

## EVALUATION OF THE EFFICACY OF CARDIAC SURGICAL ORIENTATION VIDEO IN DECREASING PREOPERATIVE ANXIETY IN PAKISTANI POPULATION

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### ABSTRACT

**Objective:** To evaluate the effectiveness of perioperative videotaped instructions, in reducing patient anxiety and increasing patient knowledge, during pre-anaesthesia assessment of cardiac surgical patients.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** This study was conducted at Armed Forces Institute of Cardiology/National Institute of Heart Diseases (AFIC/NIHD) Rawalpindi, Pakistan, from Jan 2019 to Jun 2019.

**Methodology:** In this cross sectional study, 150 consecutive patients who were admitted for cardiac surgery during the study period were enrolled, based on inclusion criteria: ages range 18 to 75 years, basic literacy (able to read and understand Urdu), no history of open-heart surgery, and no history of mental illness. All the participants were given verbal information about the surgery and anaesthesia in Pre-Anaesthesia Clinic and were asked to fill a locally adapted version of the Amsterdam Preoperative Anxiety and Information Scale (APAIS). Then they were shown a video clip comprising of Perioperative Instructions and they were asked to fill in the same questionnaire again. The difference in the mean anxiety scores on various components of APAIS before and after the videotaped instructions was calculated and analysed using the Statistical Package for the Social Sciences (SPSS), version 23.

**Results:** 118 (74%) of the study population were male and 32 (26%) were females. 66 (44%) of them were educated beyond matriculation/elementary education level. The age distribution of the study population was from 30 to 75 years, with the mean age of  $53.75 \pm 14.6$  years. The difference in mean anxiety score related to Anaesthesia, Surgery, Combined Surgery & Anaesthesia, and the difference in the Information Desire before and after the intervention (watching video clip) was found statistically significant ( $p < 0.0001$ ).

**Conclusion:** Patient education through Perioperative Videotaped Instructions is more effective for alleviating anxiety in Cardiac Surgical patients as compared to verbal Instructions alone.

**Keywords:** Amsterdam preoperative anxiety, Cardiac surgery, Information scale (APAIS), Orientation video, Preoperative anxiety, Perioperative instructions.

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### INTRODUCTION

Surgery, despite all its advances and innovations, still stands as a difficult time for a human being. All surgical patients develop anxiety, irrelevant of their sex, age, socio-economic status, and educational background. This can be due to multiple reasons including personality traits, fear of surgery itself, possible complications, previous bad experiences and hearsay stories from

relatives and friends. Each patient behaves differently during stress which in turn affects his/her physiological response including fluctuations in blood pressure, heart and respiratory rate, resistance to anaesthetic induction, and poor healing. It has been observed that the anxious patients display a lower threshold for pain<sup>1</sup> thereby increasing the requirements of opioids. This can also affect their quality of life post-discharge<sup>2</sup> and can also increase the possibility of re-hospitalization<sup>3</sup>.

Cardiac surgery has undergone major advances in recent years and persists to grow but

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it is still the land of unknown for the general population. There is an immense unawareness among patients about cardiac interventions. Undergoing a cardiac surgery means that there will be a permanent change in the physical, psychological, and social lifestyle of the patient. The thought of adapting to this new life post-surgery is not an easy task for every individual. All these factors make cardiac surgery as the least psychologically tolerated surgical speciality.

One of the main causes of mortality and morbidity among cardiac patients in developed countries is coronary artery disease<sup>4</sup>. Presently, the best available treatment modality for this disease is Coronary Artery Bypass Graft (CABG)<sup>5</sup> which has a marked effect on life expectancy of these patients. CABG comprises of about 50-60% of all cardiac surgeries<sup>6</sup>. However, the disease itself as well as the surgical treatment, are both associated with high level of anxiety and depression among patients<sup>7</sup>. The necessity to perform the surgery due to life threatening disease while being forced to accept the consequences whatever they may be, puts the patient in great mental stress. The incidence of preoperative anxiety has been found to be more common in woman than in men<sup>8</sup> and is associated with multiple factors including, fear of unknown, pain, discomfort, disability and death resulting in demoralization and effect of the patient perception about the surgical /anaesthetic procedure. Therefore, preoperative orientation of the patients with detailed explanation of the procedure, addressing the relative concerns and queries and reassurance would help allay the anxiety and consequently affect the post-operative outcome<sup>9</sup>.

From the time of admission till discharge, cardiac patients are continuously under the direct care of highly qualified nurses, making them an integral part in the management of patient anxiety<sup>10</sup>. The nursing staff can allay patient anxiety not only through medication but also by utilizing their scientific and psychological experiences through their affectionate behaviour, promoting dialogue and information sharing about expectations and perception of the patients.

## METHODOLOGY

This cross-sectional study was conducted at Armed Forces Institute of Cardiology (AFIC/NIHD), Rawalpindi, from January 2019 to June 2019.

A total of 150 Cardiac Surgical patients admitted in the Hospital and fulfilling the following inclusion criteria were enrolled in this study: ages 18 to 75, Basic Literacy (able to read and understand), No history of previous open heart surgery, No history of mental illness, Awareness of the setting and proficiency in local language Urdu. Convenience sampling was done enrolling consecutive patients who all were willing to complete the given questionnaire. Support in completing the questionnaire was offered to anyone who needed it.

A video clip was prepared before the start of the study. The contents of the video clip included: the preparation of the patient before cardiac surgery; shifting to cardiac operating rooms; different safety checklists involved; a review of the operating room environment and familiarization of different machines used during the procedure; an introduction of the people involved during and after the procedure and at the time of regaining consciousness; and familiarization to postoperative intensive care environment.

The study was conducted one day prior to surgery. Family members involved in postoperative care were encouraged to attend the preoperative education.

The study consisted of two steps. In the first step, the patient had their Pre-Anaesthesia assessment done along with the traditional verbal counselling about the procedure and were then asked to fill the Amsterdam Preoperative Anxiety and Information Scale (APAIS)<sup>11</sup>. In the second step, same group of people watched the video clip in the same setting and were asked to fill in the APAIS questionnaire again. This entire procedure was carried out by a single investigator for the whole study group. The data was gathered in the form of a questionnaire consisting of two parts: the first part included demographic information

(age, sex, marital status, and education level and history of any previous surgery) whereas the

**Table-I: Demographics of the study participants.**

Variable	Frequency (%age)	Mean ± SD
<b>Gender</b>		
Male	118 (74%)	-
Female	32 (26%)	-
Age	-	53.75 ± 14.6
<b>Education Level</b>		
Below High School	84 (56%)	-
<b>Elementary Level</b>		
High School	39 (26%)	-
>Graduate Degree	27 (18%)	-

second part constituted a culturally adapted Urdu translated version of the Amsterdam Preoperative Anxiety and Information Scale (APAIS).

The data collected was analysed using the Statistical Package for the Social Sciences (SPSS) statistical software, version 23.0. Categorical variables were analysed as absolute (n) and percentage (%) frequencies. Continuous variables

were presented as means and standard deviation, or medians, according to their distribution. Paired t-test was used to compare the means of anxiety of patients before and after the intervention. ANOVA was performed. A *p*-value <0.05 was considered significant.

**RESULTS**

A total of 150 patients were included in this study among which 118 (74.0%) were male and 32 (26%) were female. About half of participants 84 (56%) were educated only up to the elementary/matriculation level. The age distribution of the study sample was from 30 to 75 years with mean age 53.75 ± 14.6 years (table-I).

It was observed that the mean anxiety score related to anaesthesia before watching the video clip was 3.23 ± 1.4 which reduced to 2.41 ± 0.99 after the video clip. Similarly, the mean anxiety score related to surgery before the video clip was 4.21 ± 2.1 whereas after watching, it reduced markedly to 2.90 ± 1.86 (table-II).

The combined anaesthesia and surgery related mean anxiety score before the intervention

**Table-II: APAIS results before and after watching video clip.**

Variable Name	Before Intervention (Mean ± SD)	After Intervention (Mean ± SD)	<i>p</i> -value
Sum of anaesthesia related anxiety	3.23 ± 1.4	2.41 ± 0.99	<0.0001
Sum of surgery related anxiety	4.21 ± 2.1	2.90 ± 1.86	<0.0001
Sum of combined anaesthesia and surgery related anxiety	7.27 ± 2.97	5.15 ± 2.33	<0.0001
Sum of Information Desire related anxiety	3.96 ± 2.01	2.60 ± 1.51	<0.0001

**Table-III: Relationship between gender with anxiety and information desire score before and after watching video clip.**

Variable name	Male (group A)			Female (group B)		
	Before Intervention (Mean ± SD)	After Intervention (Mean ± SD)	<i>p</i> -value	Before Intervention (Mean ± SD)	After Intervention (Mean ± SD)	<i>p</i> -value
Sum of anaesthesia related anxiety (A)	2.91 ± 1.06	2.34 ± 0.80	0.001	4.29 ± 1.82	2.80 ± 1.41	0.001
Sum of surgery related anxiety (S)	3.81 ± 1.88	2.73 ± 1.71	0.001	5.40 ± 2.58	3.43 ± 2.20	0.001
Sum of combined anaesthesia and surgery related anxiety (C)	6.59 ± 2.54	4.95 ± 2.25	0.001	9.26 ± 3.36	5.80 ± 2.50	0.001
Sum of Information Desire related anxiety (ID)	3.76 ± 2.08	2.56 ± 1.63	0.105	4.40 ± 1.78	2.71 ± 1.06	0.105

was  $7.27 \pm 2.97$  and after intervention was  $5.15 \pm 2.33$ . When compared in terms of information desire (ID), the mean score showed a decrease from a value of  $3.96 \pm 2.01$  before intervention to  $2.60 \pm 1.51$  after intervention (table-II).

As the results reveal, there was a significant statistical difference ( $p < 0.0001$ ) in the anxiety level in the patients before and after watching the video clip, thus proving the effectiveness of the video-taped perioperative education in reducing patient's anxiety compared to the standard verbal education.

The total number of patients were divided into two groups on basis of level of education: below high school and high school and above. Both groups showed decrease in anxiety after intervention but it was not statistically significant ( $p$ -value 0.187 for Anaesthesia and 0.43 for surgery). The groups did not differ significantly regards information desire.

When compared between genders, females were more anxious before intervention as compared to males. However, the intervention showed an equal and significant effect in decreasing anxiety in both the genders (table-III).

## DISCUSSION

The incidence of preoperative anxiety ranges from 11% to 80% in adult patients and varies among different surgical groups<sup>12</sup>. Several studies carried out on patients undergoing cardiac surgery estimated preoperative anxiety as a major cardiovascular risk factor<sup>13</sup>.

Studies in Pakistani surgical patients<sup>14</sup> have previously measured preoperative anxiety using Visual Analogue Scales or State Trait Anxiety Inventory (STAI). Scales such as STAI are long and more time consuming in administering and interpretation. The Amsterdam Preoperative Anxiety and Information Scale<sup>16</sup> (APAIS) has the advantage of being useful and valid questionnaire that measures both preoperative Anxiety and need for Information and is quick and easy to administer. The scores on the anxiety scale of the APAIS (4 questions) range from 4 (not anxious)

to 20 (highly anxious). Because the APAIS is specifically attuned to the preoperative situation, patients can complete it without further explanation. The scores on the information scale of the APAIS range from 2 (no need for information) to 10 (high need for information). The culturally adapted Urdu translation of the APAIS questionnaire has previously been used in a study<sup>15</sup> in a general surgical setting in Pakistani population. We used the same culturally adapted Urdu translation of APAIS to measure preoperative anxiety and need for information in our study and to measure the impact of our intervention with a cardiac surgical orientation video.

Majority (74%) of our study population were males and this is in keeping with the prevalence of ischemic heart disease trends in Pakistani population<sup>16</sup>. Less than half (44%) of the study population were educated above matriculation level and this is also fairly representative of the local population trends<sup>17</sup>.

Our study did not find any significant difference between the mean anxiety scores, based on the education level. This finding is at odds with the previous studies indicating that higher education level is generally associated with higher anxiety levels and with greater desire for information about the anaesthesia and the surgical procedure.

Previous studies have found positive association of anxiety with female gender<sup>11</sup>. In our study, When compared between genders, females were more anxious before intervention as compared to males. However, the intervention showed an equal and significant effect in decreasing anxiety in both the genders.

Our study showed that the mean anxiety scores related to surgery ( $4.21 \pm 2.1$ ) were higher than that for anaesthesia ( $3.23 \pm 1.4$ ). The lengthy waiting lists of coronary artery bypass graft surgery could cause significant psychological disturbances, including high anxiety levels and uncertainty about the future. Previous studies conducted on patients undergoing non-cardiac surgery procedures found that the most common

preoperative fears were worrying about the efficacy of surgery, postoperative pain, and awareness during anesthesia<sup>18</sup>.

In our study the trend of higher surgery related anxiety scores persisted even after the patients had watched the surgical orientation video indicating that the patient fears and worries related to surgery were more significant than that for anaesthesia. These results contrasted with those obtained by Moerman *et al*<sup>11</sup> revealing no differences between fears from surgery and anesthesia.

The mean anxiety score related to anaesthesia before watching the cardiac surgery orientation video clip was  $3.23 \pm 1.4$  which reduced to mean anxiety score of  $2.41 \pm 0.99$  after the video clip. Similarly, the mean anxiety score related to surgery before the video clip was  $4.21 \pm 2.1$  whereas after watching, it reduced markedly to  $2.90 \pm 1.86$ . The combined anaesthesia and surgery related mean anxiety score reduced significantly from  $7.27 \pm 2.97$  to  $5.15 \pm 2.33$  after watching the cardiac surgery orientation video. Although the mean anxiety scores for anaesthesia and surgery before the intervention seems to be below the generally accepted threshold for clinically significant anxiety (a cut off of 11 out of 20 on APAIS anxiety scale), it is possible that the education and counselling provided at various stages in the run up to the planned surgery such as during consultation by the cardiologist and the cardiac surgeon and then the standard verbal explanation and education session before showing the cardiac surgical orientation video, would have helped reduce the patient anxiety level. It would have been ideal if a baseline score on APAIS would have been obtained even before the standard verbal education.

Coinciding with studies that used APAIS questionnaire to assess anxiety level and need for preoperative information<sup>15,19</sup> our study found a positive correlation between preoperative anxiety levels and knowledge requirement.

When compared in terms of Information Desire (ID), the mean score showed a decrease

from a value of  $3.96 \pm 2.01$  before intervention to  $2.60 \pm 1.51$  after intervention.

It is difficult to compare the results of study with the earlier studies carried out in various parts of the world due to variation in methodology. However broadly, most studies on the subject found patient training and using video interventions and information booklets effective in reducing preoperative anxiety. A similar study used a video for educating patients undergoing cardiac catheterization and found significant improvement in the patients' anxiety levels<sup>20</sup>.

Ruffinengo *et al*<sup>21</sup> found that use of training films on the patients' anxiety undergoing angiography significantly reduced patient anxiety and increased their satisfaction level, especially in the cardiovascular wards. Similarly, to establish the effect of training on anxiety of patients undergoing cardiac surgery, Nelson<sup>22</sup> found out that the level of anxiety reduced in 86% of the patients after preoperative training. These findings are similar to our study that showed significant reduction in patient's anxiety about anaesthesia and surgery after watching the cardiac surgical orientation video.

In a study conducted in Turkey by Celik and Asilioglu<sup>23</sup>, with the purpose of evaluating the effect of preoperative training on anxiety of the patients undergoing open heart surgery, the results did not show significant differences between control and experimental groups' anxiety scores. However, the study found that the use of training booklet was an effective tool for communication and training the patients and their family to care for themselves and manage their anxiety.

Taking into account the patient's preoperative fears and anxieties, is of fundamental importance in the quality of anaesthetic and surgical care. The patients who are anxious need to be intervened before and after the surgery to reduce the morbidity and mortality. The routine evaluation and effectively addressing the preoperative psychological distress may facilitate early postoperative recovery. Using a simple and easily

administered patient rated questionnaire such as APAIS can help identify those patients who are anxious and have expressed high information desire. That would enable the clinicians involved in care to focus additional resources on those patients and provide further psycho education including a cardiac surgical orientation video in order to allay their anxieties and fears and providing opportunity to ask if any further questions. The interventions to reduce preoperative anxiety may include developing good rapport and doctor patient relationship, education, using a selective serotonin reuptake inhibitors (SSRIs) if anxiety symptoms are part of a broader clinical anxiety disorder and short term use of benzodiazepines. Early intervention in postoperative period given to patients with evidence of psychological distress may offer reduction of hospital length of stay, analgesic use, and postoperative morbidity and help patients to adopt more effective coping strategies in their everyday lives<sup>24</sup>.

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### CONCLUSION

The study established decreasing anxiety and reducing the need for further information in patients scheduled to undergo cardiac surgery with the help of the orientation video, over and above the standard education about the anaesthesia and surgery. This was a small cross-sectional study and the findings need to be interpreted with caution and confirmed through larger sample size. Preoperative anxiety can be often overlooked but it is associated with poor outcomes. APAIS can be a useful and easy to administer questionnaire to measure preoperative anxiety and information need in routine cardiac surgical practice. Preoperative education and appropriate information regarding anaesthesia and surgical procedure verbally, and through audiovisual aids such as a video, may help in reducing preoperative anxiety and improving the quality of care.

### CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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