Impact On The Anxiety Of Parents Of Children Undergoing Surgery

Nitesh Soni[1*], Dr. Anu V Kumar[2]

[1*]Research Scholar, Malwanchal University, Indore (M.P)
[2] (Associate Professor), Malwanchal University, Indore (M.P)

ABSTRACT
Currently, parents take participating more actively in the care of their children, particularly when they are in the hospital and getting ready for an impending operation, which is a stressful time for everyone involved. A variety of methods that do not involve the use of pharmaceuticals are being used to lessen the anxiety and stress that youngsters experience prior to surgery.

Key-words: children, operation, pharmaceuticals, anxiety, stress, surgery.

INTRODUCTION

Studies have shown that educational programs designed before surgery cater to the developmental needs of children level, preoperative visits, humor, and diversion may help alleviate worry among families with young children. Young people's anxiety may be lessened, according to studies, if parents are adequately prepared themselves. Research suggests that parents may increase their understanding, level of satisfaction, and ability to cope with their child's surgical journey by being informed about what to expect before, during, and after the procedure using vocal explanations, videos, or written materials. Proven personalized education programs ease parents' fears about improve their level of contentment with the preoperative preparations.
Contemporary medicine has made it possible to treat congenital heart abnormalities (CHDs) in infants, increasing their chances of survival well into old age (Tak and McCubbin, 2002). Arafa et in 2008 and Menahem et al. in 2008 discovered that kids whose parents have had surgery or who have required many follow-up appointments are emotionally vulnerable. Surprisingly, research has mostly ignored the parents' experiences with their children's operation and concentrated on the psychological effects, despite the fact it's common for parents to take an active role in caring for their children. continuously.

Heart problems that are present at birth are known as congenital heart defects. These heart defects, which are not diseases but rather structural or functional abnormalities, impact 8–12 out every 1,000 live births and account for 66% of all significant birth abnormalities (Chadha et al., 2001; Shah et al., 2008; Dolk et al., 2010; Hoffman, 2013). (American Heart Association, 2017). Compared to the 1930s, when the reported incidence of CHD newborns was 0.6 per 1,000 live births, the rate has risen dramatically over the years, reaching from 1995 onwards, 9.1 per 1,000 live births (van der Linde et al., 2011). A lack of screening and the practice of recognizing anomalies rather than their absence may contribute to the observed difference in the global prevalence of coronary heart disease (CHD). The increased reported rate of live births is likely also caused by the increased availability of such screenings, which are more common in countries with high or medium incomes.

LITERATURE REVIEW

Ayenew, Netsanet et.al. (2020). Both the parents and the surgical personnel caring for their children undergo anxiety and worry before to their children's procedures and anesthesia. We set out to determine how common parental anxiety is and what variables contribute to it. The dates of the 2019 institutional cross-sectional study are February 1st through May 30th. 203 parents participated in the research. The STAI, or the level of anxiety was measured using the State and Trait Anxiety Inventory. Seventy-4.2 percent of parents reported experiencing anxiousness. Parental anxiety was significantly associated with being a maternal factors (AOR = 4.45, 95% CI = 1.76-11.27), lack of anesthesia education (AOR = 7.02, 95% CI = 2.62-18.80), infant mortality (AOR= 4.10, 95% CI=1.25-19.15), agricultural occupation (AOR = 9.73, 95% CI = 1.86-50.76), rural residence (AOR = 4.50, 95% CI = 1.31-15.42), and fearing the child's post-operative pain (95% CI = 2.42–18.28, AOR = 6.63). The prevalence of parents in our study reported significant levels of anxiety prior to surgery. Factors that were shown to be linked with this outcome included the kid's gender, their age, and parent, details regarding the anesthetic, concerns about discomfort after surgery, and the parent's career. During their interactions with the medical staff administering anesthesia and performing the procedure on their kid, parents should keep these things in mind.

Mathias, Edlin et.al. (2022). The majority of children who have surgery report feeling some level of discomfort and anxiety. Postoperative recovery is slowed and problems are more likely to occur in patients whose anxiety is not managed. Examining the connection between perioperative anxiety and postoperative pain in children was the goal of this scoping study. A narrative is used to describe the search results. From the original set of 1,180 studies, eleven were deemed suitable to include into this evaluation. Much of the available literature found that postoperative pain was more severe in children who reported greater levels of perioperative worry. According to this analysis, children's postoperative discomfort is significantly impacted by perioperative worry. The findings of this analysis highlight the need of creating age-appropriate programs to alleviate postoperative children's perioperative anxiety and discomfort order to lessen the likelihood of further problems after surgery.

Sullivan, Virginia et.al. (2021). Anxiety and worry are common reactions among parents and children alike during elective surgical procedures. The psychological and physiological health of the kid may suffer as a result, both now and in the future. Current treatments in order to reduce parental and pediatric anxiety during perioperative periods are discussed in this narrative overview of the literature on the topic. We evaluated 62 peer- reviewed publications narratively. The literature review revealed recurring themes including the use of medication, cognitive educational strategies, and play therapy to alleviate perioperative anxiety in children. The effectiveness can only be ascertained by more study. of a preoperative psychotherapy intervention that gives parents the opportunity to talk to a qualified professional about their fears while their children are in the hospital. To find out if a psychotherapy intervention for parents might reduce perioperative kid anxiety, a systematic review or more research is needed.

Lerwick, Julie. (2013). An applied intervention Due to the high frequency of postoperative illness and injuries requiring hospitalization, it is vital to minimize anxiety levels in children having surgery. Negative psychological effects may linger for a long time if current psychological issues are ignored. Recognizing the need of understanding basic phases of development in responding to the psychological needs of pediatric surgery patients is crucial. Recognizing that there is a minor difference between age and developmental stage is crucial. Child Centered Play Therapy (CCPT) is an alternative approach that allows children to freely express themselves emotionally. Research has shown that children undergoing pre-operative psychosocial preparation (CCPT) had less psychological trauma, anxiety, and behavioral problems as a result of the program's developmentally- appropriate, undirected intervention provided by a mental health therapist.

Siddiqui, Khalid et.al. (2024). The primary objective of this study is to determine how often parents experience anxiety as they count down the hours till their kids' surgeries. In this descriptive cross-sectional research, 147 children, ranging in age from 1 to 12, who were people who have had ASA I and II procedures, had tonsillectomy within a year. To gauge anxiety on a proforma, five-point Likert scale, collect each parent's demographic information and ask them to fill out an anxiety measure developed in the Netherlands for use before surgery (APAIS). For the normal, skewed, and categorical variables, the median interquartile range (IQR) and frequency (%) were used for reporting. Anxiety and information scores on the APAIS using either the Mann-Whitney U-test or the Kruskal- Wallis test for comparison. In addition, the anxiety ratings were classified as either present or absent based on a cut-off score of 11. Overall, 59 people (or 40.1% of the total) reported experiencing anxiety, with 20 of those people being dads (33.9%) and 39 being moms (66.1%). The information score was 5 ± 2, whereas the anxiety score on the APAIS was 9 ± 5. Children under the age of 5, moms who participated in the survey, mothers who were 35 years old or younger, dads who were under the age of 40, and mothers who had completed graduate or higher education all showed significantly higher median anxiety levels ($p < 0.05$). A mother's education level below graduation (AOR = 0.2, Confidence interval (CI) = 0.1-0.6, p= 0.006) and fathers' responses (AOR = 0.3, 95% CI = 0.1-0.8, p = 0.01) were also shown to be statistically significant. Parents of children who have had surgery while under general anesthesia are more likely to experience worry themselves, and moms tend to be more anxious than dads.

RESEARCH METHODOLOGY: An experimental method was used in this investigation.

Population

Kids at the hospital for surgery, ages 8 to 12, with their parents by their sides.

Sample

To get the appropriate sample size given the prevalence rate, one may use the following formula:

$$n = \frac{Z\alpha^2 pq}{\sum^2}$$

Z represents the statistics that correspond to the degree of confidence at 95% (1.96), p stands for prevalence, and ∑ denotes precision. Here, n represents the sample size. The research required 120 school-aged children hospitalized for surgery at a specified hospital in Indore, with 55 divided evenly between the non-intervention and intervention groups, for a prevalence rate of 61% and a precision of 9.15.

Evaluation of children's respiratory rates over the intervention's time periods and nonintervention groups

An ANOVA test was used to see how the changes in breathing scores between the two groups compared. The following null hypothesis is used for the purpose of comparing the breathing test's power results before and after the test:

H01: Oh my, get this: there's children's mean pulse change scores did not vary significantly between intervention and nonintervention groups.

Table 1: Comparison of respiration scores of children the within intervention and nonintervention groups at different time points

Study Groups	Time	Mean ± SD	F	p value
I	On admission	22.51 ± 1.68	11.44	p<0.001***
	Prior to shifting to OT	23.02 ± 1.48		
	Six hours after surgery	22.25 ± 1.49		
	Twelve hours after surgery	22.25 ± 1.54		
	Twenty four hours after surgery	22.04 ± 1.56		
	Forty eight hours after surgery	22.04 ± 1.61		
NI	On admission	22.65 ± 2.66	28.93	p<0.001***
	Prior to shifting to OT	24.36 ± 2.66		
	Six hours after surgery	22.58 ± 1.87		
	Twelve hours after surgery	22.29 ± 1.86		
	Twenty four hours after surgery	21.96 ± 1.90		
	Forty eight hours after surgery	21.82 ± 1.81		

Study groups: I=Intervention; NI=Non intervention

As you can see in Table 1, there is a big difference between the average scores on breathing tests given to kids before and after the intervention The non-intervention group had an F-statistic of 28.93 (p<0.001) whereas the intervention group had an F-statistic of 11.44 (p<0.001). groups.

To compare the effect of breathing observations made at different times, the Bonferroni test is used for more post hoc tests.

Final analysis using the Bonferroni test to evaluate the changes in the respiration scores between different times of observation within the study groups

Table 2: Post hoc analysis of respiration scores within the groups

			Paired Differences				
					95% Confidence Interval of the Difference		
Study Groups	I Factor	J Factor	Change in Mean ± SD	Change (%)	Lower Bound	Upper Bound	Bonferroni p value
	On admission	Prior to shifting to OT	-0.50 ± 1.45	-2.26	-0.90	-0.11	p>0.05
		Six hours after surgery	0.25 ± 1.09	1.13	-0.04	0.55	p>0.05
		Twelve hours after surgery	0.25 ± 1.09	1.13	-0.04	0.55	p>0.05
		Twenty-four hours after surgery	0.47 ± 1.08	2.10	0.17	0.76	p<0.05*

		Forty-eight hours after surgery	0.47 ± 1.21	2.10	0.14	0.80	p>0.05
	Prior to shifting to OT	Six hours after surgery	0.76 ± 1.30	3.32	0.41	1.11	p<0.01**
		Twelve hours after surgery	0.76 ± 1.30	3.32	0.41	1.11	p<0.01**
		Twenty-four hours after surgery	0.98 ± 1.14	4.27	0.67	1.29	p<0.001***
		Forty-eight hours after surgery	0.98 ± 1.14	4.27	0.67	1.29	p<0.001***
I	Six hours after surgery	Twelve hours after surgery	0.00 ± 1.01	0.00	-0.27	0.27	p>0.05
		Twenty-four hours after surgery	0.21 ± 1.31	0.98	-0.13	0.57	p>0.05
		Forty-eight hours after surgery	0.21 ± 1.37	0.98	-0.15	0.58	p>0.05
	Twelve hours after surgery	Twenty-four hours after surgery	0.21 ± 0.91	0.98	-0.03	0.46	p>0.05
		Forty-eight hours after surgery	0.21 ± 0.99	0.98	-0.05	0.48	p>0.05
	Twenty-four hours after surgery	Forty-eight hours after surgery	0.00 ± 0.38	0.00	-0.10	0.10	p>0.05
NI	On admission	Prior to shifting to OT	-1.70 ± 1.94	-7.54	-2.23	-1.18	p<0.001***
		Six hours after surgery	0.07 ± 2.14	0.32	-0.50	0.65	p>0.05
		Twelve hours after surgery	0.36 ± 2.14	1.61	-0.21	0.94	p>0.05
		Twenty-four hours after surgery	0.69 ± 2.04	3.05	0.13	1.24	p>0.05
		Forty-eight hours after surgery	0.83 ± 2.02	3.69	0.28	1.38	p>0.05
	Prior to shifting to OT	Six hours after surgery	1.78 ± 1.70	7.31	1.32	2.24	p<0.001***
		Twelve hours after surgery	2.07 ± 2.17	8.51	1.48	2.66	p<0.001***
		Twenty four hours after surgery	2.40 ± 2.15	9.85	1.81	2.98	p<0.001***
		Forty eight hours after surgery	2.54 ± 2.01	10.45	2.00	3.09	p<0.001***
	Six hours after surgery	Twelve hours after surgery	0.29 ± 1.41	1.29	-0.09	0.67	p>0.05
		Twenty four hours after surgery	0.61 ± 1.43	2.74	0.23	1.00	p<0.05*
		Forty eight hours after surgery	0.76 ± 1.36	3.38	0.39	1.13	p<0.01**
	Twelve hours	Twenty four hours	0.32 ± 1.13	1.47	0.01	0.63	p>0.05

after surgery	Forty eight hours after surgery	0.47 ± 1.43	2.12	0.08	0.86	p>0.05
Twenty four hours after surgery	Forty eight hours after surgery	0.14 ± 1.14	0.66	-0.16	0.45	p>0.05

***** **strongly significant p<0.01, * Significant p<0.05, **Very strongly significant p<0.001**

Study groups: I=Intervention; NI=Non intervention

Results from the post hoc Bonferroni test applied to Table 2 data indicate that the mean difference scores of respirations changed significantly over time (p<0.05) in both groups.

Evaluation of change compares the respiratory ratings of the intervention group to those of the control group

A For the purpose of comparing the breathing results among the two sets. The following null hypothesis is given to test the statistical difference between the groups:

H02: The mean change scores of children's respiration will not vary significantly between the groups that get and do not receive the intervention.

Table 3: Various time periods' worth of respiratory values compared among groups Paired Differences

Change between	Study Groups	Change in Mean ± SD	Change %	Mean difference	Std error diff.	t value	p value
Admission & prior to shifting to OT	I	-0.50 ± 1.45	-2.26	1.20	0.32	3.67	p<0.001 ***
	NI	-1.70 ± 1.94	-7.54				
Admission & 6 hours after surgery	I	0.25 ± 1.09	1.13	0.18	0.32	0.56	p>0.05
	NI	0.07 ± 2.14	0.32				
Admission & 12 hours after surgery	I	0.25 ± 1.09	1.13	-0.10	0.32	-0.33	p>0.05
	NI	0.36 ± 2.14	1.61				
Admission & 24 hours after surgery	I	0.47 ± 1.08	2.10	-0.21	0.31	-0.69	p>0.05
	NI	0.69 ± 2.04	3.05				
Admission & 48 hours after surgery	I	0.47 ± 1.21	2.10	-0.36	0.31	-1.14	p>0.05
	NI	0.83 ± 2.02	3.69				
Prior to shifting to OT & 6 hours after surgery	I	0.76 ± 1.30	3.32	-1.01	0.28	-3.51	p<0.01 **
	NI	1.78 ± 1.70	7.31				
Prior to shifting to OT & 12 hours after surgery	I	0.76 ± 1.30	3.32	-1.30	0.34	-3.82	p<0.001 ***
	NI	2.07 ± 2.17	8.51				
Prior to shifting to OT & 24 hours after surgery	I	0.98 ± 1.14	4.27	-1.41	0.32	-4.30	p<0.001 ***
	NI	2.40 ± 2.15	9.85				

Prior to shifting to OT & 48hours after surgery	I	0.98 ± 1.14	4.27				P<0.001
	NI	2.54 ± 2.01	10.45	-1.56	0.31	-4.99	***
6 hours after surgery & 12 hours after surgery	I	0.00 ± 1.01	0.00				p>0.05
	NI	0.29 ± 1.41	1.29	-0.29	0.23	-1.24	
6 hours after surgery & 24 hours after surgery	I	0.21 ± 1.31	0.98				p>0.05
	NI	0.61 ± 1.43	2.74	-0.40	0.26	-1.52	
6 hours after surgery & 48 hours after surgery	I	0.21 ± 1.37	0.98				p<0.05
	NI	0.76 ± 1.36	3.38	-0.54	0.26	-2.09	*
12 hours after surgery & 24 hours after surgery	I	0.21 ± 0.91	0.98				p>0.05
	NI	0.32 ± 1.13	1.47	-0.10	0.19	-0.55	
12 hours after surgery & 48 hours after surgery	I	0.21 ± 0.99	0.98				p>0.05
	NI	0.47 ± 1.43	2.12	-0.25	0.23	-1.08	
24 hours after surgery & 48 hours after surgery	I	0.00 ± 0.38	0.00				p>0.05
	NI	0.14 ± 1.14	0.66	-0.14	0.16	-0.89	

*****Very highly significant, p<0.001, ** Very significant (p<0.01),**
***Significant (p<0.05)**

Research categories: Intervention (I) and Non-Intervention (NI)

Table 3 shows indicating the change in the intervention group is significantly different from the nonintervention group with respect to the standard deviation before and after investigation scores of children's breathing at different times (p<0.05).

We can say that H0 is not true because there is a big difference between the intervention and non-intervention groups in the average change scores of children's breathing.

Hypertension (Systolic)

a) Description of systolic blood pressure scores of children in intervention and non-intervention groups at different time points

Table 4: Systolic BP results of the intervention and control groups of children at various points in time intervals

					n=55+55
Study Groups	**Time**	**Systolic BP Scores (mmHg)**			
		Observed Scores		**Mean ± SD**	**Median (IQR)**
		Min	**Max**		
I	On admission	95	120	107.45 ± 8.59	107(100-116)
	Prior to shifting to OT	90	118	103.85 ± 7.67	100(98-110)
	Six hours after surgery	90	118	103.56 ± 7.11	100(98-110)
	Twelve hours after surgery	90	120	103.31 ± 7.13	100(100-110)
	Twenty four hours after surgery	90	120	103.09 ± 7.10	100(100-110)
	Forty-eight hours after surgery	90	120	103.09 ± 7.13	100(100-110)
NI	On admission	100	110	110.56 ± 7.89	110(102-120)
	Prior to shifting to OT	96	112	112.38 ± 8.10	112(104-120)
	Six hours after surgery	94	110	110.76 ± 8.29	110(100-120)
	Twelve hours after surgery	96	109	109.51 ± 8.60	110(100-120)
	Twenty four hours after surgery	98	109	109.35 ± 8.35	110(100-118)
	Forty eight hours after surgery	68	108	108.58 ± 10.07	110(100-120)

Study groups: I=Intervention; NI=Non intervention

We can see in table 4 that the kids in the intervention group had a mean systolic blood pressure of 107.45 ± 8.59 when they were admitted, 103.85 ± 7.67 before they started OT, 103.56 ± 7.11 six hours after surgery, 103.31 ± 7.13 twelve hours after surgery, 103.09 ± 7.10 twenty-four hours after surgery, and 103.09 ± 7.13 after 48 hours. It was 110.56 ± 7.89 when the kids were admitted, 112.38 ± 8.10 before they started OT, 110.76 ± 8.29 six hours after surgery, 109.51 ± 8.60 twelve hours after surgery, 109.35 ± 8.35 twenty-four hours after surgery, and 108.58 ± 10.07 48 number of hours after surgery in the control group that did not have any intervention.

CONCLUSION

Children and adults should be prepared for surgery in a way that is appropriate for their level of understanding. The kids and adults who went through the multimodal preoperative preparation program learned a lot about what would happen before, during, and after the surgery. This helped them get ready for it. So, we can say that the multimodal advance preparation program works and can be used over and over again help prepare children and their parents for surgery in pediatric surgery departments.

REFERENCES

1. Ayenew, netsanet & endalew, nigussie & agegnehu, abatneh & bizuneh, yosef. (2020). Prevalence and factors associated with preoperative parental anxiety among parents of children undergoing anesthesia and surgery: a cross-sectional study. International journal of surgery open. 24. 18-26. 10.1016/j.ijso.2020.03.004.
2. Mathias, edlin & pai, mamatha. (2022). Anxiety and pain in children undergoing surgery: a scoping review. Journal of perianesthesia nursing.10.1016/j.jopan.2021.10.002.
3. Sullivan, virginia & Sullivan, debra & weatherspoon, deborah. (2021). Parental and child anxiety perioperatively: relationship, repercussions, and recommendations. Journal of perianesthesia nursing. 36. 10.1016/j.jopan.2020.08.015.
4. Lerwick, julie. (2013). Psychosocial implications of pediatric surgical hospitalization. Seminars in pediatric surgery. 22. 129-33. 10.1053/j.sempedsurg.2013.04.003.
5. Siddiqui, khalid & khan, zohair & Yousuf, muhammad & ali, muhammad. (2024). Assessment of anxiety in parents of children undergoing tonsillectomy under general anaesthesia: a cross- sectional study. Health science reports. 7. 10.1002/hsr2.70087.
6. Anjali, akanksha & verma, mamta & george t, jisa & chanchlani, roshan & kadiyan, priya & vada, satyam. (2024). Stressors encountered by the parents due to planned surgery of the child. Pediatric review international journal of pediatric research. 11. 34- 40.
7. Litke, jacek & pikulska, agnieszka & wegner, tomasz. (2012). Management of perioperative stress in children and parents. Part i – the preoperative period. Anaesthesiology intensive therapy. 44. 165- 9.
8. Pomicino, laura & maccacari, elena & buchini, sara. (2017). Levels of anxiety in parents in the 24 hr before and after their child's surgery: a descriptive study. Journal of clinical nursing. 27. 10.1111/jocn.13895.
9. Nabavi, f.h. & shoja, m. & ramezani, monir & saki, a. & joodi, maryam. (2017). Investigating the relationship between anxiety of schoolage children undergoing surgery and parental state-trait anxiety. Evidence based care. 7. 72-78. 10.22038/ebcj.2017.20999.1481.
10. Perasso, giulia & allegri°, chiara & camurati°, gloria & disma, nicola & torre, michele & mattioli, girolamo. (2021). Children's and parents' anxiety levels pre and post thoracoplasty. Play specialist- based intervention beneficial outcomes. Ricerche di psicologia. 44. 10.3280/rip2021oa12716.
11. Haq, is & al aamri, is'haq & bertolizio, gianluca. (2021). The importance of maintaining normal perioperative physiological parameters in children during anaesthesia. Signa vitae. 17. 42-48. 10.22514/sv.2021.058.
12. Kumar, ashok & das, sambhunath & chauhan, sandeep & kiran, usha & satapathy, sujata. (2018). Perioperative anxiety and stress in children undergoing congenital cardiac surgery and their parents: effect of brief intervention-a randomized control trial. Journal of cardiothoracic and vascular anesthesia. 33. 10.1053/j.jvca.2018.08.187.
13. Santapuram, pooja & stone, amanda & walden, rachel & alexander, louise. (2021). Interventions for parental anxiety in preparation for pediatric surgery: a narrative review. Children. 8. 1069. 10.3390/children8111069.
14. Fortier, michelle & martin, sarah & chorney, jill & mayes, linda & kain, zeev. (2011). Preoperative anxiety in adolescents undergoing surgery: a pilot study. Paediatric anaesthesia. 21. 969-73. 10.1111/j.1460-9592.2011.03593.x.
15. Al-sagarat, ahmad & al-oran, haytham & obeidat, hala & hamlan, adlah & moxham, lorna. (2017). Preparing the family and children for surgery. Critical care nursing quarterly. 40. 99-107. 10.1097/cnq.0000000000000146.