

The Effects of Educational Video on Preoperative Anxiety Level among Surgical Patients of a Private Hospital

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ABSTRACT

Surgical patients usually demonstrate fear towards anaesthesia and surgery throughout the hospitalisation. The management and assessment of anxious surgical patients are considered challenging tasks and require constant attention and reassurance from healthcare providers. Preoperative patient education has been a gold standard of nursing practice to reduce patients' anxiety for the past few decades. The study aims to assess the effectiveness of preoperative educational videos in reducing the patient preoperative anxiety level. A quantitative, quasi-experimental research design was used, and a purposive sample of 152 participants was recruited and divided equally into intervention and control groups. The selection of patients fulfilled inclusion criteria of adult patients who undergo general anaesthesia or spinal anaesthesia with elective surgery and can read English or Malay. The researcher developed a validated preoperative educational video. The intervention group had access to preoperative educational video for the preoperative education, and the control group used the existing preoperative counselling checklist. Upon admission, both groups were assessed for preoperative anxiety level using the Amsterdam Preoperative Anxiety and Information Scale (APAIS) as a pre-test to record the baseline preoperative anxiety level. The same group of patients had a post-test rating of anxiety level before sending to the operation theatre. The researcher used descriptive and inferential statistics to analyse the result. Results revealed that 47.4% (72) patients experienced preoperative anxiety ($M=14.13$). The female presented more anxiety ($M=11.05$) compared to the male patients ($M=10.07$). The patients showed their need for information ($M=5.71$). The study revealed that patients' preoperative anxiety levels reduced after the preoperative educational video. The provision of preoperative educational video can reduce the patient preoperative anxiety level. The enhancement of improvising the video to Multilanguage and extended to an application will benefit more patients.

Keywords

Preoperative education, Preoperative anxiety, Video, Patient, Surgery.

Introduction

The majority of surgical patient's experiences anxiety regarding the surgery and related care. Many studies have shown the effect of anxiety on the human body. Patients mostly experience anxiety when the doctor informs them of the surgery and when they step

into the hospital for the surgical procedure [1]. The effects of anxiety should not be neglected because anxiety can influence the patient's physiological function by causing an increase in pulse rate, blood pressure, and temperature, along with a heightened sense of touch, smell, or hearing. Patients who undergo surgery are routinely assessed for physical fitness before the surgery by the healthcare team. However, their psychological preparedness is much more essential to be overcome by providing information about the surgery and its implications for reducing their anxiety

and fears [2]. Management of anxious patients is considered a challenging task and requires constant attention and reassurance from health care providers. Hence, preoperative education is a vital nursing practice in a surgical setting for patients undergoing surgery. Preoperative education is a process where the health care professional provides the patient with information interrelated with health-related issues and psychosocial support in preparing them for surgery [3]. Preoperative education has shown evidence supporting a better recovery rate and reduced hospital length of stay. In addition, preoperative preparation is standard practice for nurses who work in the surgical setting. It is an essential responsibility of nursing care to deliver to patients [4].

Background

The hospital in which the study was conducted performs a substantial number of surgeries every year. The number of cases ranges from 464-635 every month. The surgical ward itself handled 225-352 surgeries every month in 2018, and other surgical cases were from the different multidisciplinary units of the hospital, including ambulatory care settings. The organisation policy is that every patient who undergoes surgery must have preoperative counselling using a preoperative counselling checklist. A registered nurse must spend at least 15 minutes conducting a counselling session for patients admitted for surgeries. The contents of preoperative counselling are based on the nurse's own best description, knowledge and experience. The preoperative counselling checklist is brief and straightforward and includes anticipated care or preparation for a specific operation. With the increase in hospital accreditation standards and requirements, registered nurses have more responsibilities besides delivering preoperative patient counselling. Lack of sufficient time and resources has resulted in an inability of registered nurses to deliver appropriate and effective preoperative education to all patients undergoing surgery. Occasionally, the registered nurse even completed the checklist without adequate explanation to patients.

An informatics counselling session will reduce the patient's preoperative anxiety level and improve overall outcomes of surgery. Poor psychological preparation for surgery patients will elevate their preoperative anxiety level and probably impair their recovery process [5]. Many research studies have proven that preoperative patient teaching can enhance patient recovery. Preoperative teaching is to be given as early as the consultant arranges the surgery [6]. Patients can anticipate the pre and postoperative events in advance, which can speed up their recovery post-operatively. The consequences of not providing the patient with proper preoperative education may result in increased patient's preoperative anxiety levels and possibly contribute to various complications such as prolonged hospitalisation and delayed wound healing. Therefore, it is significant to anticipate this problem by providing a structured preoperative education program for surgery patients.

Preoperative anxiety is a significant problem causing patients who undergo surgery to affect their emotional and physical status [7]. Therefore, healthcare providers need to identify the fear and

anxiety that affect the patient's preoperative anxiety level. It can be related to a lack of adequate information either on anaesthesia or surgery. An assortment of preoperative patient educational strategies are presently used to educate patients. The common strategies are face to face instruction, demonstrations, printed materials and videotapes [8]. Hence, with ongoing advances in computers and technology expanding, the patients' learning needs and preferences have become more significant. Patients are also more knowledgeable due to the availability of easy internet accessibility, and most patients have become comfortable with a wide range of freely available educational resources regarding surgical procedures and care.

In general, most literature reviews highlighted that preoperative education using video presentation was more effective in knowledge retention than another type of presentation [9]. In addition, the theory of multimedia principle in multimedia learning that people's learning ability has improved in using words and pictures rather than solely words [10]. Video-assisted preoperative education programs are considered an effective preoperative education delivery method. It can enhance patients coping with preoperative anxiety, improve postoperative outcomes, and boost overall satisfaction [11, 12, 13]. The researcher strongly believes that preoperative educational video during preoperative counselling helps reduce the gap of knowledge deficit of a patient in preparing for their surgery. Based on the current practice, there is no well-designed and structured preoperative educational program using video presentation available to the patients in the study settings. The situation provided an excellent opportunity for the researcher for quality improvement intervention and the challenge of developing a structured preoperative patient education video to boost patients' knowledge of preoperative preparation.

Methodology

This study adopted a quasi-experimental design. The pre-test and post-test were conducted for both control and intervention groups. The intervention group had a preoperative educational video to assist in the preoperative education. Conversely, the control group had the existing practice of preoperative education using the preoperative counselling checklist. This study conducted pre-test and post-test for both the control and experimental groups to determine patient anxiety level changes before and after the intervention.

Populations and Sampling

The study setting was at the surgical ward of the hospital, located at level six of the inpatient building. The surgical ward consists of 63 beds mixtures of single, double and four-bedded rooms. The unit is catering specifically for adult patients, mainly for surgical cases, but not limited to another discipline especially medical cases when the patients are overflowed at the medical ward or general ward. Overall, the Surgical units admitted large volumes of surgeries cases, and common surgery cases were from general surgery, ENT, Orthopedic, urology and neurosurgery.

The determination of sample size using the Krecie-Morgan formula

has identified 152 samples. The samples were divided equally into 76 participants for both the intervention and the control group [14]. The sample selection was based on patients who fulfilled the inclusion criteria and were admitted to the surgical ward for scheduled operation. The inclusion criteria were adult patients who underwent general anaesthesia or spinal anaesthesia with elective surgery and can read English or Malay. The researcher surveyed the participants in the control group with the desired sampling size first. Once the control group sampling size achieved the target, the researcher moved to intervention group sampling. The researcher did not collect both samplings simultaneously to avoid misunderstanding among both groups of patients.

Research Instruments

The researcher used the Amsterdam Preoperative Anxiety and Information Scale (APAIS) to determine the patient's preoperative anxiety level in this study. The questionnaires had six self-reported questions with three subthemes related to preoperative anxiety. The subthemes were anaesthesia, surgery (questions 1, 2, 4, and 5) and need for information (questions 3 and 6). APAIS is an easy, fast and validated tool with Cronbach's α of above 0.70 of its reliability. Cronbach's alpha of 0.86 was reported for the four anxiety-related items related to anaesthesia and surgery (questions 1, 2, 4, 5). The scale for information need (question for items 3 and 6) reported a Cronbach's α of 0.72 [15]. The researcher used a five-Point Likert's scale questionnaire with the value of 1= 'not anxious at all, and 5= 'extremely anxious' as a data collection tool. A cut-off score of 11/20 and above represent patients with preoperative anxiety for this research purpose [15]. The APAIS questionnaires in both English and Malay versions were used for this study. The researcher has tested the internal consistency of the APAIS instrument. The values of the Cronbach alpha in English for the anxiety scale was 0.71 and 0.80 for information needs. Furthermore, with the Malay APAIS, the Cronbach alpha was higher, with 0.95 for the anxiety scale, and the information needs had a Cronbach's score of 0.97.

Research Procedure

The researcher developed preoperative educational videos as part of the research process. The researcher worked with the hospital's Public Relations department and Information Technology teams to develop copyright preoperative educational videos for the hospital's surgical unit. The development of the educational video considered contents' relevancy, which suits the local settings and preferences. Permission was obtained from the Chief Executive Officer as part of the ethical clearance process. The contents of the preoperative educational video are based on study guides reported by several researchers, which helped develop a comprehensive informatics teaching program [5, 12, 16, 17, 18]. Nine content experts validated the preoperative educational video, and the content validation index (CVI) was calculated. The result of the CVI calculation has achieved a 0.96 rating which indicated excellent content validity.

Data Collection Process

The data collection consisted of pre-test and post-test for both the control and the intervention group. The data collection for the

control group was from October 2020 to November 2020, whereas the data collection for the intervention group was conducted from November 2020 to December 2020. The pre-test was administered from the time a patient was admitted to the surgical ward for the surgery. Patients are usually admitted to the ward one day before surgery, and data collection starts at that point. The study Patients had been informed of the survey purpose, and informed consent was obtained before participating in the research study.

The researcher administered the APAIS questionnaire as a pre-test for the intervention and the control group. After the pre-test, the intervention group was provided with a preoperative educational video to watch. The duration of the video was approximately 15 minutes. Patients were advised on how to access and watch the video. They were encouraged to ask any question if they were in doubt. Conversely, the control group continued to receive the preoperative counselling using the preoperative checklist. The APAIS questionnaire for the post-test was administered to the intervention and the control group on the day of surgery before sending patients to the operating theatre.

Data Analysis and results

A total of 152 surveys were conducted to the eligible participants for the study. The participants have completed their survey questionnaires, which indicated a 100% response rate for the study. Data analysis was conducted using SPSS software version 25.0. Descriptive statistical analyses like frequencies and percentages were used to analyse the demographic variable. The inferential statistic was used to investigate any correlation between demographic variables and patient preoperative anxiety level. The researcher also correlated the preoperative anxiety levels for both the intervention and the control group.

Table 1 displays the overall patient preoperative anxiety level of both the intervention and control groups. The minimal score was 4, and the maximum score was 20. The mean score for preoperative anxiety level was $M=10.47(SD\ 4.23)$.

Table 2 shows the preoperative anxiety levels. The findings revealed that 72 patients (47.4%) scored more than 11 ($M=14.13$). The findings also revealed that 80 patients (52.6%) rated not having preoperative anxiety levels with scores less than 11 ($M=7.16$).

Table 3 shows that the age group 30-49 years old reported the highest anxiety ($M= 11.01, SD\ 4.38$), followed by patients aged 18-29 years old ($M=10.44, SD=4.36$). The female patients reported higher preoperative anxiety ($M=11.05, SD\ 4.0$) than males ($M=10.07, SD=4.36$). The patients who underwent the first-time surgery recorded higher preoperative anxiety levels of $M=12.27, SD=4.15$, than those who were not first-time experiencing operation ($M=9.41, SD=3.93$). The type of operation has not shown significant differences in mean scores for each group with a minor operation ($M=10.45, SD=4.25$), intermediate operation ($M=10.49, SD=4.3$) and major operation ($M=10.46, SD=4.24$). The level of education did not contribute much difference in anxiety mean scores. The patients with primary education scored

the lowest (M=9.93, SD=3.75) anxiety. Contrarily, the secondary level (M=10.39, SD=4.20) and University level educated recorded slightly higher anxiety (M=10.71, SD=4.45).

Table 4 shows a significant difference in pre-test and post-test mean scores of both control and intervention groups. The finding is significant at $p = 0.000$, $t(151) = -26.83$. The pre-test preoperative anxiety for the control and intervention groups was $M=10.46$ ($SD=4.23$). While, the post-test means for both control and intervention group preoperative anxiety was low ($M=8.82$, $SD = 3.68$). There is a significant difference in the finding $p = .000$, $t(151) = -23.69$.

Table 5 shows the information needs of the participants. The pre-test means the score was ($M = 5.71/10$, $SD = 2.31$), meaning patients needed more anaesthesia or operation. In contrast, the mean score for post-test has shown a slight decline ($M = 4.77/10$, $SD = 2.12$).

Table 6 shows the control group mean scores for pre-test ($M = 5.43$, $SD = 2.31$) and post-test ($M = 5.55$, $SD = 2.28$). There is no significant difference in the pre and post need for information of the control group participants with $p = .131$, $t(150) = -1.52$. On the other hand, the intervention group recorded the mean score of pre-test $M = 6.0$, $SD = 2.29$ and post-test $M = 3.99$, $SD = 1.61$ with the significant result of p value of $.000$, $t(150) = 4.88$.

Table 1: Overall patient preoperative anxiety level (control and intervention group) N=152.

	Minimum	Maximum	Mean	Std. Deviation
Overall patient preoperative anxiety level	4	20	10.4605	4.23308

Table 2: Patient with and without preoperative anxiety level (N = 152).

	Frequency	Percentage	Mean
Preoperative anxiety level ≥ 11	72	47.4	14.13
Preoperative anxiety level < 11	80	52.6	7.16

Table 3: Mean scores of the demographic characteristics for the preoperative anxiety level (N=152).

Demographic	Characteristic	Mean	N	Std. Deviation
Age	18-29	10.44	27	4.36
	30-49	11.01	68	4.38
	50-69	9.79	52	3.89
	70-89	10	5	5.15
Gender	Male	10.07	91	4.36
	Female	11.05	61	4
First time of operation	Yes	12.27	56	4.15
	No	9.41	96	3.93
Type of operation	Minor	10.45	100	4.25
	Intermediate	10.49	39	4.3
	Major	10.46	13	4.24
Educational level	Primary	9.93	15	3.75
	Secondary	10.39	82	4.2
	University	10.71	55	4.45

Table 4: Compare pre- and post-preoperative patient anxiety levels between control and intervention groups (Paired T-test).

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1	Pre-test for control and intervention group	10.46	4.23	-26.831	151	.000
Pair 2	Post-test for control and intervention group	8.82	3.68	-23.698	151	.000

Table 5: Patient needs for information (N= 152).

	Min	Max	Mean	Std. Deviation
The patient needs information (Pre-test)	2	10	5.71	2.31
The patient needs information (Post-test)	2	10	4.77	2.12

Table 6: Comparison of pre and post-test of patient needs for information in control and intervention group (independent T-Test).

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test of patient needs for information	Control	5.43	2.31	-1.517	150	.131
	Intervention	6.00	2.29			
Post-test of patient needs for information	Control	5.55	2.28	4.884	150	.000
	Intervention	3.99	1.61			

Table 7: The difference between pre-test and post-test of preoperative patient anxiety level in the intervention group (Independent T-test).

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pre-test patient preoperative anxiety level	Control	9.25	4.17	-3.668	150	.000
	Intervention	11.67	3.97			
Post-test patient preoperative anxiety level	Control	9.55	4.27	2.490	150	.014
	Intervention	8.09	2.82			

Table 7 revealed a significant difference in the mean pre-test anxiety scores of the control and intervention group with a p-value = .000 and post-test anxiety scores significance of p value = .014.

Discussion

The overall mean score for the preoperative anxiety level recorded at $M = 10.46$ does not justify patients presenting significant preoperative anxiety levels. The cut-off level recommended by the original researcher of the APAIS tool was 11/20 [15]. Thus further computation of preoperative anxiety levels was categorised into ≥ 11 and < 11 . The findings show that 72 patients (47.4%) scored a mean score of 14.12 for the item preoperative anxiety. Similar findings reported in a cross-sectional study at the Medical faculty of Marburg University indicated the same finding of 40.5% demonstrated preoperative anxiety [19].

The study findings highlight that the rate (81%) of patients experiencing preoperative anxiety is high [20]. Another cross-sectional study conducted among 353 surgical adult patients in Debre Markos and Felege Hiwot referral hospitals, Northwest Ethiopia Henok, revealed 61% of the patients experienced preoperative anxiety [21]. Preoperative anxiety existed as early as 1996 when screening tools of APAIS was developed in the preoperative phase found 32% of patients were informed they were in the anxiety stage before the operation [15].

A meta-analysis study highlighted the prevalence of preoperative anxiety globally. The study showed that preoperative anxiety was prevalent among 48% of surgical patients [22]. The findings urge each healthcare provider's policymaker to seriously look into this issue in improving care during the pre-anaesthetists visit, pre-consultation with a surgeon and enhance the quality of the preoperative educational program [22].

Most of the participants (62%) were less than 49 years old in the study, and preoperative anxiety levels ranged from 10.44 to 11.01. Preoperative anxiety was mainly related to anaesthesia (62%) compared to 15% anxiety related to the surgical process itself [20]. The study determined that female patients are more anxious ($M = 11.05$) than males ($M = 10.07$). A similar study determined that females experience higher preoperative anxiety levels than males. The result shows females had higher anxiety (105.55) compared to males (86.13), $p < 0.05$ using the STAI scale [23].

The study revealed that patients who underwent first-time surgery experienced higher preoperative anxiety than those who had already previous surgical experience. The finding indicated a mean of 12.27 for patients without previous operations, while those who have repeated operations rated the mean of 9.41. This was supported with the significant correlation of $r = -.327$, $p = .000$.

A similar result documented a lower mean score of 8.6 compared to the patient who had no surgery experience ($M = 10.1$) [24]. The type of surgery and educational level of the participants in this study did not significantly change patient preoperative anxiety level. Similar studies were found congruent with the findings of this study [7,23,25].

The study revealed that the information needs scored a mean of 5.72 indicated patients' desired information. The demographic status for information needs revealed that patients who had no previous surgery had more information needs than those with previous surgical experience [7]. University level educated patients had a greater desire for the information needed. This could be due to higher education having the ability to access more information from various sites; more information might create more worries toward the surgery [7].

A prospective, randomised, non-blinded pilot study was conducted among 20 adult patients using a visual analogue scale (VAS) [26]. The result showed a reduction in patient preoperative anxiety level after an instructional video was given to the patient before the surgery (median reduction two vs 0, $p = 0.020$). A similar study investigated 100 patients on the effect of watching a video of anaesthetic information on patient anxiety levels [27]. Results revealed that the experimental group who watched the video rated a lower score of 42.9 ± 6.5 compared to the control group 45.0 ± 12.7 using the STAI tool. Besides reducing preoperative anxiety levels, patients have expressed satisfaction with the video presentation in the experimental group ($P < 0.05$).

In addition, multimedia presentation improved patients' satisfaction and reduced their preoperative anxiety. Results showed lower STAI 42.6 ± 5.1 in the experimental group compared to the control group 43.1 ± 4.9 , and 74% of the patients commented positively on the video presentation [28]. Overall, the preoperative education video proved the encouraging effects on surgical procedure patients with countless evidence-based research studies.

Implications

The study determined that surgical patients are anxious and require structured preoperative education programs before operation. Therefore, the hospital self-developed preoperative educational videos that benefited the patients and prepared them ahead of the surgery. Structured preoperative preparation can reduce post-op complications, enhance the patient recovery process and improve patient's satisfaction towards the organisation. The use of preoperative educational videos can help nurses save time in delivering preoperative counselling. The video is more structured and more comprehensive compared to the existing counselling

method. The organisation is accredited by Joint Commission International (JCI) and the Malaysia Society for Healthcare (MSQH). These two quality awards have advocated that patients receive accurate information. The preoperative educational video is adequate in providing the patient with adequate information. Patients will be more confident and well prepared for the upcoming surgery. The study setting is the first hospital within the private network to offer this meaningful video for patients, improving the teaching delivery method.

Limitations of the Study

The study was conducted in one hospital setting only. Although adequate sample size was recruited, the study findings are not generalisable. Furthermore, the study was only conducted at the surgical ward, but surgical patients are admitted to other wards based on their preference of ward. Furthermore, paediatric and gynaecological operation samples might demonstrate a different preoperative anxiety level than solely surgical patients and was not included in the study.

An added limitation of the sample is the homogeneity of the population. All five demographic variables were unequal in the group. The age group included in this study was between 30-69 years old, and very few samples were from 70 years and above. In terms of gender, male patients were more than female patients. For the patient who had surgery before and not at all, the distribution is also unequal. Type of operation influenced patients' preoperative anxiety level, and our study did not filter the surgical procedures following the discipline but only categorised procedures into minor, intermediate and major.

The preoperative educational video in English may not benefit all the surgical patients admitted to the study settings. Patients who cannot read English may be experienced more anxiety and need more information to prepare them for surgery. This limited ability to generalise our conclusions to patients who did not understand English.

Recommendation

A multi-centred study involving other hospitals will help to generalise the study findings. Moreover, the recruitment of more homogenous samples can result in more accurate findings. Malaysia is a multiracial country. To use the preoperative patient educational video effectively, it is recommended to translate it or have subtitles in commonly used Malaysian languages like Malay, Mandarin, and Tamil. Furthermore, it is suggested that in future, for the Information Technology team of the hospital to improvise the video into an application that will enable all types of surgeries, procedures and types of anaesthesia where the patient can easily choose to view. The introduction of structured patient educational programs will make the organisation more competitive with other healthcare providers.

Conclusion

Preoperative anxiety is a common problem faced by surgical patients during the operation. It is challenging to overcome, and

postoperative complications may arise if this issue is not treated. To handle preoperative anxiety efficiently, patients who undergo for operation must be assessed on their preoperative anxiety level. The researcher can assess patient preoperative anxiety and needs for information from the research findings. The patient's preoperative anxiety level and information needs were determined in this study. The finding concluded that having a hospital validated preoperative educational video reduces the patient's preoperative anxiety level and help meet the information needs.

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