shared with anyone except researcher guide.

Field editing was done after the completion of intervention by assessing instrument for any errors, mistake, omission and duplication. Coding and classification of the data was done. The collected

data were analyzed using Statistical Package for Social Sciences version 16. The analysis and interpretation were done based on the objective of the study using descriptive statistics and inferential statistics. The descriptive statistics was used to calculate frequency, median, quartile and percentage of socio-demographic data. For inferential statistics, assumption test for Chi-square was done. Goodness of fit was assessed and it was not achieved. Thus, Fischer's Exact Test was used to find out association between selected demographic variables (age, gender and previous hospitalization) with level of anxiety before intervening origami on children.

Then, assumption test for paired t test was done. Data was checked for normality using skewness. The calculated skewness coefficient was 2.51, the value above 1.96 for less than 50 samples is considered to have non normal distribution of data.[17] As data was non-normally distributed, Wilcoxon Signed Rank test was used for comparing anxiety before and after intervention.

Result

Out of 27 participants, majority 23(85.19%) belonged to 6-12 years age group. Median age was 8 years with first quartile 6 years and third quartile 11 years. Likewise, more than half 14(51.85%) of children were male. Similarly, more than half 14(51.85%) of children had history of previous hospitalization, Table 1.

Table 1. Socio-demographic characteristics of participants (N=27)

Variables	N(%)
Age (in years)	
6-12	23(85.19)
13-14	4(14.81)
Md(Q1Q3) = 8(6,11)	
Gender	
Male	14(51.85)
Female	13(48.15)
Previous hospitalization	
Yes	14(51.85)
No	13(48.15)

There is no statistically significant association between age, gender and previous hospitalization with level of anxiety before intervening origami, Table 2.

Table 2. Association between socio-demographic variables and level of anxiety before intervening origami in children (N=27)

Variables	Level of Anxiety		[a]p-value
	High N(%)	Low N(%)	
Age group			
6-12 years	6(26.09)	17(73.91)	1.000
13-14 years	1(25.00)	3(75.00)	
Gender			
Male	3(21.43)	11(78.59)	0.678
Female	4(30.77)	9(69.23)	
Previous hospitalization			
History of hospitalization	4(28.57)	10(71.43)	1.000
No history of hospitalization	3(23.08)	10(76.92)	

[a]Fischer's Exact Test; Median anxiety score = 6, High anxiety = 6 or higher, Low anxiety = less than 6

The findings showed that the anxiety after intervening origami (median=2, Q_1=1, Q_3= 3) was lower than before origami (median=6, Q_1=5, Q_3=8). Calculated Wilcoxon Signed Rank Test Value was 4.585 with *p* value 0.000 and effect size was 0.62, Table 3.

Thus, origami is effective in reducing the anxiety among children during hospitalization.

Table 3. Comparison of anxiety score before and after intervening origami in children (N=27)

Anxiety	Q_1	M_d	Q_3	Wilcoxon Signed Rank Test value	p-value	Effect size (r)
Pretest (Before origami)	5	6	8	4.585	0.000*	0.62
Posttest (After origami)	1	2	3			

* p-value significant at <0.001

Discussion

None of the socio-demographic characteristics (age, gender and previous hospitalization) were found to have an association with hospitalization anxiety.

The result of this study showed that there was no statistical significant association of age of child with anxiety of children (p= 1.000). This finding is in line with the study finding done in India and Nepal which showed that age is not significantly associated with hospitalization anxiety in children with p-value> 0.05 and 0.19 respectively.[14,18] This finding may be similar considering the socio-cultural context of Nepal and India being similar. Likewise, the findings of this study showed that there was no statistically significant association between gender of child and hospitalization anxiety of the child (p= 0.678). This finding is similar with the study findings conducted in India and Nepal which showed that there was no statistically significant association of gender of child with hospitalization anxiety with p-value 0.44 and 0.55 respectively.[13,14]

Similarly, the present study also demonstrated that there was no statistically significant association of previous history of hospitalization with anxiety of children (p= 1.000). This is supported by the finding of the study done in India which showed that there was no statistical significant association between previous history of hospitalization and anxiety of children (p> 0.05).[18] This finding is contradictory with the finding of another study done in India which revealed that the previous hospitalization history was significantly associated with anxiety of children (p= 0.03).[13]

The present study revealed that the anxiety score before origami (median= 6, first quartile= 5, third quartile= 8) was more than the anxiety score after origami (median= 2, first quartile= 1, third quartile= 3), Z score 4.585 at 0.05 level of significance with p value 0.000. Hence, null hypothesis was rejected and the alternative hypothesis was accepted which showed that there was significant difference in anxiety score between before and after intervening origami among children. Similarly, another pre-experimental (one group pre-test and post-test design) study supports the findings, which was conducted in Indonesia which revealed that there was the statistically significant difference between before and after given origami with p-value 0.000.[19] Thus, both the studies found that the origami was effective to reduce anxiety during the hospitalization of the child.

Another pre-experimental (one group pretest posttest design) study done in Indonesia showed statistically significant difference between before and after given origami therapy with p-value 0.000.[20] Likewise, a pre-experimental study conducted in India showed the findings that is consistent with the result of the present study which has concluded that there was statistically significant difference in anxiety between before and after origami intervention with p-value 0.005.[13]

Similarly, another pre-experimental (one group pretest posttest design) study also supports the findings of present study which was conducted in Dhulikhel hospital, Nepal that showed significant difference between anxiety score before and after intervening origami with p-value <0.001.[14] The study findings might help the nurses working with the children to use non-pharmacological method (origami) for reducing anxiety in children due to hospitalization and supporting in the recovery process. The study findings would be reference material for future studies in providing the baseline data.

There was following limitation in this study: the study is limited to only 6 to 14 year old children; total sample size was only 27 and it was pre-experimental study. So, the generalizability of this study is limited because the study was done in paediatric ward of Patan hospital on small sample size.

A similar study can be replicated on a large sample for better generalization. A quasi-experimental study can be conducted to assess the effectiveness of origami on anxiety of children. A study can be conducted by increasing frequency of origami intervention.

Further study can be conducted in different population like toddler and preschooler using other forms of play therapy like clay therapy, coloring, puzzle games and storytelling for anxiety reduction during hospitalization.

Conclusion

There was significant difference in anxiety score before and after origami and there was no statistically significant association of the children's anxiety with their sociodemographic variables. Based on the findings of the study, it is concluded that origami was effective in reducing the anxiety during hospitalization of the child.

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Conflict of Interest

None

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Author Contribution

This research was a requirement for the thesis of the Masters of Nursing program, and the author is accountable for the concept, design, literature review, data collection, data analysis and draft manuscript.

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