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Review Article: Systematic Review, Meta-Analysis, Integrative Review, Scoping Review

EFFECT OF AUDIO-VISUAL HEALTH EDUCATION ON PSYCHOLOGICAL DISTRESS OF PERIOPERATIVE PATIENTS: A SYSTEMATIC REVIEW

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Abstract

Background: Audiovisual health education for postoperative patients is a strategy used by health care providers to reduce psychological distress in postoperative patients. Health education improves the patient's adaptation to the anxiety associated with a surgical project.
Methods: This study was a systematic review study of 4 databases, namely Web of Science, PubMed, EBSCO Host, and Scopus, with keywords “Audio-Visual" OR "Health Education" AND "Psychological Distress" OR "Perioperative" OR "Surgery. The result followed the protocol and rules of Preferred Reporting Items for Systematic Review (PRISMA) and used JBI tools to assess the quality of articles to be analyzed. The inclusion criteria in this study were articles that taken in the last 5 years with the method of Randomized Control Trials (RCTs).
Results: The literature search resulted in 2324 research articles, of which 10 were included after multiple selections in the systematic review and were eligible for analysis. All 10 articles used the randomization comparison research method. Most of the articles showed a positive impact on perioperative patient anxiety either with audiovisual intervention alone or in combination.
Conclusion: It showed that health education with audiovisual assistance is one of the effective educational methods to increase knowledge to reduce perioperative patient distress. Therefore, audiovisual health education should be implemented to improve patient satisfaction and job effectiveness.

Keywords: *Audiovisual, Health Education, Psychological Distress, Perioperative*

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INTRODUCTION

Surgery is a potential or actual threat to a person's integrity and can subsequently cause physiological or psychological reactions (Muryunani, 2014). The psychological issue commonly experienced by patients before undergoing surgery is anxiety (Sari et al., 2022). The condition of anxiety will impact the postponement of surgery in pre-operative patients. (Chiu et al., 2023). In addition to causing the surgery to be postponed or cancelled, anxiety can increase the blood pressure of pre-operative patients (Sholikha et al., 2019). The current methods used to reduce

patient anxiety during the preoperative period primarily focus on pharmacological interventions (Yulianti & Mulyono, 2021) and reducing sympathetic nervous system stimulation and adrenaline hormone secretion, such as sweating, muscle tension, increased blood pressure, and palpitations (Yuli & Sari, 2019).

It was recorded in 2017 that there were 140 million patients in all hospitals in the world, while in 2019 the data increased by 148 million people, while for Indonesia in 2019 it reached 1.2 million people. According to WHO (2020) the number of clients undergoing surgery reaches a very significant increase every year. It is estimated that every year there are 165 million surgical procedures performed worldwide. It was recorded that in 2020 there were 234 million clients in all hospitals in the world. Surgery in Indonesia in 2020 reached up to 1.2 million people. Based on data from the Indonesian Ministry of Health (2021) surgery ranks 11th out of 50 disease treatments in Indonesia, 32% of which are elective surgery. The pattern of disease in Indonesia is estimated to be 32% major surgery, 25.1% experiencing mental conditions and 7% experiencing anxiety.

Preoperative education is the provision of information by nurses to patients and their families to reduce the anxiety of patients who will undergo surgery (Fatmawati & Pawestri, 2021). Education using audiovisual media contributes significantly to changing patient behavior, especially in the aspects of information and persuasion (Ranni et al., 2020). Research results indicate that audiovisual media, compared to written media, are better at conveying information. Additionally, audiovisual media have a motivational effect in the learning process (Kurnianingsih, 2019). Health education will be visualized and transferred through the optic nerve to the brain and the lower part of the autonomic nervous system. The sympathetic nerves from this part have an impact, one of which is influencing blood pressure. Furthermore, the cognitive subsystem is related to higher brain functions concerning perception or information processing, decision-making, and emotions (Nursalam, 2020)

Using audio-visual media shows that health education can be more effective. Based on the description above, the researcher wants to know whether health education with audiovisual media is effective in reducing the psychological distress of preoperative patients.

METHODS

Design

Systematic review, which is a comprehensive summary of several research studies determined based on a particular theme. The literature search was conducted from February 2024. The data used in this study is secondary data obtained not from direct observation, but obtained from research results that have been conducted by previous researchers. Secondary data sources obtained in the form of reputable journal articles both nationally and internationally with predetermined themes. Literature searches were conducted on the last 5 years of research 2019-2024 with 4 data bases namely *Web Of Science, Pubmed, EBSCO host, and Scopus* writing article results following protocols and rules with *Preferred Reporting Items for Systematic Review* (PRISMA).

The search for articles or journals uses *keywords* and *boolean operators (AND, OR NOT or AND NOT)* which are used to expand or specify the search, making it easier to determine the articles or journals used. The keywords in the *systematic review* adjusted to the *Medical Subject Heading (MeSH)* of the article were identified with keywords ("Audio-Visual" OR "Health Education" AND "Psychological Distress" OR "Pre-Operative" OR "Pre-Surgery") The article search strategy was carried out using the PICOT framework.

The search for articles with regard to several inclusion criteria, namely studies that review the effectiveness of health education with audiovisual media in patients over 18

years of age, undergoing major surgery or minor surgery, patients receive health education with audiovisual media regarding surgery, preparation for surgery, and postoperative rehabilitation with positive results and with a randomized control trial (RCT) or experiment design research design

Search Methods

Table 1. PICOT Framework

PICOS framework	Inclusion Criteria	Exclusion Criteria
Population	The study reviewed patients who underwent surgery in the preoperative phase, were >18 years old, received *health education* about surgery, and were hospitalized.	Studies that did not review patients undergoing hospitalization.
Intervention	Studies that examine health education interventions with audiovisual media or virtual reality provided to preoperative patients by nurses with health education content about surgery derived from health care provider content.	Research on non-audiovisual-based health education interventions
Comparator	No inclusion criteria	No exclusion criteria
Outcomes	A study describing an audiovisual health education intervention that impacted respondents' knowledge and reduced patients' stress, depression and anxiety.	Studies that did not address audiovisual-based health education interventions
Study design and publication type	Randomised control trials (RCTs), Experiment Design.	Review and analysis: literature review, systematic review, meta-analysis, crossover study, cohort study, and pre-experiment
Publication Years	2019 onwards	Before 2019
Language	English	Besides English

Search Outcome

Inclusion criteria in this study are, articles taken in the last 5 years with the method of *Rondomised control trials (RCTs)*. The purpose of this *study* is to examine the effectiveness of *audiovisual-based health education* on the psychological distress of preoperative patients in detail, the search results based on keywords and the selection carried out obtained 10 articles from 2324 articles that have been found.

Selection is done with PRISMA (Figure 1) according to the PRISMA guidelines. The first step after searching from 4 databases, the researcher found 2324 articles, which were then screened for duplication of articles through the Mendeley application, and then the researcher screened based on the title and abstract in accordance with the inclusion criteria that had been made by the researcher so that 24 articles were obtained. At the next stage, researchers screened based on the research design used in the article, where researchers set two designs that were included in the inclusion criteria, namely *randomized control trial (RCT)* and quasi-experiment, so that 14 articles were excluded. So that in this study 10 articles were used.

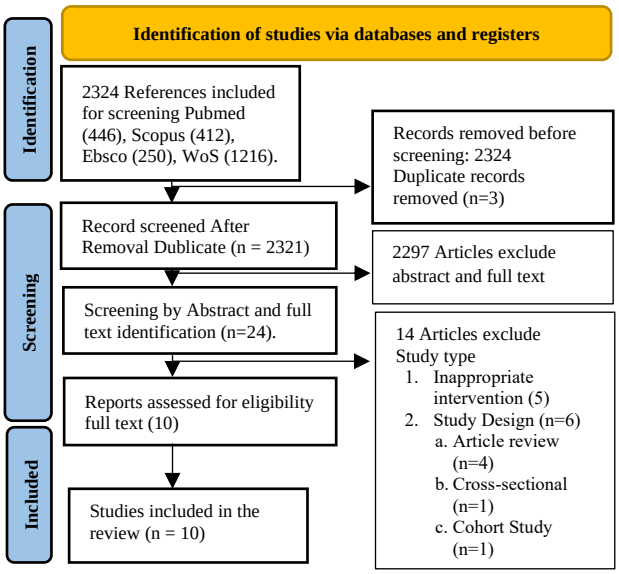

Figure 1. Prism Flow Chart

Quality Appraisal

To determine the bias of a study, The Joanna Briggs Institute (JBI) for Randomised Controlled Trials (RCTs) was used to analyse the quality of each methodology of each study (n=10) to assess the criteria using 'yes', 'no', or 'Not applicable' scores were then calculated and summed, to qualify 50% met the Critical Appraisal criteria with a cut-off point value agreed by the study researchers were included in the inclusion criteria.

Data Abstraction

Systematic Literature Review (SLR) is the term for the methodology used in this study. Systematic review research is a method designed to help achieve the best results by conducting a systematic literature review. After that, the literature is read, all existing data is analyzed, and based on the results of the analysis of existing data, a conclusion is drawn to describe the situation accurately, clearly, and relevantly.

Data Analysis/ Synthesis

The SLR method has three parts: first, we conduct research to find information; then, we apply the information; and finally, we review what we learnt from the information we found. To conduct literary research, there are three stages, including conducting an inquiry and identifying the research question; conducting research includes identifying the research question and sources, conducting research, collecting quality data, and Conducting data testing and final reporting.

RESULTS

Article Characteristics

The articles in this study consisted of articles that were in accordance with the exclusion criteria and inclusion criteria that had been determined in this study, with all types of research being quantitative types with the research design used randomised controlled trials totalling 10 articles. The articles used are articles with a range of publications from 2019 to 2023. The place of study in this research article consists of Hong Kong (2), United States (2), Turkey (1), Belgium (1), India (1), Iran (1), Guatemala (1), China (1), the Netherlands (1) Spain (1) and the Netherlands (1).

In terms of age distribution, audiovisual health education interventions can be conducted from 8-75 years of age, in accordance with the age frequency in all articles included in this systematic literature review, while the gender of respondents was almost half female 580 (48%).

While the frequency distribution based on the location of intervention delivery in this study is as follows administration in the patient's inpatient room (Wong et al. 2020), (Twibell et al. 2021) and (Mentor 2019). Delivery in the waiting room of the operating theatre (Rousseaux et al. 2022) and (Chiu et al., 2023).. Meanwhile, the place was not clearly written as many as 5 articles.

The results of the studies highlight how the use of educational media with the help of audiovisual media and virtual reality can contribute to improving the quality of health services. The interventions in this study had different durations. The duration of the intervention was less than 5 minutes in 5 studies, namely in the study (Twibell et al., 2021), (Mentor, 2019), (Karalar et al., 2023), (Abbasnia et al., 2023), (Toralla et al., 2022) with the shortest educational video with a duration of 2 minutes. There were 2 studies with a duration of 10 minutes, namely in the studies (Chiu et al., 2023) and (Kondylakis et al., 2022). Meanwhile, the duration of intervention for more than 10 minutes there were 3 studies, namely in research (Wong et al., 2020), (Rousseaux et al., 2022) and (M et al., 2020) with the longest duration of 30 minutes.

Table 2. Study Appraisal Results for Systematic Reviews Using the JBI Critical Appraisal Tools

Citation	Criteria													Results
	1	2	3	4	5	6	7	8	9	10	11	12	13	
(Wong et al. 2020)	√	√	√	√	√	√	√	√	√		√	√	√	12/13 (92%)
(Twibell et al. 2021)	√	√	√			√		√	√		√	√	√	9/13 (69%)
(Mentor 2019)	√	√	√	√	√	√	√	√	√	√	√		√	12/13 (92%)
(Karalar et al. 2023)	√	√	√	√	√	√	√	√	√		√	√	√	12/13 (92%)
(Rousseaux et al. 2022)	√	√	√			√		√	√	√	√	√	√	10/13 (77%)
(M et al. 2020)	√	√	√			√		√	√	√		√	√	9/13 (69%)
(Abbasnia et al. 2023)	√	√	√			√	√	√	√	√	√	√	√	11/13 (85%)
(Toralla, Jornet, and Pons-Fuster 2022)	√	√	√	√		√	√	√	√	√	√	√	√	12/13 (92%)
(Chiu et al. 2023)	√	√	√	√	√	√	√	√	√	√	√	√	√	13/13 (100%)
(Kondylakis et al. 2022)	√	√	√			√		√	√	√	√	√	√	10/13 (77%)

Table 3. Search Result Table

Author, Year	Sample Size and Design	Duration of Intervention	Results
(Wong et al. 2020)	Age 45-65 years. Patients with cardiac surgery totalling 438 respondents. Design:Randomised Clinical Trial	Health education with web-based audisovisual media for 20 patients in the patient's ward before surgery.	There was a significant intervention effect on the total amount of physical exercise, where the web-based eHealth education support intervention showed a significant increase that was intensive for 3 months.
(Twibell et al. 2021)	Age more than 18 years. Medical surgical patients totalling 124 respondents. Design:Randomised Clinical Trial	Health education with audiovisual media featuring real scenarios specially designed according to medical diagnoses for 3 minutes.	There was a significant increase in intention to implement fall prevention improvements in the intervention group, although the results were less significant than the control group.

Author, Year	Sample Size and Design	Duration of Intervention	Results
(Mentor 2019)	Age 18-65 years. Patients with preoperative dermatological surgery totalling 45 respondents. Design:Randomised Clinical Trial	Health education with video media combined with a 2-minute pre-consent consultation.	This study shows that health education with animated video media combined with consultation can reduce anxiety.
(Karalar et al., 2023)	The age of the respondents was more than 18 years old. Patients who will undergo intrarenal retrograde, totalling 60 respondents. Design:Randomised Clinical Trial	Preoperative education via audiovisual patient media with a 3-minute URS plan.	Showing preoperative information delivery through video significantly reduces anxiety levels in patients who will undergo intrarenal retrograde surgery compared to traditional verbal communication.
(Rousseaux et al. 2022)	Age 18-70 years. Patients who will undergo cardiac surgery totalling 100 respondents. Design:Randomised Clinical Trial	Health education with virtual reality media or virtual reality plus hypnosis conducted when the patient is in the waiting room of the operating room for 20 minutes.	The three intervention groups did not show significantly different results but the use of virtual reality in this study can be accepted and carried out in preoperative patients even though all respondents were in the elderly age range (63-68 years).
(M et al. 2020)	Age 30-75 years. Patients who will undergo coronary angioplasty totalled 40 respondents. Design:Randomised Clinical Trial	Audiovisual or video-assisted health education for 30 minutes in the preoperative period.	The results showed that teaching with the help of audiovisual media to patients who will undergo coronary abgioplasty is effective in increasing knowledge and preventing recurrence.
(Abbasnia et al. 2023)	Age 18-60 years. Patients who will undergo abdominal surgery totalled 144 respondents. Design:Randomised Clinical Trial	Health education using virtual reality technology was provided 2 hours before laparascopic cholestectomy and lasted for 5 minutes.	It was found that the use of virtual reality technology in health education reduced preoperative anxiety and postoperative pain in adult patients undergoing abdominal surgery.

Author, Year	Sample Size and Design	Duration of Intervention	Results
(Toralla et al. 2022)	Age more than 18 years old. Patients who will undergo oral biopsy totalled 120 respondents. Design:Randomised Clinical Trial	Patients were given a 2-minute preoperative informative video.	Research shows that providing informative videos before oral biopsy can reduce anxiety levels in patients.
(Chiu et al. 2023)	Age more than 18 years. Patients with elective surgery plans totalling 74 respondents. Design:Randomised Clinical Trial	Health education intervention with the help of virtual reality media is given when the patient is in the patient ward room or waiting room for the operating room for 10 minutes.	There was a significant reduction in preoperative anxiety, decreased stress and higher readiness with virtual reality-assisted health education. The level of satisfaction was also significantly increased in the intervention group compared to the control group.
(Kondylakis et al. 2022)	Age 8-65 years. Patients who will undergo surgery are 60 respondents. Design: Feasibility Randomised Clinical Trial	Health education is given to patients who will undergo surgery for 10 minutes	The results of health education with audiovisual media through digital applications have an effect on stress; anxiety and pain management.

Thus, it can be concluded that the use of audiovisual as a medium for health education in perioperative patients is effective in the range of duration of 2-30 minutes. While carrying out research with combined interventions there are 2 studies, with the results of virtual reality hypnosis (VRH) or combining health education with virtual reality media and hypnosis, showing its success in managing anxiety and pain in various medical contexts in intensive care and cardiac surgery patients (Rousseaux et al., 2022), and in other studies health education with animated video media combined with consultation can reduce anxiety (Mentor, 2019).

DISCUSSION

Audiovisual-based health education was taken as the topic of a systematic literature review to achieve an improvement in patient care, especially perioperative patients. In the face of planned surgery patients have different responses in general will experience psychological responses that must be addressed immediately to ensure patient care is not constrained. Negative psychological responses to surgery will have an impact on the patient's motivation and health status, which can affect the patient's health and delay the operation (Karalar et al. 2023)

This is in line with (Putri, Rezal, and Akifah 2017) audiovisual is an interesting media that will give confidence, so that cognitive affective and psychomotor changes can be accelerated. The senses of the eye channel the most information to the brain. So that audio visuals make it easier to convey, receive information or educational materials (Syafrudin 2021), when compared to written media it is better at conveying information, besides that audio visual media has a motivational effect in the learning process (Dame et al. 2022; Kurnianingsih 2019).

Health education aims to increase participants' knowledge which also has an impact on changing attitudes towards something. The delivery of health education cannot be separated from the help of media to increase the capture of participants in health education. Educational media in the form of booklets and leaflets that are commonly given have proven to have no consistent effect in providing information. Audiovisual media-based education has been shown to be effective in increasing attention, ability to explain and good memory retention in patients because educational content is delivered simultaneously through visual and auditory stimuli (Jeon, Kim, and Kang 2023). This systematic review found 10 research articles that revealed that health education using either audiovisual or virtual reality in loading health education had an effect on reducing and improving patient psychological distress.

The shortest duration of providing health education to elective preoperative patients was 2 minutes conducted in a study entitled "The effect of an informative video on anxiety and stress in patients requiring an oral biopsy" (Toralla et al., 2022). In all the studies in this review, the duration of the intervention of carrying out health education is effective in the range of 2 minutes to 30 minutes where the duration of providing this intervention can be adjusted to the needs of the patient. In this study, the duration of health education delivery was mostly less than 5 minutes. The concentration of the audience in receiving the delivery of the message ranges from 15-20 minutes only, audience concentration should also be considered in the delivery of messages (Masta Haro et al., 2021)..

Audiovisual health education can increase knowledge, reduce anxiety, reduce stress and improve perioperative readiness of patients (Chiu et al., 2023).. So, it can be concluded that health education with audiovisual media or virtual reality has an effect on reducing the psychological distress of perioperative patients. The content used in all studies reviewed presents health education content, modified health education content with images and sound or audiovisual media that is

accessed directly or through digital technology and websites.

In addition, audiovisual health education can be combined with other methods and is equally effective. In virtual reality hypnosis (VRH) research or the combination of health education with virtual reality media and hypnosis, shows its success in managing anxiety and pain in various medical contexts in intensive care and cardiac surgery patients (Rousseaux et al. 2022). In another study, health education with animated video media combined with consultation can reduce anxiety (Mentor, 2019) (Mentor 2019).

The researchers had difficulty in finding articles that met the specified criteria, so only 10 articles were found that met the criteria, such as research design and educational materials that did not contain material about surgery.

CONCLUSION

Health education with audiovisual media proved effective in reducing the psychological distress of elective preoperative patients. Health education with audiovisual media proved effective in the preoperative phase with a duration ranging from 3 minutes to 30 minutes. Health education with audiovisual media is effective in reducing psychological distress, both given singly and in combination with music that provides a sense of comfort. While in the type of surgery Health education with audiovisual media is proven to be effective in major or minor types of surgery according to the results of the research found.

Limitations

Non-pharmacological treatments are still considered to lack instant effect despite having minimal or no side effects. In fact, the process of preparing for surgery and postoperative patients experience mild or severe psychological distress that requires proper management but does not cause side effects or affect treatment. So that it has an impact on the search process that has difficulty in the process of collecting research articles.

AUTHOR CONTRIBUTION

Arif Setiawan: Collecting data and writing the results.

Sriyono: Supervisor and assist the finishing.

Herdina Mariyanti: Supervisor and assist the finishing.

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