

Impact of Interactive Video Information on Preoperative Anxiety in Patients undergoing Elective Abdominal Surgery at a Select Hospital in Tirupur - A Quasi-Experimental Study

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Abstract—Background of the Study: The study aims to assess the effect of interactive video information on preoperative anxiety as a means of alleviating anxiety in individuals undergoing elective abdominal surgery. Surgical anxiety impairs hemodynamic stability and recovery. **Material and methods:** Utilising a quasi-experimental pre- and post-intervention two-group design, the impact of interactive video information on preoperative anxiety was assessed. By employing a technique of convenient sampling, 15 subjects were selected for the experimental group and 15 subjects were selected for the control group. Data from preoperative patients were obtained using a self-rating anxiety scale one day before surgery for both groups. The experimental group's samples were shown video clipping one at a time after the data collection was over. After each clipping, the samples were encouraged to ask questions and clear up any confusions they had, and they were also given more information about that cutting. Prior to premedication on the day of surgery, both groups' levels of anxiety were measured using a self-rating anxiety scale. Upon evaluating the anxiety level on the day of operation, questions for the control group were answered. **Results:** Anxiety was evaluated across various domains, including state anxiety, pain anxiety, preoperative preparation, anesthesia, surgery, and functional impact. In the experimental group, there was a big change in the mean score between the day before surgery and the day of surgery. There is a statistically significant difference observed across all domains, including daily living anxiety ($t=5.63, df=14, P < 0.05$), preoperative preparation ($t=2.96, df=14, P < 0.05$), anaesthesia ($t=5.84, df=14, P < 0.05$), and state anxiety ($t=5.16, df=14, P < 0.05$). The findings indicated that the experimental group experienced a substantial decrease in the average anxiety score (from pre- $M=104.20$ to post- $M=87.60$) ($t=2.9, df=14, p < 0.05$). The average apprehension level of the control group, however, did not decrease significantly. **Conclusion:** Most experimental group patients said the interactive video information was beneficial, interesting, and easy to participate in. Interactive video was a cost-effective nursing intervention to reduce patient anxiety and increase comfort. The study found.

Keywords— Interactive Video Information, Preoperative Anxiety, Patients undergoing Elective Abdominal Surgery.

I. INTRODUCTION

Whether overt or covert, normal or aberrant, every patient experiences some sort of emotional response prior to each surgical treatment. Preoperative anxiety might arise as a result of anticipating changes in customs, roles in life, bodily integrity, or life itself. The majority of patients awaiting surgery experience various fears, such as the fear of mortality, anesthesia, pain, or cancer. They also have concerns about the potential loss of work, job security, increased responsibilities for family members, and the possibility of permanent disability. These factors collectively contribute to the emotional stress associated with the anticipation of surgery.

In the early post-operative phase, anxiety levels may stay elevated; however, they will gradually decrease over the healing process, and patients may have mild concern for follow-up treatment as they approach discharge. Numerous elements play a role in this anxiety: Primarily, a patient's anxiety level may be influenced either positively or negatively by prior surgical experience. In contrast, anxiety is typically raised when the underlying pathologic condition is thought to be life-threatening. Anxiety may be reduced if the patient

believes the surgery will cure the disease, relieve the disease and its discomfort, or improve their physical appearance. Patients may have increased anxiety due to various variables such as being in a foreign place, feeling helpless to manage their situation or take care of themselves, being afraid of the long-term repercussions of surgery, and being afraid of complications. There is not much time for the nurses to psychologically prepare the many patients who were admitted the day before for elective surgery. The hospitalisation process itself may cause anxiety, and patients' reservations regarding the procedure were numerous. Patients were curious to learn about surgery since they were unsure about their condition.

According to Surgeon Dr. Eric Robins, (2007) 80 to 90 percent of all the surgical patients have noticeable anxiety before their operation. Sometimes the anxiety is quite severe. He suggests that if people were less anxious before the surgery, the amount of anesthetic they require could be reduced. If a person tend to have excess anxiety before surgery, research says that they will likely have more pain and use more pain medication after the operation.

Due to "keyhole surgery" and "daycare surgery," patients are admitted the day before or the day of surgery. This reduces

patient psychological preparation time. An creative, quick-to-use intervention is needed to solve this problem.

The investigator found that patients expected to learn a lot about their procedure and wished to ask medical personnel questions. The investigator was inspired to provide interactive video information for patients that could be done quickly and easily in clinical settings.

Many therapies exist to lower preoperative anxiety in patients, including deep breathing, relaxation exercises, music therapy, guided imagery, humour, and touch therapy. Most of these interventions are tough for nursery surgery patients. Selecting an anxiety-reduction intervention should be appropriate. Conduct an interactive video interview. The nurse educator can lessen patient fear by conducting interactive video information in a group setting, saving time and reducing anxiety.

Objectives of the study:

1. To measure and compare the levels of anxiety in the experimental and control groups one day before surgery in terms of state anxiety, pain, getting ready for surgery, surgery itself, and anxiety in everyday life.
2. To evaluate and compare the experimental and control groups' levels of anxiety in various anxiety domains following the preoperative interactive video session on the day of surgery.
3. To compare the intensity of anxiety in various anxiety domains among the experimental group the day before and on the day of surgery.
4. To evaluate and compare the control group's anxiety levels in several regions the day before and the day of the procedure.
5. To establish a correlation between demographic variables and anxiety levels.

II. METHODOLOGY:

This study employed an evaluative methodology in order to determine the efficacy of interactive sessions incorporating video clippings in reducing preoperative apprehension. As a research design, this study employed a quasi-experimental pre-test and post-test control group method. The research was conducted at a specifically chosen hospital located in Tirupur. The 100-bed multispecialty hospital was chosen due to its comprehensive emergency care and surgical treatment facilities. Thirty patients admitted for elective abdominal surgery comprised the cohort for this investigation (15 in the experimental group and 15 in the control group). A technique of nonprobability convenient sampling was implemented. The instrument employed for data collection was a two-part questionnaire. Part I comprised demographic data, including age, sex, educational attainment, occupation, monthly income, awareness regarding surgery, and information sources consulted. The purpose of Part II was to compute the apprehension levels of patients who were admitted for elective abdominal surgery. 45 statements were utilised to construct a four-point rating scale encompassing the following domains of anxiety: Not at all, A little, Somewhat, and Very much.

Item	Scoring
State Anxiety	20 items
Anxiety on Pain	5 items
Anxiety on Post-operative preparation	5 items
Anxiety on Anaesthesia	5 items
Anxiety on Surgery	5 items
Anxiety on Impact of Daily Living	5 items

There were ten negative questions and ten positive questions while the subject was anxious. There was one negative statement and four good statements in all other sections.

The video was created based on the investigator's clinical experiences and a review of the literature on the needs and expectations of surgery patients. The film was shot in a private hospital with permission from the appropriate authorities. The video clipping was created in real time to provide a clear idea and information about the specified surgical intervention. A patient was chosen as a model and his position in the video was explained to him. Following the patient's written agreement, video was taken, and the patient was rewarded for his assistance in the development of video clipping.

SECTION	DURATION	LOCATION
1. One day before surgery	1 Minute 13 seconds	General ward
2. On the day of surgery	0 Minutes 11 seconds	General ward
3. Pre operative area	1 Minute 15 seconds	Anesthesia room
4. Operation theater	2 Minutes 41 seconds	Operation theater
5. Immediate post operative period	2 Minutes 21 seconds	Recovery room
6. Three days after surgery	1 Minutes 20 seconds	Patient room
TOTAL	9 Minutes 01 second	

Permission was obtained from the hospital authority before data collection resumed. The hospital nursing superintendent was informed of the study. The investigator called the nursing superintendent daily to learn about abdominal surgery cases on each floor. After obtaining consent, patients were approached and selected based on sample selection criteria and informed of the study's purpose and role. Patient 1 was assigned to the experimental group and patient 2 to the control group. The patients were contacted individually and therefore presented the video with the portable DVD player.

FIRST STEP: Participants in the study were told about the video and the sessions of the video clipping. In addition, they were told what part they would play in the conversation.

SECOND STEP: The video clips were shown to the patients one by one.

THIRD STEP: Following each video clip, patients were invited to speak with the researcher. Answers to questions about the specific video snip were given during the interactive session, along with further information that the participants could not have learned from watching the video. A self-rating anxiety scale was used to gauge each group's degree of anxiety

on the day of surgery prior to the administration of the premedication. Following the data collection, the patients in the control group were also given the opportunity to get their questions answered for their benefit.

Information was organized, tabulated, and analysed using SPSS version 21 for Windows on an IBM-compatible computer. Statistics like frequency, percentage, mean, and standard deviation were used. To evaluate the interventions between and within groups, paired and independent t-tests were performed.

III. RESULTS

Table I shows the experimental and control groups' personal characteristics with frequency and percentage.

The sample age ranged from 21 to 60. The experimental group (53.3%) and the control group (60%) were mostly 21–40 years old, with 2 samples (13.3%) between 51 and 60. The experimental group had 11 samples, 6 of which (40%) had upper secondary education. In the control group, 7 samples (46.6%) had collegiate education, whereas the remainder had primary or secondary education. At 13–14, 86.6–93.3% of both groups were married. Six samples (40%) in the experimental group were high school graduates, whereas 27.67% were illiterate. (46.60% of samples) graduated college. More than half of control group 8 (53.33%) and nearly half of experimental group 7 (46.66%) were government or professional employees. 3–4 samples (20–26.67%) in both groups were industrial or daily wage labourers. Monthly income ranged from Rs 3001 to over Rs 10,000. 12 experimental samples (80%) and 9 control samples (60%) earned Rs 3001 to Rs 5000 per month. Only 1 sample (6.67%) in the experimental group and 5 (33.33%) in the control group earned over \$10,000 per month. Most of the 12 control samples (80%) knew about surgery. Only 3 (20%) were unaware of the procedure. Nine samples (60%) in the experimental group knew about the surgery. About half of the experimental (50%) and control (58.33%) samples received

information from family and friends. Health care workers informed only 33.33% of both groups.

TABLE I: Frequency and Percentage Distribution of Samples According to Socio-Demographic Variables

S. No	Socio-Demographic Variables	Experimental Group		Control Group	
		F	%	F	%
1	Age				
	a. 21 – 30 years	5	33.3	5	33.3
	b. 31 – 40 years	3	20.0	4	26.6
	c. 41 – 50 years	5	33.3	4	26.6
	d. 51 – 60 years	2	13.3	2	13.3
2	Gender				
	a. Male	11	73.3	6	40.0
	b. Female	4	26.7	9	60.0
3	Marital Status				
	a. Married	14	93.3	13	86.6
	b. Unmarried	1	6.7	2	13.4
4	Education				
	a. Illiterate	4	26.6	0	0.0
	b. Lower Primary	1	6.6	1	6.6
	c. Upper Primary	3	20.0	4	26.6
	d. Higher Secondary	6	40.0	3	20.0
	e. College	1	1.6	7	46.6
5	Occupation				
	a. Daily Wage Laborer	4	26.6	3	20.0
	b. Industrial worker	4	26.6	4	26.6
	c. Professional / Govt employee	7	46.6	8	53.3
6	Income				
	a. Rs 3001 – 5000	12	80.0	9	60.0
	b. Rs 5001 – 7000	2	13.3	1	6.6
	c. Rs 7001 – 10,000	0	0.0	0	0.0
	d. More than 10,000	1	6.7	5	33.3
7	Awareness about Surgery Procedure				
	a. Yes	6	40.0	12	80.0
	b. No	9	60.0	3	20.0
8	Source of information				
	a. Family Members	3	50.0	7	58.3
	b. Media	1	16.6	1	8.3
	c. Health Journal	2	33.3	4	33.4

TABLE II: Mean Anxiety Score of Experimental and Control Groups in Different Areas of Anxiety one day before surgery and Level of Significance

Areas of Anxiety	Max Score	Experimental Group			Control Group			Unpaired 't' test value P < 0.05 (Df = 28)
		Mean	Mean %	S.D	Mean	Mean %	S.D	
State Anxiety	80	44.33	55.41	9.31	36.20	45.25	6.60	2.96*
Anxiety on Pain	20	13.06	65.30	1.81	11.33	55.65	1.81	2.86*
Anxiety on Preparation	20	9.60	48.00	1.78	8.93	44.65	4.47	0.77 ^{NS}
Anxiety on Anaesthesia	20	10.60	53.00	1.85	8.93	44.00	2.50	2.25*
Anxiety on Surgery	20	10.8	54.00	2.92	10.20	51.00	2.85	0.61 ^{NS}
Anxiety on Daily Living Activity	20	14.2	71.00	2.07	12.4	62.00	3.60	1.80 ^{NS}

* Significant at p < 0.05, NS – Non-Significant

The mean score, mean score percentage, and degree of significance for the experimental and control groups in several anxiety-related locations one day before to surgery are shown in Table II. The experimental group's mean anxiety score ranged from 48% to 71%. The regions with the highest anxiety scores were the impact of daily life (71%), pain (65.30%), and other areas (mean score percentage ranging from 48% to 55.41%). The control group's anxiety score ranged from 44% to 62%. Daily living had the greatest anxiety scores (62%),

followed by pain (55.65%) and surgery (51%). The ratings for the other categories ranged from 44% to 44.65%. In every one of the six categories, the mean scores of the experimental groups were significantly higher than those of the control group; however, there was no significant difference in the categories of ordinary life (1.80), surgery (0.61), or preoperative preparation (0.77). In the categories of anaesthesia (2.25), pain (2.86), and state anxiety (2.96), there was a statistically significant difference in the mean anxiety

scores between the experimental and control groups. Regarding daily living, surgery, and preoperative preparation, no statistically significant difference was found.

Table III shows the mean score, mean score percentage, and degree of significance for the experimental and control groups in various anxiety-related categories on operation day. Experimental group mean scores ranged from 33 to 49.33%. These localities had the highest mean anxiety scores: 49.33% report discomfort, 46.65% daily life, 36% anaesthesia and preparation, 33.37% express anxiety, and 33% surgery fear.

Control group scores averaged 44%–65%. Daily living had the greatest mean anxiety level (65%), followed by pain (61.65%). The remaining sites averaged 47.25% to 53.65% anxiety. The mean score for all anxiety regions changed statistically on operation day. This shows that the interactive video session reduced patients' anxiety. The experimental group's mean score in all six categories was lower than the control group's on surgery day after the interaction, but it was higher the day before surgery.

TABLE III: Mean Anxiety Score of Experimental and Control Groups in Different Areas of Anxiety On the day of surgery and Level of Significance

(N = 30)

Areas of Anxiety	Max Score	Experimental Group			Control Group			Unpaired 't' test value P < 0.05 (Df = 28)
		Mean	Mean %	S.D	Mean	Mean %	S.D	
State Anxiety	80	26.70	33.37	7.28	37.80	47.25	10.90	3.54*
Anxiety on Pain	20	9.86	49.33	3.55	12.33	61.65	2.10	2.52*
Anxiety on Preparation	20	7.20	36.00	3.09	8.80	44.00	1.90	3.44*
Anxiety on Anaesthesia	20	7.20	36.00	2.03	10.20	51.00	2.44	3.60*
Anxiety on Surgery	20	6.60	33.00	2.17	10.73	53.65	2.89	4.70*
Anxiety on Daily Living Activity	20	9.33	46.65	4.24	13	65.00	3.99	2.49*

* Significant at p < 0.05, NS – Non-Significant

TABLE IV: Mean Anxiety Score in Different Areas of Anxiety of Experimental Group One Day Before and On the Day of Surgery and Level of Significance

(n = 15)

Areas of Anxiety	Max Score	One Day Before Surgery			On the Day of Surgery			Unpaired 't' test value P < 0.05 (Df = 28)
		Mean	Mean %	S.D	Mean	Mean %	S.D	
State Anxiety	80	44.33	55.41	9.31	26.70	33.37	7.28	5.16*
Anxiety on Pain	20	13.06	65.30	1.81	9.86	49.33	3.55	3.07*
Anxiety on Preparation	20	9.60	48.00	1.78	7.20	36.00	3.09	2.96*
Anxiety on Anaesthesia	20	10.60	53.00	1.85	7.20	36.00	2.03	5.84*
Anxiety on Surgery	20	10.80	54.00	2.92	6.60	33.00	2.17	5.03*
Anxiety on Daily Living Activity	20	14.20	71.00	2.07	9.33	46.65	4.24	5.63*

* Significant at p < 0.05, NS – Non-Significant

TABLE V: Mean Anxiety Score in Different Areas of Anxiety of Control Group One Day Before and On the Day of Surgery and Level of Significance

(n = 15)

Areas of Anxiety	Max Score	One Day Before Surgery			On the Day of Surgery			Unpaired 't' test value P < 0.05 (Df = 28)
		Mean	Mean %	S.D	Mean	Mean %	S.D	
State Anxiety	80	36.20	45.25	6.60	37.80	47.25	10.90	0.85 ^{NS}
Anxiety on Pain	20	11.33	55.65	1.81	12.33	61.65	2.10	1.09 ^{NS}
Anxiety on Preparation	20	8.93	44.65	4.47	8.80	44.00	1.90	1.55 ^{NS}
Anxiety on Anaesthesia	20	8.93	44.00	2.50	10.20	51.00	2.44	1.37 ^{NS}
Anxiety on Surgery	20	10.20	51.00	2.85	10.73	53.65	2.89	0.85 ^{NS}
Anxiety on Daily Living Activity	20	12.4	62.00	3.60	13	65.00	3.99	1.79 ^{NS}

* Significant at p < 0.05, NS – Non-Significant

Table IV: Provides the mean score percentages in various domains of anxiety for the experimental and control groups on the day of surgery, along with the level of significance. The experimental group exhibited anxiety mean scores ranging from 48% to 71% one day prior to surgery. The domain with the highest anxiety mean score was "Impact of daily living" at 71%, followed by "Paink 65.30%," "State anxiety" at 55.41%, and "Surgery" at 54%. Preparation received the lowest mean score of 48%.

Table V: Mean score and percentage of control group one day before and one day day of surgery. The anxiety mean score in the control group the day before surgery varied between 44% and 62%. Daily life (62%), pain (56.65%), and surgery (51%), had the greatest anxiety mean scores. A very low mean anxiety score of 44% was observed in Anaesthesia. The typical surgery anxiety score was 44%–65%. The anxiety

score for Daily Living was the highest at 65%, followed by Pain at 61.65%, Surgery at 53.65%, and Preparation at an extremely low 44%. All anxiety areas showed no statistical difference. The data in this table indicates that the mean score for the control group does not differ significantly between the day before and the day of surgery.

Table VI shows the mean, SD, and mean difference between the experimental and control groups one day prior to and on the day of surgery, as well as the level of significance of the difference. The mean anxiety score in the experimental group one day prior to surgery was 104, compared with 87.60 in the control groups. There was a statistically significant difference in overall anxiety before intervention in the experimental and control groups. The experimental groups had higher levels of anxiety than the control groups. On the day of surgery, the experimental group had a mean anxiety of 66.80,

compared with 92.73 in the control group. There was a statistically significant difference in the mean anxiety score

after intervention in the control and experimental groups.

TABLE VI: Overall Mean Anxiety Score and Standard Deviation Between Experimental and Control Group One Day Before and On the Day of Surgery and Level of Significance

S. No	Anxiety	Experimental Group		Control Group		Mean Difference	Unpaired 't' test p < 0.05, df = 28
		Mean	S.D	Mean	S.D		
1.	One Day Before Surgery	104.2	19.39	87.60	14.5	16.6	2.9*
2.	On the Day of Surgery	66.80	21.40	92.73	18.37	25.93	3.59*

(N = 30)

TABLE VII: Overall Mean Anxiety Score and Standard Deviation Between Experimental and Control Group One Day Before and On the Day of Surgery and Level of Significance

S. No	Anxiety	One Day Before Surgery (Mean)	On the Day of Surgery (Mean)	S.D	Mean Difference	Paired t-test p < 0,05	
1.	Experimental Group	104.2	66.80	27.1	37.4	5.34*	
2.	Control Group	87.60	18.37	25.93	10.6	5.13	1.68 ^{NS}

(N = 30)

Table VII shows the experimental and control groups' mean score and standard deviation mean difference for the day before and day of operation, along with their significance. After intervention, the experimental group's anxiety mean score dropped from 104.2 to 66.8, statistically significant. In contrast, the control group's anxiety mean score rose from 87.6 to 92.7. Not statistically significant.

IV. DISCUSSION

Within the discussion, the researcher elucidates the meaning of the outcomes, provides insight into the underlying reasons for the results observed, and explores the practical applications of the findings. The significance of the data, the factors contributing to the observed effects, and potential real-world implications are discussed.

This study found results consistent with Shimko et al. (2006), which examined the effect of preoperative instruction on anxiety. Shimko found significant anxiety reduction after receiving instruction. Kiyohara and Y (2004), which assessed the effect of surgery information on preoperative anxiety, also supported these findings. Kiyohara found lower anxiety levels among patients who received preoperative information. Both studies align with the results presented here, that preoperative information reduces patient anxiety.

This work is supported by prior studies. An experimental group that watched a hip replacement surgery videotape had less worry, stress, and postoperative pain, according to Doering (2000). Sioling (2003) explored how preoperative information affects state anxiety, postoperative pain, and pain management satisfaction. Patients in the experimental group had faster postoperative pain recovery. The findings of the present study are consistent with the results of a previous investigation conducted by Bondty L. R. in 1999 examining the impact of anesthetic patient education on preoperative patient anxiety levels. Specifically, Bondty's research found that there was a statistically significant difference in anxiety between the subjects who received preoperative instruction in the form of an educational video and pamphlets compared to those receiving only the hospital's standard preoperative procedures. Bondty determined that providing supplemental educational materials to patients ahead of surgery helped to

meaningfully reduce feelings of unease and apprehension prior to the administration of anesthesia when compared to the control group.

V. CONCLUSION

The study found that patients who viewed interactive preoperative videos had significantly less anxiety than the control group. Those in the experimental group actively watched the clips and asked the researcher questions. They stated the videos were useful for clarifying doubts and understanding the operating room environment. Patients were satisfied with the intervention. Results showed interactive videos significantly reduced anxiety in all surgical domains. Clearly, providing preoperative interactive videos is an effective psychological intervention to reduce patient anxiety and promote recovery.

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