

**ISSN 2597-6052**DOI: <https://doi.org/10.56338/mppki.v7i6.5233>**MPPKI****Media Publikasi Promosi Kesehatan Indonesia**  
*The Indonesian Journal of Health Promotion***Review Articles****Open Access****Nursing Intervention to Reduce Anxiety of Acute Coronary Syndrome Patients Undergoing Cardiac Catheterization: Literature Review****Andri Febriansyah<sup>1\*</sup>, Ni Luh Widani<sup>2</sup>**<sup>1</sup>Student of STIK Carolus Jakarta Postgraduate Program Jl. Salemba Raya No.41 Central Jakarta 10440, Indonesia, [andridado@gmail.com](mailto:andridado@gmail.com)<sup>2</sup>Lecturer of STIK Carolus Jakarta Postgraduate Program Jl. Salemba Raya No.41 Central Jakarta 10440, Indonesia, [widani24@gmail.com](mailto:widani24@gmail.com)\*Correspondence Author: [andridado@gmail.com](mailto:andridado@gmail.com)**ABSTRACT**

**Background :** Cardiac catheterization is the procedure of inserting a catheter into the heart through an artery or vein. Before undergoing a cardiac catheterization procedure, patients may experience anxiety, which can impact the heart's physiological response and heart health, as well as increase the risk of cardiovascular disease.

**Objective:** Determine how effective Benson's relaxation techniques and educational videos are in reducing anxiety in patients undergoing cardiac catheterization.

**Method:** The PICO structure was used as a guide to search the literature on anxiety reduction. The population under considered is individuals who experience anxiety. The interventions studied were Benson's use of video education and relaxation techniques. The searches were conducted between 2019 and 2023, through databases such as ProQuest, PubMed, Scholar, and Sciencedirect.

**Results:** Of the 5,045 articles found, only 12 met the criteria and were assessed. The results of the study showed that the use of educational videos was successful in reducing anxiety levels in patients before undergoing cardiac catheterization procedures. In addition, Benson's relaxation technique has also been shown to help reduce anxiety in patients undergoing the same procedure.

**Conclusion:** The Benson relaxation method was successful in increasing patient comfort and reducing anxiety, but educational videos can be a useful alternative.

**Keywords:** Anxiety; Cardiac Catheterization; Instructional Video; Benson Relaxation Technique

## INTRODUCTION

The word catheterization (derived from the word cardiac catheterization, or cardiac catheterization and abbreviated to catheterization) is the act of inserting a small tube (catheter) into the arteries and / or veins and tracing it to the heart, other blood vessels and / or other organs intended with the help of X-rays aimed at diagnostics (looking for structural and / or functional disorders in the blood vessels of the heart, other blood vessels and/or other organs) and/or therapeutic (correcting disorders of the structure and or function of the heart's blood vessels, other blood vessels and/or other organs)[10].

It is possible for patients undergoing cardiac catheterization to feel anxious, especially for the first time. Anxiety can occur when they are treated in the emergency room or even when outpatient. Anxiety can impact heart health by affecting how the heart responds to stress, making patients more vulnerable to changes in their bodies [2]. Anxiety can also increase blood pressure, heart rate, and the amount of blood pumped by the heart, which can be risky for overall heart health. An elevated sympathetic nervous system can also lead to heart problems such as atherosclerosis and coronary heart disease [2].

Anxiety is a feeling of fear that arises due to the body's response to vague and specific situations. When a person feels scared, his blood vessels can dilate due to the release of Nitrate Oxide (NO) compounds thereby increasing blood flow to the heart. However, in people with coronary artery disease, this process may be disrupted thus increasing the risk of heart attack. The body's response to fear can also affect the heart system, with the release of stress hormones like adrenaline and noradrenaline that can increase heart rate and cause abnormal heart rhythms.

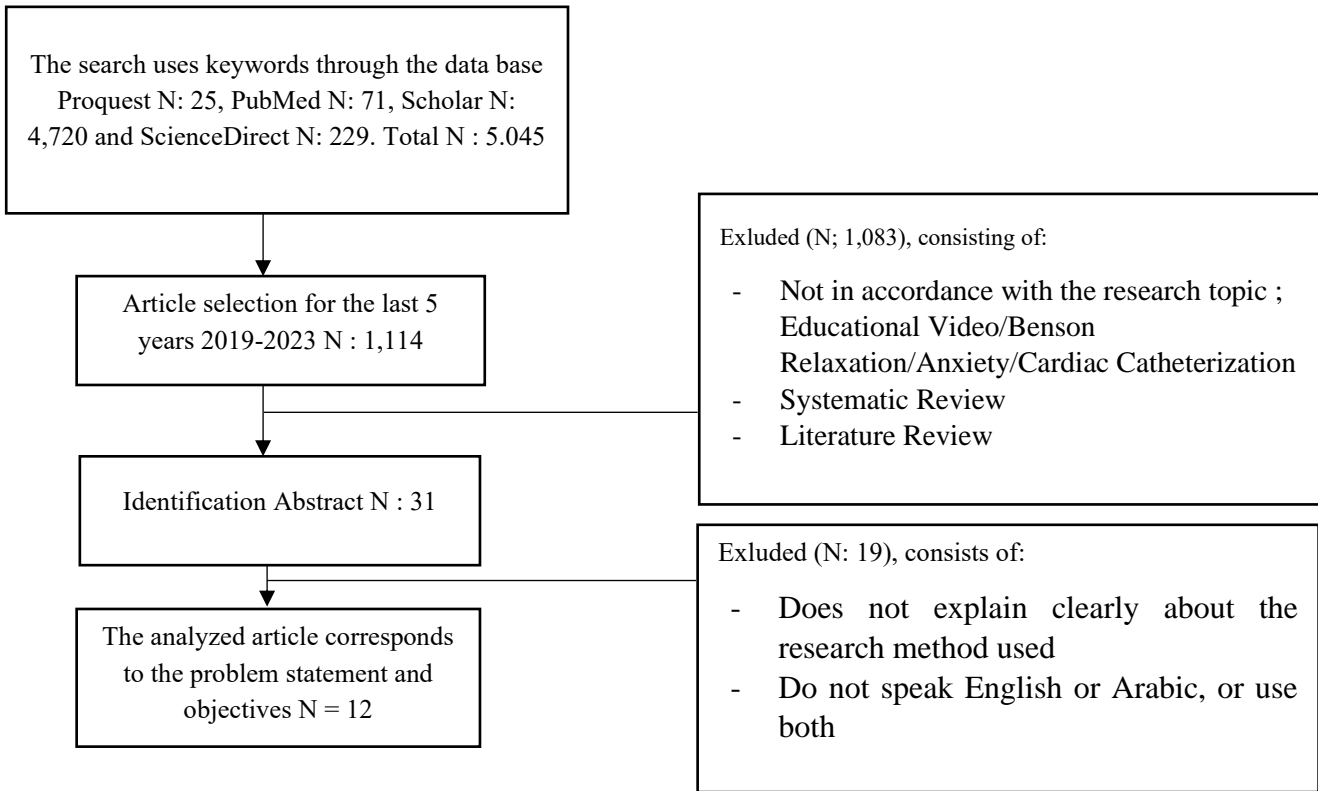
Patients who will undergo cardiac catheterization often experience high anxiety before the procedure begins, even some studies show severe anxiety. If this anxiety is not treated properly, it can disrupt the balance of the body, increase the need for oxygen, and put pressure on the heart. The use of non-pharmacological techniques such as video training and Benson's relaxation can help reduce patient anxiety and promote optimal treatment outcomes.

Therefore, measures should be taken to reduce the anxiety of patients undergoing cardiac catheterization. This study reviewed a variety of different literature on how educational videos and Benson's relaxation techniques can reduce anxiety in patients who are about to undergo cardiac catheterization. The purpose of this literature review was to find out how effective Benson's relaxation techniques and educational videos for reducing anxiety in patients who will undergo action in the cardiac catheterization room.

## METHOD

This literature review search method uses the PICO structure. **P** stands for "population" or "problem", which is used to describe patients who are worried because they have to undergo procedures in cardiac catheterization laboratories. The intervention, short for "**I**", is the provision of educational videos and the Benson Relaxation Technique, which is used to reduce anxiety. The **C** also known as "comparison", can be an additional method of coping with anxiety. **O** indicates expected results, e.g. anxiety can be reduced or eliminated.

In this study, the keywords "Video education AND Benson Relaxation Technique AND Anxiety AND Cardiac Catheterization / Coronary Angiography / Percutaneous Coronary Intervention" were used. Secondary data from previous studies were used in this study. Databases such as ProQuest, PubMed, Scholar, and Science direct can be used to find all articles or journals related to the topic covered. The collected articles, published between 2019 and 2023, in Indonesian and English, discuss how non-pharmacological therapies and educational videos can help patients undergoing cardiac catheterization reduce anxiety. Patients who experienced anxiety before receiving nonpharmacological therapy were the subjects of the sample used.



Scheme 1. Article search flow from database

**RESULTS**

Some databases display 5,045 articles that match predefined keywords. Then it was found that 1,114 articles from the last 5 years to 2023 were selected based on criteria and those that did not meet the criteria were issued. 12 articles that meet the criteria will be evaluated.

Table 1. Analysis of article search results

No	Judul	Author	Population / Problem	Intervention	Comparison	Outcome
1	The efect of Virtual Reality Distraction on Reducing Patients' Anxiety before Coronary Angiography: a Randomized Clinical Trial Study	Mostafa Keshvari et al	The number of samples used was 80, the sample was divided by each intervention group and the control numbered 40 participants	Provision of Vidio Virtual Reality distraction to the Intervention group before undergoing coronary angiography procedure	The Intervention Group was given Vidio Virtual Reality Distraction with various video content displayed and the control group was not given intervention	Virtual reality distraction was shown to be effective in reducing patients' anxiety prior to coronary angiography, with a statistically significant difference in anxiety scores between the intervention and control groups (p < 0.001) of 10.6 points.
2	The Effect of Video-Based Educational Program on Satisfaction and	Khodayar Oshvandi, PhD et al	In this study, a total of 89 patients were selected and then grouped into	Through video, the intervention group received information about	The intervention group received video-based education on	The results of this study found that video-based education programs

	Comfort in Patients Undergoing Transradial Coronary Cngiography: A Single-blinded, Randomized Controlled Trial		two groups: intervention (n = 44) and control (n = 45).	events before, during, and after transradial coronary angiography procedures.	transradial coronary angiography procedures whereas the control group did not receive any education.	can increase the level of satisfaction and comfort of patients undergoing transradial coronary angiography.
3	Possible Effect of Video and Written Education on Anxiety of Patients Undergoing Coronary Angiography	Esma Gokc, et al	The study sample consisted of 90 patients, who were divided into three groups: the written education group, the video education group, and the control group.	Providing Educational Education through writing and videos to participants.	The written education group and the video education group received relevant educational material, while the control group did not receive any special education interventions.	Pre-procedure education through both video and writing has a positive effect in reducing anxiety levels and several physiological variables in patients who will undergo coronary angiography.
4	Effects of Peer-Facilitated, Video-Based and Combined Peer-and-Video Education on Anxiety Among Patients Undergoing Coronary Angiography	Hosein Habibzadeh et al,	The sample of this study amounted to 120 patients.	The study compared three types of interventions: peer group interventions (which involve training sessions by peers), video interventions (which involve watching movies about procedures), and combination interventions (which involve both). Standard care was given to the control group without special instructions.	The study involved three intervention groups: peer (peer training sessions) by telling the patient who will perform angiography, video (watching a movie about the procedure) by watching a shared video containing procedures before, diving and after angiography, and combined (a combination of both). The control group received only routine care without special education.	Peer-facilitated training, video-based training, and combined peer and video training all significantly reduced anxiety levels among patients undergoing coronary angiography compared to the control group.
5	Implementation of virtual reality for patient distraction during diagnostic cardiac catheterisation	Jenny E. Zablah et al	The sample in the study was 3 patients	Applying Virtual Reality as a distraction model during diagnostic cardiac catheterization procedures.	There was no comparative journal in this study	The use of VR as a distraction tool for patients undergoing diagnostic cardiac catheterization can improve the patient experience, reduce anxiety and pain, and not improve procedure time, cost, or clinical outcomes.

6	Effect of a Portable Computer-based Educational Intervention Video on the Outcomes of Patients Undergoing Percutaneous Coronary Intervention	Asmaa Aly Mahgoub et al	The sample of 60 patients was divided into two groups at random, with 30 patients each.	Use of portable computer-based educational videos to increase patient knowledge, reduce anxiety and pain levels, and prevent complications in patients undergoing percutaneous coronary intervention procedures.	While the intervention group received computer-based learning videos, the control group received only conventional care given to patients undergoing percutaneous coronary intervention (PCI) procedures.	Portable educational video interventions show increased patient knowledge, relieves pain, and reduces complication rates after PCI procedures. The statistical results showed significant differences between the study and control groups in knowledge, severity of pain, and rates of complications. In addition, the study emphasizes that better knowledge of coronary arteries can make patients more comfortable and reduce their anxiety and pain when undergoing coronary intervention (PCI).
7	A Randomized Controlled Trial on the Effectiveness of a Portable Patient Education Video Prior to Coronary Angiography and Angioplasty	Jonathan Yap et al, 2019	A total of 332 patients who will perform coronary angiography / angioplasty procedures, samples were divided into two, namely 252 patients as an intervention group and 80 patients as a control group	Show an animated video to the intervention group.	Both groups received a standard of routine care, which included counseling by a physician, supplemented by an information sheet about the procedure. However, the intervention group also watched educational videos about the procedure on tablets.	Patients who watched educational videos had higher knowledge and lower levels of anxiety than the control group. Videos effectively increase knowledge and reduce anxiety, are perceived positively by patients, and have no effect on vital signs. With its short duration and availability in English, these videos are considered effective tools for patient education.
8	A Preoperative Virtual Reality App for Patients for Scheduled Cardiac Catheterization: Pre-Post Questionnaire Study Examining Feasibility,	Jiska Aardoom et al	Of the 27 patients invited, only 12 (44%) showed a desire to participate, and 8 (30%) ended up participating after some patients dropped out and canceled due to	Before cardiac catheterization, the VR "Pre-View" app is used to give patients a virtual experience that enhances their understanding of the procedure and	The study did not include separate control groups and intervention groups, focusing on delivering Pre-View virtual reality (VR) applications to	The results of statistical tests show good satisfaction with the Pre-View application. Participants gave an average score of 4.3 (SD 0.7) for readiness for

	Usability, and Acceptability		COVID-19. The study looked at the psychological impact of patients after cardiac catheterization and how effective Real-Time Pre-View was at improving preparation and reducing side effects.	helps them better prepare.	all participants without direct comparison with the control group.	cardiac catheterization and 4.0 (SD 0.9) for potential reduction of negative psychological consequences. Overall, participants found the app effective in providing information and preparing them for the procedure.
9	360° Virtual Reality to Improve Patient Education and Reduce Anxiety Towards Atrial Fibrillation Ablation	Astrid N.L. Hermans et al	A total of 157 patients were planned for AF ablation but only 134 patients completed the questionnaire	Use of 360° virtual reality (VR) video	The control group received standard pre-procedure information through oral counseling and information leaflets. Meanwhile, the intervention group received the standard information plus 360° VR video	VR video before Atrial Fibrillation (AF) ablation increases patient information and knowledge, as well as reduces pre-procedure levels of worry and anxiety. These results apply in particular to patients aged $\geq 65$ years, men, and patients under 65 years of age.
10	An Interactive Multimedia Training on Anxiety, Uncertainty, and Hope among Patients Undergoing Percutaneous Coronary Intervention: An Interventional Study	Sakineh Gholamzadeh et al	In this study, the number of samples used was 90 patients who would undergo coronary percutaneous procedures (PCI). Patients were divided into two groups: the intervention group and the control group, each of which contained 45 patients.	The intervention given to patients in this study was interactive multimedia (IM) training. The training covers a wide range of topics such as angioplasty goals, Cathlab environment, treatment room, patient preparation before and after the procedure, sensations felt during the procedure, potential risks, post-discharge care, return to work time, and follow-up.	The intervention group received interactive multimedia (IM) training	The intervention group and the control group had very different scores of expectation, uncertainty, and anxiety. The study found that interactive multimedia (IM) training significantly lowered the anxiety and uncertainty levels of patients undergoing coronary treatment (PCI), and also increased their expectations.
11	The Effect of Aromatherapy and the Benson Relaxation Technique on the Anxiety of Patients With Acute Coronary Syndrome:	Samaneh Sahrayi Zargh et al, 2020	The study involved 96 ACS patients, divided into control groups, Benson's relaxation, and aromatherapy	The study involved ACS patients divided into lavender aromatherapy, Benson relaxation, and control groups.	The control group received only routine treatments without additional intervention, while the intervention group, both	Benson's relaxation interventions and lavender aromatherapy can significantly reduce anxiety in patients with Acute Coronary Syndrome (ACS) admitted to the

	Randomized Controlled Trial				lavender aromatherapy and Benson relaxation, received additional treatments	Cardiac Care Unit (CCU).
12	Effects of Benson's Relaxation Technique on Comfort Level of Patients Before Coronary Artery Bypass Grafting (A clinical trial)	Masoumeh Sahrakhil et al	In this study, the effect of Benson's relaxation method on patient comfort before coronary artery bypass surgery (CABG) was assessed by dividing 64 people into intervention and control groups.	The study applied Benson's relaxation technique as an intervention to the intervention group through two 30- minute sessions the night before surgery and the morning of surgery. The goal of this intervention is to improve patient comfort before undergoing coronary artery bypass surgery (CABG).	Benson's relaxation technique was in two sessions for 30 minutes the night before surgery and the morning of surgery but the control group had no intervention	The comfort score of the intervention group with Benson's relaxation technique decreased significantly after the intervention ( $57.37 \pm 7.71$ to $35.96 \pm 8.84$ , $P < 0.001$ ). Meanwhile, the comfort scores of the control group, who only received routine care, did not experience significant changes ( $54.9 \pm 4.31$ before the intervention and $53.43 \pm 3.65$ after the intervention, $P = 0.12$ ). There was a significant difference between the comfort scores of the intervention and control groups before and after the intervention.

**DISCUSSION**

**Video Education**

In the analysis conducted, ten articles found that Video's education can be used as a therapy to reduce the anxiety of patients who will undergo cardiac catheterization procedures. The patient's anxiety before medical procedures such as coronary angiography or cardiac catheterization prove effective can be reduced by using virtual reality (VR). By presenting an engaging virtual environment, VR is able to distract patients from their anxiety about the procedure to be performed. In several studies, significant differences in anxiety levels before and after using VR have been observed, suggesting that VR has the potential to be an innovative alternative in effectively managing patient anxiety [7].

In addition, video-based education programs have also been shown to bring significant benefits to patients undergoing medical procedures such as transracial coronary angiography because they better understand what happens during medical procedures with visual information. This is necessary to help reduce the anxiety of the patient and increase their level of satisfaction and comfort during the procedure. Video-based education also allows patients to better prepare, positively impacting their overall experience [5,10].

Pre-procedure education, both through video and writing, has been shown to be effective in reducing anxiety levels and influencing several physiological variables in patients who will undergo coronary angiography. Providing patients with adequate information before a medical procedure can help them feel more prepared and reduce any uncertainty they may experience. This demonstrates the importance of a comprehensive approach in providing pre-procedure education to patients to improve their overall well-being [4].

In patients undergoing percutaneous coronary intervention (PCI), interactive multimedia training significantly lowered their levels of anxiety and uncertainty and increased their expectations. This method allows patients to be more involved in the learning process and gain a better understanding of the medical procedures to be performed. This can

help reduce uncertainty and increase patient confidence, which in turn can contribute to better outcomes from such medical procedures [3].

The use of portable computer-based educational videos has also been shown to provide significant benefits for patients undergoing percutaneous coronary intervention (PCI) procedures. By presenting information visually, educational videos can help increase patient knowledge about the procedure to be performed, relieve pain, and reduce the rate of complications. This suggests that innovative approaches to pre-procedure education can have a positive impact on clinical outcomes and the overall patient experience [9].

During diagnostic cardiac catheterization procedures, the use of virtual reality (VR) has been shown to improve the patient experience and reduce their anxiety and pain during the procedure, all without extending the duration of the procedure or increasing the cost of treatment. VR provides a virtual environment that engages and grabs patients' attention, thus helping to take their minds off anxiety over the medical procedure to be performed. This suggests that VR has great potential to improve the overall patient experience and can be a valuable tool in managing patient anxiety during medical procedures [1,6,15,16].

In the context of medical care, the use of technologies such as VR and computer-based educational videos has opened the door to more innovative approaches in managing patients' anxiety and improving their experience during medical procedures. By continuing to develop and implement these technologies, we can create a better care environment and provide a more positive experience for patients. Therefore, health professionals and policymakers need to keep a close eye on developments in the field of medical technology to improve the overall quality of patient care and well-being.

The results of this study show an exciting way how technology can improve the patient experience during medical procedures. As such, the results of this study provide valuable insights into how technology can improve the patient experience and overall quality of medical care.

### **Benson Exercise**

Studies evaluating the effects of Benson's relaxation technique on anxiety of patients with Acute Coronary Syndrome (ACS) highlight the importance of a holistic approach in treating serious cardiovascular conditions. The results showed that Benson's relaxation technique significantly reduced anxiety levels in ACS patients admitted to the Cardiac Care Unit. An in-depth analysis of these findings revealed that Benson's relaxation may be one of the important components of complementary care for ACS patients, aiming not only to address physical symptoms but also psychological and emotional aspects. In the context of holistic health management, addressing anxiety can have a positive impact on a patient's physical recovery, reduce the risk of complications, and improve their quality of life. Therefore, the integration of Benson's relaxation techniques into clinical practice may provide significant co-benefits for ACS patients, providing an effective alternative to managing anxiety and improving their overall well-being. This confirms the need for an integrated approach that includes physical, psychological, and emotional care in treating patients with complex cardiovascular conditions such as ACS [11].

Research evaluating the effects of Benson's relaxation technique on patients' comfort levels prior to coronary artery bypass surgery (CABG) highlights the important potential of this method in the context of surgical preprocedure management. The results showed that patients who underwent Benson's relaxation technique before CABG surgery experienced significantly improved comfort levels compared to the group that received only routine care. An in-depth analysis of these findings suggests that Benson's relaxation technique can be a valuable tool in helping patients deal with the tension and anxiety associated with invasive surgical procedures such as CABG. By providing an opportunity for patients to feel comfort and relaxation before surgery, this technique can help reduce psychological stress associated with surgical procedures, thereby improving the patient's overall well-being. In clinical practice, the integration of Benson's relaxation techniques as part of pre-surgical preparation such as CABG can provide significant co-benefits to patients, enhance their experience during treatment, as well as improve surgical procedure outcomes. Therefore, this study provides strong support for considering the use of Benson's relaxation technique as an integral part of a comprehensive treatment approach in the context of coronary artery bypass surgery and other surgical procedures [13].

### **CONCLUSION**

Of the 12 journal articles evaluated and categorized based on the research design and type of intervention offered, there were 3 articles with a "quasi-experimental" research design, 2 articles with a "case study" research design, 1 article with a "cohort study" research design, and 6 articles with a "randomized control trial" research design. In terms of research design, quasi-experiments are at the third level, and randomized control trials are at the second level. In other words, the quality and results of the study are positively correlated with the level of research design, so that it can be used as evidence-based practice on other subjects. Research that uses control groups and interventions will have better results and will lead people to believe that only interventions have a significant effect. This is due to the fact that this study will compare the results of interventions that have been carried out with the results that have not. Based on the



overall articles reviewed, the conclusion that can be made is that Benson's relaxation technique and Vidio Edukasi therapy can be used as medical interventions to reduce the anxiety of patients undergoing cardiac catheterization. This intervention can be used as a non-pharmacotherapeutic alternative or as an adjunct or companion thereto.

## SUGGESTION

The study integrated Benson's relaxation techniques and video education into clinical practice. The findings showed that both were effective at reducing patients' anxiety ahead of medical procedures such as cardiac catheterization. Benson's relaxation technique provides comfort before the procedure, while video education reduces uncertainty about the procedure. Interactive multimedia education programs tailored to patients and health workers are needed so that it is expected that the patient experience and overall clinical outcomes will be better with the application of this technology.

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