

Original Article

EFFECTIVENESS OF INTRA OPERATIVE HAND HOLDING ON ANXIETY AND PHYSIOLOGICAL PARAMETERS AMONG PATIENTS UNDERGOING CATARACT SURGERY

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Abstract :

Introduction : Patients who are undergoing cataract surgery under local anaesthesia may be more stressed than those having general anaesthesia as they are awake during the surgical procedure. Therefore, psychological comfort in the preoperative phase and compliance during operation are very important for postoperative prognosis. This study explored the pre operative anxiety level of patients undergoing cataract surgery and the effectiveness of intra operative hand holding on anxiety and its related physiological parameters.

Methods: A quasi experimental pre-test post-test control group design was used to collect data from a purposive sample of 54 patients who were underwent cataract surgery at Kasturba Hospital, Manipal.

Results: Most of the patients in the experimental group perceived intra operative hand holding as a measure to reduce their anxiety even though there was no significant statistical difference in the immediate post operative anxiety score between the groups. It was also found that hand holding was effective in reducing blood pressure and heart rate except the respiratory rate of patients undergoing cataract surgery.

Conclusion: The following conclusions were drawn on the basis of the findings of the present study that is, Intra operative hand holding was effective in reducing the physiological parameters such as heart rate, systolic blood pressure and diastolic blood pressure. Also most of the patients perceived intra operative hand holding as beneficial in relieving anxiety.

Keywords : Intra operative hand holding, anxiety, physiological parameters

Introduction :

Cataract is a public health problem in many developing countries including India. In India cataract has been reported to be responsible for 50-80% of the bilaterally blind in the country. Cataract surgery in India has seen exponential growth in the past decade.

Most cataract surgery is now performed under local anaesthesia on a day care basis. As patients are fully conscious during the procedure, it is important that they remain still and have their faces and upper body covered. Many have coexisting health

complaints. Patients with cardio respiratory disease, those with continence problems, those with generalised arthritis, and those who are anxious may find it difficult to relax and remains still during the operation. Cataract surgery patients who have severe anxiety might move during the operation, and might lose vision due to complications such as haemorrhage, or glaucoma after surgery. Therefore, psychological comfort in the preoperative phase and compliance during operation are very important for postoperative prognosis. It is important to take into account patient preference, anxiety, and ability to cooperate, and to assure patients that they will be carefully monitored.

The results of a cross sectional study carried out by Marback et al., to identify the emotional factors among

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patients prior to the cataract surgery at the ophthalmology clinic of Paulo University Hospital concluded that doubt as to the outcome (32.7%), distress/anxiety (26.4%), sadness (25.5%), happiness (10.9%), and anger (4.5%) were the predominant feelings prior to the surgery.⁴ Another study conducted by Chaudhury et al., found that the main anxiety provoking factors were concerns about the success of surgery and the requirement of lying immobile during surgery covered with surgical drapes.⁵ An experimental study conducted in Korea by Moon and Cho to assess the effectiveness of handholding on the anxiety of patients undergoing planned cataract surgery under local anaesthesia was found to be effective in reducing anxiety. The results of another study conducted in Korea by Jung and Sook to assess the effect of hand massage and hand holding on the anxiety in patients with local infiltration anaesthesia was found to be effective in reducing anxiety and the physiological parameters.⁶

The purpose of the study was to find the effectiveness of intra operative hand holding as a non pharmacological measure in relieving anxiety among patients undergoing cataract surgery. It will also allow for the better patient compliance during the procedure and optimal post operative patient outcomes.

Materials and methods :

The administrative permission and ethical clearance from the concerned authority was obtained. The consent was taken from participants of the study. The present study adopted an evaluative approach with quasi experimental design and was conducted in the ophthalmology ward and OT of Kasturba Hospital, Manipal. A total of 54 patients who fulfilled the inclusion criteria such as age ≥ 55 years, who knew to read Kannada and with no known/documentated mental illnesses, anxiety disorders, hypotension and thyroid disorders were selected to experimental and control groups. Tools developed by the researcher were validated and tested for its reliability. Tools utilized were, Tool 1: Demographic proforma, Tool 2: Early pre operative anxiety assessment scale, Tool 3: Numerical Visual Analog Scale to measure immediate pre

operative and post operative anxiety, Tool 4: Proforma for measuring physiological parameters and Tool 5: Opinionnaire on intra operative hand holding. Cronbach's alpha coefficient for tool 2 was 0.72 and test retest reliability for tool 3 was 0.99. Tool 5 had 9 questions with no scoring as it was analysed descriptively using frequency and percentage. Tool 2 had 20 items in which the positively worded statements were scored with a range of five for strongly agree and one for strongly disagree. Negatively worded statements were scored reverse to this. The scale had a score range of 20-100. The early pre operative anxiety was categorised as 20- 46 (mild anxiety), 47-73 (moderate anxiety) and 74-100 (severe anxiety). The pilot study conducted among 20 patients revealed that, the study design was feasible and practicable. Both descriptive and inferential statistics were used to analyse data using SPSS windows 16 version.

On the previous day of surgery, the researcher visited the admitted patients to assess their eligibility to include as samples in the study. After selecting the patients for the study, they were told about the details of the study and their participation role as either in experimental or control group and informed consent was taken. On the same day itself, the researcher administered the demographic proforma to obtain the baseline data and rating scale on early pre operative anxiety to assess their early pre operative anxiety.

On the day of surgery, the immediate pre operative anxiety score was measured with numerical VAS scale in the operation theatre before commencement of the surgery. The physiological parameters such as heart rate, systolic and diastolic blood pressure were monitored using an automated blood pressure monitor. The respiratory rate was measured by observing the chest movements per minute in the operation theatre before the surgery.

Intra operative hand holding was done by the researcher starting from the time the local anesthesia was being administered. The researcher sat at the side opposite to the eye being operated and gently held the patient's hand in a reassuring manner. Both the patient's and researcher's

hands were resting at the patient's side. Hand holding was continued till the operated eye got bandaged at the end of the surgery. During intra operative period, the heart rate, blood pressure and respiratory rate were recorded at different intervals of time, such as at 10 minutes, 20 minutes and at the end of the surgery by using the automated blood pressure monitor. Meanwhile the respiratory rate was recorded by the researcher by observing the chest movements following the same time interval; the timing of which was done using a stop watch.

The immediate post operative anxiety was measured using numerical VAS scale at the end of the surgery in the operation theatre. Patient's opinion with regard to hand holding during surgery was rated by using an opinionnaire. It was administered after the patient got shifted from the operation theatre to the ward. Descriptive statistics (frequency and percentage) and inferential statistics (Mann Whitney U test and RMANOVA) were used for the analysis.

Results:

Section 1: Description of sample characteristics

Table 1: Frequency and percentage distribution of sample characteristics (n=27+27=54)

Sample characteristics	Experimental		Control	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Age in years				
55- 60	05	18.5	07	25.92
61-65	14	51.9	13	48.14
66-70	07	25.9	05	18.5
71-75	01	3.7	02	7.4
Gender				
Male	11	40.7	09	33.33
Female	16	59.3	18	66.66
Education				
Primary (1 st -7 th)	17	62.96	14	51.85
High school (8 th -10 th)	07	25.92	09	33.33
PUC/Diploma and above	03	11.11	04	14.81
Occupation				
House wife	15	55.6	13	48.1
Government	02	7.4	03	11.1
Agriculture	08	29.6	05	18.5
Others	02	7.4	06	22.2
Religion				
Christian	01	3.7	06	22.2
Hindu	23	85.2	20	74.07
Muslim	03	11.11	01	3.70
Marital status				
Married	20	74.07	22	81.48
Unmarried	02	7.40	03	11.11
Divorced	02	7.40	01	3.70
Widow/widower	03	11.11	01	3.70
Type of family				
Joint	06	22.2	02	07.40
Nuclear	21	77.8	25	92.59
Annual family income				
<12000	14	51.9	16	59.3
12000-1lakh	10	37	10	37
1lakh-2.5lakh	03	11.1	1	3.9
Prior experience of cataract surgery				
Yes	5	18.5	7	25.92
No	22	88.5	20	74.07
Prior experience of other surgeries				
Yes	9	33.3	5	18.5
No	18	66.7	22	81.5

Table 2: Mean, standard deviation and t value of immediate pre operative physiological parameters such as systolic BP, diastolic BP, heart rate and respiratory rate between the experimental and control group. n = (27+27)=54

Sample characteristics	Experimental		Control		t value
	Mean	SD	Mean	SD	
Systolic BP	149	11.146	145.70	13.742	0.336
Diastolic BP	80.85	7.487	78.85	8.928	0.260
Heart rate	81.19	9.030	79.93	12.197	0.668
Respiratory Rate	20.67	1.86	21.29	2.103	0.558

Section 2: Description of early preoperative anxiety level of patients

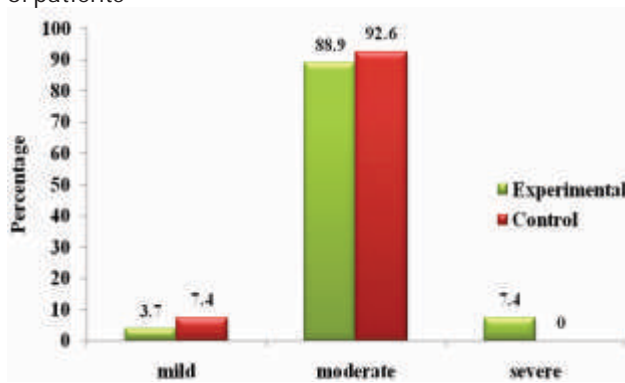


Fig 1: Bar diagram representing the percentage distribution of early pre operative anxiety

Section 3: Effectiveness of intra operative handholding

3.1 Difference in the post test scores of anxiety between the experimental and control group

Table 3: Presents median, interquartile range, Mann Whitney U and Z value of immediate post operative anxiety score between the experimental and control group. n = (27+27) = 54

Groups	Median	IQR	Mann Whitney	Z value	P value
Experimental Group	1	0-1	265	1.848	0.065
Control group	1	1-2			

3.2 Difference in the physiological parameters between the experimental and control group

Table 4: Mean and Standard Deviation of physiological parameters in experimental and control group n = (27+27) = 54

Physiological parameters		Experimental		Control	
		Mean	SD	Mean	SD
Systolic BP	O1	152.37	10.867	152.93	12.863
	O2	148.53	12.103	152.26	12.934
	O3	145.00	11.215	150.63	13.200
Diastolic BP	O1	81.26	6.706	79.96	6.970
	O2	79.67	8.535	80.63	7.438
	O3	77.70	7.451	79.15	7.670

Physiological parameters		Experimental		Control	
		Mean	SD	Mean	SD
Heart rate	O1	82.37	8.531	82.74	11.346
	O2	81.78	9.617	83.33	12.935
	O3	77.52	9.509	79.74	11.248
Respiratory Rate	O1	20.81	1.942	20.81	1.861
	O2	21.11	1.601	21.33	2.219
	O3	20.81	1.495	21.74	2.219

Table 5: RMANOVA for comparing the systolic blood pressure between the experimental and control group n = (27+27) = 54

Physiological Parameter	Test between subjects	
	F value	P value
Systolic BP	14.652	<0.001*

* Significant

Table 6: RMANOVA for comparing the diastolic blood pressure of experimental and control group n = (27+27) = 54

Physiological Parameter	Test between subjects	
	F value	P value
Diastolic BP	6.210	0.002*

* Significant

Table 7: RMANOVA for comparing the heart rate measurement of experimental and control group n = (27+27) = 54

Physiological Parameter	Test between subjects	
	F value	P value
Heart rate	3.558	0.026*

* Significant

Table 8 : RMANOVA for comparing the respiratory rate measurement of experimental and control group n = (27+27) = 54

Physiological Parameter	Test between subjects	
	F value	P value
Respiratory rate	0.408	0.748

Discussion :

Early preoperative anxiety

In this study the researcher found that majority of the patients, 24 (88.9%) in the experimental group and 25(92.6%) in the control group had moderate level of early pre operative anxiety.

Nijkamp et al. conducted a survey study in Netherland to assess the determinants of surgery related anxiety in cataract patients. Among one hundred and twenty eight cataract patients, recruited from two hospitals (Medical Centre Maastricht Annadal (MCMA) and Rotterdam Eye Hospital (REH)), state anxiety was assessed at four different time points using the State-Trait Anxiety Inventory (STAI). The findings of the study showed that the average patient

Table 9: Frequency and percentage distribution of the perceptions of patients undergoing cataract surgery regarding intra operative hand holding during surgery n=27

Statements	Agree		Not sure		Disagree	
	f	%	f	%	f	%
Because of intra operative hand holding I could relax during the cataract surgery	27	100	0	0	0	0
I felt that hand holding was beneficial in decreasing my anxiety during the operation	27	100	0	0	0	0
Hand holding helped me to be more attentive and cooperate with the physician.	16	59.25	9	33.3	2	7.40
I was more comfortable during the procedure.	24	88.9	3	11.1	0	0
I experienced less pain during the procedure than I expected.	26	96.3	1	3.7	0	0
Given the same circumstances, I would prefer hand holding technique again.	23	85.2	4	14.8	0	0
I will recommend this therapy as a measure to relieve anxiety.	21	77.8	6	22.2	0	0
I would inform regarding hand holding technique to my friends and relatives.	24	88.88	2	7.4	1	3.7
I felt confident during the procedure.	25	92.59	2	7.4	1	3.7

experienced little anxiety related to cataract surgery (mean 1.5 and SD 0.48). They reported that the level of anxiety was highest before surgery, decreased immediately after surgery, and increased again the day after the surgery.⁸

Effectiveness of intra operative hand holding on anxiety

The present study revealed that there was no significant difference in the post test anxiety score between the experimental and control group (p=0.065). So it was inferred that the intra operative hand holding was ineffective in reducing the anxiety among patients undergoing cataract surgery.

The findings are supported by a quasi experimental study which was carried out in Florida by Pam Morgan, to measure participants' perceptions of intra operative hand holding during cataract surgery to decrease anxiety related to the surgical experience. Participants were recruited from an Ambulatory Surgery Center located in a South Eastern state. A convenience sample of 30 patients undergoing cataract surgery was used for the investigation. Data analysis did not reveal statistical significance between post operative anxiety scores between the experimental and control group even though most of the patients agreed that hand holding was beneficial in reducing their anxiety. So it was concluded that the study failed to prove the efficacy of intra operative hand holding in reducing the

anxiety among patients undergoing cataract surgery.⁹

The present study findings are also contradicted by another study conducted in Korea by Moon JS and Cho KS to assess the effectiveness of handholding on the anxiety of patients undergoing planned cataract surgery under local anesthesia. An untreated control group design with pre and post-test was used. Among 62 patients, 30 were randomly assigned to the handholding group and 32 to the control group. Handholding was provided to subjects of the handholding group during surgery. Visual analogue scales and interviews were used to measure anxiety, and pulse rate and systolic and diastolic blood pressure were used as physiological measures of stress. The number of subjects who reported decreased anxiety during operation was significantly higher in the handholding group compared with the control group and most of the subjects reported that handholding during operation was very helpful in reducing anxiety.⁶

Effectiveness of intra operative hand holding in physiological parameters

In this study as the RMANOVA for physiological parameters such as systolic BP, diastolic BP and heart rate shows significant difference in measurements during the time intervals and p value was less than 0.05, so it was concluded that intra operative hand holding was effective

in reducing systolic blood pressure and diastolic blood pressure and heart rate of patients undergoing cataract surgery. But this study finding did not show significant difference in respiratory rate measurement in the RMANOVA analysis and its p value was 0.748. So it was concluded that intra operative hand holding was not effective in reducing respiratory rate among patients undergoing cataract surgery.

The present study findings are supported by an experimental study which was conducted in Korea by Jung H and Sook PJ to assess the effect of hand massage and hand holding on the anxiety in patients with local infiltration anaesthesia. The design used in this study was non equivalent, control group, non- synchronized design. Out of 47 patients, 15 patients received hand massage, fifteen patients received handholding during cataract surgery and seventeen patients were assigned for control group. Data were analysed using 't' test, ANOVA, Cronbach's alpha and the Scheffe test. Findings of the study showed that hand massage and handholding are effective nursing interventions that alleviate the psychological and physiological anxiety of patients. The hand massage and hand holding were more effective than the control group in reducing VAS anxiety score ($p < 0.001$), systolic BP ($p = 0.008$) and heart rate ($p < 0.001$). But diastolic BP did not show much difference between the groups with a p value of 0.076.¹⁰

The weakness of the study includes: purposive sampling which was used in this study that limits the generalization of the study findings, small sample size and Intra operative anxiety - a concern for interview due to the surgical procedure.

Keeping in view of the findings of the study, the following recommendations are made: the study can be replicated on a large population, A comparative study with other non pharmacological method can be conducted, A similar study

can be conducted in another setting as a qualitative study and a study can be done to find out the association of pre operative anxiety with age, gender, education, occupation, annual income, previous experience of cataract surgery and other surgeries and also study can be done using different anxiety measurement tools.

Conclusion :

In summary, the present study findings showed that majority of the patients, 24 (88.9%) in the experimental group and 25 (92.6%) in the control group had moderate level of early pre operative anxiety. It was also found that intra operative hand holding was effective in reducing systolic blood pressure and diastolic blood pressure and heart rate of patients undergoing cataract surgery except heart rate which showed no significant difference. Most of the patients in the experimental group perceived hand holding as beneficial in reducing their anxiety during the operation even though there was no significant difference between the groups. Nurses strive to enhance well-being for patients and their families through implementation of non-pharmacologic interventions such as intra operative hand holding which is type of touch therapy which will help in relieving anxiety among patients undergoing cataract surgery. It will also allow for the better patient compliance during the procedure and optimal post operative patient outcomes. The intra operative hand holding can be incorporated as a part of an effective alternative to medications.

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