



THE INFLUENCE OF SMART VISUAL EDUCATION BASED ON DOROTHEA OREM'S SELF-CARE THEORY ON ANXIETY LEVELS

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ABSTRACT

Anxiety is a feeling of discomfort, worry, fear, and tension. This response is a physiological response to external or internal stimuli that can cause behavioral, emotional, cognitive, and physical symptoms. Anxiety in patients starts from the moment the patient receives a surgery schedule. If the patient continues to feel anxious while the operation is in progress, this can disrupt the operation process because a tense patient can increase the heart rate which can affect the patient's blood pressure and breathing. This study aims to determine the effect of educational videos on anxiety in surgical patients. The research uses a quantitative research design with a quasi-experimental research design (pretest-posttest with control group design). There were 66 street children as respondents consisting of 33 control group respondents and 33 treatment group respondents. Respondents were determined using affordable population techniques. The independent variable is smart visual education based on Dorothea Orem's self-care theory and the dependent variable is anxiety level. Data was collected using a questionnaire and analyzed using the independent t-test with a significance level of $p < 0.05$. The instrument used was the Amsterdam Preoperative Anxiety and Information Scale (APAIS) Questionnaire. There is a significant relationship between respondents' anxiety levels in the pretest and posttest results ($p = 0.000$) in both the control group and the treatment group. However, there was no significant difference in the delta of respondents' anxiety levels in both the control and treatment groups. Smart visual education based on Dorothea Orem's self-care theory influences reducing the anxiety level of patients who will undergo surgery with SAB regional anesthesia.

Keywords: anxiety level; SAB regional anesthesia; selfcare dorothea orem; smart education

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INTRODUCTION

Anxiety is one of the most common psychological responses in pre-operative patients. Mentally, patients who will face surgery have anxiety and fear of injections, wound pain, anesthesia, and even the possibility of disability or death (Apriansyah *et al.*, 2015). This response is a physiological response to external or internal stimuli which can cause behavioral, emotional, cognitive, and physical symptoms (Găină *et al.*, 2022). Anxiety in patients begins to arise from the moment the patient receives a surgery schedule, meanwhile, if the patient continues to feel anxious while the operation is in progress, this will disrupt the operation process because a tense patient can increase the heart rate which can affect the patient's blood pressure and breathing. Feelings of anxiety in patients with SAB regional anesthesia can occur because the patient is conscious so the patient can imagine what is being done to him during the operation (Arwani *et al.*, 2013 in Octaviani, 2019). This anxiety can

affect the dose of anesthetic drugs, increase pre-anesthesia basal metabolic rate, and increase pain sensitivity (Masdin, 2010 dalam Waryanuarita *et al.*, 2018). Giving large doses of this drug can also increase complications during surgery and disrupt the process of recovering consciousness after anesthesia (Orliaguet *et al.*, 2017). So pre-anesthesia and pre-operative education need to be carried out to keep the patient's anxiety and vitals stable during and after the operation. The results of the study stated that education affected the patient's preoperative anxiety level. Apart from information provided to patients by surgeons or anesthesiologists, information obtained from the internet causes a decrease in anxiety related to surgery but does not affect the desire for information, so medical personnel are expected to be able to provide sources of information that patients can access repeatedly (Tulgar *et al.*, 2017).

According to Christantie Effendy, 90% of patients who undergo surgery have the potential to experience anxiety (Direktorat Jenderal Pelayanan Kesehatan, 2022). The results of research in 2017 on pre-operative patients at Tertiary Care Hospital Africa showed that of the 140 respondents, 22 people (15.7%) experienced low anxiety, 103 people (73.6%) experienced moderate anxiety, and 15 people (10.7%) experience high anxiety (Ramesh *et al.*, 2017). According to Arifah and Trise in 2012, at the Sleman Regional General Hospital, it was found that 54.8% of the 31 respondents were pre-operative patients who experienced anxiety, patients stated that the causes of anxiety included: lack of knowledge about surgery, fear of the situation in the operating room, as well as risks after surgery (Hawari *et al.*, 2019). Research conducted at William Booth Hospital Surabaya on pre-operative patients with spinal anesthesia found that out of 17 respondents, 8 respondents (47%) had mild anxiety and 9 respondents (53%) experienced moderate anxiety (Tj *et al.*, 2022).

Patients who have been scheduled for surgery experience varying levels of anxiety due to factors such as cultural diversity, type of surgery, previous anesthesia experience, and preoperative information (Bailey, 2010). In the preoperative phase, the patient's anxiety level begins to increase, especially in patients who have never experienced surgery. This event is the most common thing experienced by surgical patients due to several psychological and physiological impacts during the preoperative phase (Woldegerima *et al.*, 2018). Research by Arini (2018), shows that someone who experiences anxiety causes blood pumping to the heart to increase so that the heart works faster and causes blood pressure to increase. Anxiety will cause a "fight or flight" response. Flight is the body's isotonic reaction to avoid, where there is an increase in the secretion of adrenaline into the blood circulation which will cause an increase in heart rate and systolic blood pressure, while the fight is an aggressive reaction to attack which will cause the secretion of noradrenaline, renin-angiotensin so that blood pressure increases both systolic and diastolic. Research also states that the anxiety that appears in the preoperative period influences the increase in catecholamine release in patients which results in increased blood pressure, heart rate, and arrhythmias. If the patient's anxiety is not resolved, it will worsen the disease and have a bad effect on physiological parameters during anesthesia, and after surgery and the recovery phase will be disrupted after surgery (Guo *et al.*, 2012).

Anxiety in patients can be overcome using pharmacological and non-pharmacological methods. The pharmacological method is by providing medication, while the non-pharmacological method is by providing peri-operative counseling. Perioperative nursing is the initial stage or foundation for success in the intra- and post-operative phases. In the preoperative phase, individuals make preoperative preparations, one of which is psychological preparation or teaching: perioperative (NIC, 2016). Research in 2017 stated that psychological preparation before surgery had the effect of optimizing perioperative management and

surgical results in the following phase. Providing education is an act of providing health education that needs to be provided so that patients can obtain clear information and the patient's feelings of anxiety can be reduced. Activities providing education such as anesthesia procedures before surgery can create a state of mutual trust, caring, or empathy, accompanying patients according to their needs to increase their sense of security and safety and reduce feelings of anxiety or worry (Mustofa et al., 2023). Using communication that is easy for the patient to understand can help the patient to be able to determine situations that can cause anxiety and signs of anxiety about the procedure they are going to undergo. Providing sufficient information during the pre-anesthetic interview can help increase patient understanding and reduce anxiety associated with spinal anesthesia (Cakmak et al., 2018).

Therefore, it is necessary to carry out research related to the effect of smart visual education based on Dorothea Orem's self-care theory on anxiety levels in patients with pre-SAB regional anesthesia in all types of operations that will use SAB-type anesthesia. If there is a significant relationship with the use of this educational video, then this method can be included in educational intervention efforts for pre-regional SAB anesthesia patients who will undergo surgery to reduce the patient's anxiety level. In this study, researchers used self-care theory which was adapted from Dorothea Orem's theory which explains that individuals can take care of themselves. In this study, individuals are expected to be able to control their thought patterns, feelings, and body responses to stressors that occur to them, namely the anesthesia process. With SAB, and was able to control his anxiety during the operation process. This study used the Indonesian version of the Amsterdam Preoperative Anxiety and Information Scale (APAIS) questionnaire to assess preoperative patient anxiety levels and analyzed data using a quasi-experiment with pretest-posttest with control group design.

METHOD

This research is a quasi-experimental research with stage 1 being the preparation of the video and stage 2 being the provision of education according to the video that has been made to predetermined respondents. In stage 1 of the research, the stages are literature study, video compilation, and expert consultation. In preparing the educational video, the researcher consulted with experts in their field of expertise. The expert consultation consisted of doctors specializing in mental medicine to overcome the anxiety of respondents, from the hospital health education section (PKRS) which was related to techniques in providing education to respondents, and from the field of Technology, Communication, and Information Installation (ITKI) RSUD dr. Soetomo which is related to the use of smart visual education. Then continued with stage 2 research using a quasi-experimental form with a control group design to test the videos that had been made. There were 30 respondents in the control group and 30 respondents in the treatment group. The inclusion criteria for this study were adult respondents aged 40 – 50 years, patients who were fully conscious and cooperative, and owned or could operate a smartphone (HP). Meanwhile, the exclusion criteria are patients who cannot see, patients who cannot hear, and patients with mental disorders. The dropout criteria are patients who withdrew from the research process and patients who did not undergo regional anesthesia (SAB). This research has received ethical permission from the Health Research Ethics Committee of RSUD Dr. Soetomo Surabaya with number 0731/KEPK/VII/2023.

RESULTS

Tabel 1.
Blood Pressure

Parameters	Control			Treatment		
	mean pre	mean post	Delta	mean pre	mean post	Delta
TD Sistolik	126.18	119.97	-6,21	122.45	115	-7,45
TD Diastolik	77.73	74.64	-3,09	79.73	78.45	-1,27
Heart Rate	92.21	90.79	-1,42	92.06	90.61	-1,45

Table 1, shows the mean values for vital sign parameters of respondents in the control group and treatment group during pre and post-education. Both groups showed a significant decrease in systolic blood pressure parameters, the treatment group showed that the change in systolic blood pressure was -7.45, which was greater than the average decrease in systolic blood pressure in the control group, which was -6.21. Diastolic blood pressure also showed a decrease after providing education, both smart visual education and education by hospital SPO standards. The treatment group showed that the decrease in diastolic blood pressure was -1.27, this was lower than the decrease in diastolic blood pressure in the control group, which was -3.09. Heart rate showed a decrease after providing education, but the decrease in the control group and treatment group was not significantly different namely -1.42 and -1.45.

Table 2.
Anxiety

Variable	Control Group				Treatment Group			
	Pre	%	Post	%	Pre	%	Post	%
Not Anxious	0	0	0	0	0	0	0	0
Mild Anxiety	0	0	0	0	0	0	7	21,2
Moderate Anxiety	0	0	19	57,5	0	0	21	63,6
Very Worried	33	100	14	42,5	33	100	0	0
Panic	0	0	0		0		0	0

Table 2, it is known that the number is the highest in the pretest results of the control group who received education by the standard SOP from the hospital, there were 33 respondents (100%) with severe levels of anxiety. The results of the posttest after being given oral education showed that the number of respondents with moderate anxiety was 19 respondents (57.5) and with severe anxiety there were 14 respondents (42.5%). Meanwhile, the results of statistical tests in the treatment group showed that in the pretest results, there were 33 respondents (100%) with severe anxiety. After being given treatment in the form of a smart visual education video, posttest results showed that the level of anxiety was 21 respondents (63.6) with mild anxiety, and 7 respondents (21.2%) with moderate anxiety. In the treatment group, 5 respondents dropped out because the respondents did not match the researchers' criteria. So the final result of respondents with treatment was 28 respondents (84.8%). The results of tests carried out using the Mann-Whitney test method showed that providing smart visual education had a greater influence on reducing the anxiety level of pre-regional anesthesia SAB patients compared to respondents who provided education by standard SOPs from the hospital. The results of statistical analysis show a significance level ($p=0.000$), which means there is a significant influence.

DISCUSSION

Visual education in the form of videos influences the anxiety level of surgical patients to decrease. The results of the research showed that respondents in the treatment group who had been given intervention in the form of smart visual education in the form of a video that was shown twice with a duration of 15 minutes, data was obtained that there was a decrease in the

respondents' anxiety level from previously at the level of severe anxiety to decreasing to the level of anxiety. medium and light. This is in line with research conducted by Sert, (2020) which shows that preoperative patients who will receive anesthesia with general anesthesia have been given education in the form of videos, showing anxiety scores that have decreased significantly compared to patients who received education not in the form of videos. The same results were also obtained from research conducted by Che dkk (2020), namely that providing education in the form of a video carried out 1 day before surgery was proven to reduce the anxiety of mothers in the treatment room who were about to undergo caesarean section surgery with spinal anesthesia. This shows that education carried out using audio and visuals in the form of videos can reduce preoperative patient anxiety.

The results of the study showed that all respondents in both the control group and the treatment group before receiving the intervention found that respondents experienced severe levels of anxiety. Based on the demographic characteristics of the respondents, namely age, education and occupation, the respondents did not have significant differences and the results showed that all respondents in both the control group and the treatment group experienced a decrease in anxiety levels to moderate and mild levels. However, different results were obtained on the parameters of systolic pressure, diastolic pressure and heart rate of respondents, which showed that before and after providing intervention, whether in the form of smart visual education or education according to hospital SPO standards, there was no significant difference. This is in line with research conducted by Baran et al., (2020) that respondents' predisposing factors such as age, gender, occupation, education, and previous history of anesthesia and surgery did not influence the difference in anxiety levels in the control group and the treatment group. This shows that changes in systolic blood pressure, diastolic, and heart rate in patients cannot determine the level of anxiety in patients, because changes in blood pressure and heart rate can be influenced by other factors such as age, gender, disease history, hereditary history, physical and psychological stress and diet.

The results of the study showed that providing education to preoperative patients with SAB regional anesthesia using smart visual education had a significant relationship with the patient's anxiety level with a very strong correlation with a negative or inverse relationship, which means that more and more respondents received education through smart visual education. the lower the level of anxiety experienced by the patient before undergoing surgery with SAB regional anesthesia. This is in line with research conducted by Cakmak et al., (2018) which was conducted on patients who were going to undergo cesarean section surgery, showing that the anxiety of patients who were going to undergo a spinal anesthesia procedure was found by respondents to have decreased significantly after providing an educational video related to the surgical procedure. In another study conducted by Sert, (2020) on patients who were going to undergo anesthesia with general anesthesia, results also showed that there was a significant reduction in anxiety in patients who received education via video with a higher score compared to providing education that did not use video.

From the results of research that have been carried out and several previous studies which were the source of this research, it was found that providing smart visual education to reduce the level of anxiety in patients who will undergo surgery using SAB regional anesthesia is effective in reducing. This research is in line with (Mayestika & Hasmira, 2021), video-based education can reduce the anxiety level of patients undergoing anesthesia. Video-based education contains guided visual and auditory images, so it is effective and interesting in providing information about pre-anesthesia to patients (Fajriani, 2019). Video-based education is education that uses visual and auditory images combined into one unit (Ulfah,

2021). Visual videos influence the patient's psychological condition through the visual and auditory attention cortex in the cerebral cortex which spreads to the limbic system. The cortex that surrounds the subcortical lymphatic structures as a transition through which visual and auditory signal impulses go to the hypothalamus will be forwarded to the reticular formation to the autonomic nerves. The nervous system will stimulate the hypothalamus to release Gamma Amino Butyric Acid (GABA), enkephalin and beta endorphin, thereby causing calm. The calm that arises will have the effect of reducing anxiety (Mustofa et al., 2023).

CONCLUSION

Smart visual education based on Dorothea Orem's self-care theory has a significant relationship with pretest and post-test results, respondents' anxiety levels decreased in the categories of mild anxiety and moderate anxiety. However, there was no significant difference in anxiety delta between the control group and the treatment group.

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