

Effect of Preoperative Education on Postoperative Outcomes Among Patients Undergoing Cardiac Surgery: A Systematic Review and Meta-Analysis

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Purpose: The objective of this review was to assess the effect of preoperative education on postoperative outcomes among patients undergoing cardiac surgery.

Design: Systematic review and meta-analysis.

Methods: A comprehensive literature search was made on PubMed, CINAHL, Ovid, ProQuest, ScienceDirect, Scopus, Web of Science, and the Cochrane database between 1995 and 2015. Fourteen randomized controlled trials were included. Data analysis was performed with RevMan software and created the Supplementary Appendix using the GRADE approach.

Findings: Meta-analysis showed that preoperative education reduced anxiety scores (standardized mean difference = -0.96 , 95% confidence interval: -1.37 , -0.54 ; $P < .0001$). However, there was no significant effect of preoperative education on pain, depression, and length of hospital stay. There is low-quality evidence, and reasons for downgrading are due to study design limitations, inconsistency, and imprecision of effect estimates.

Conclusions: The results show that preoperative education can effectively decrease anxiety in patients undergoing cardiac surgery.

Keywords: patient education, cardiac surgery, anxiety, pain, review, meta-analysis.

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Conflict of interest: None to report.

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CARDIAC SURGERY IS an important event in an individual's life, impairing physical functioning and thereby affecting the economic, personal, and professional life of the individual. Fear, anxiety, depression, and other mental health problems may be experienced by the postoperative patient.¹ Anxiety, fear, depression, and pain are common physical and psychological problems in patients undergoing cardiac surgery, and have been related to the recovery of patients from major cardiac surgical procedures.² Optimal management of physical and psychological problems during the immediate postoperative phase might improve satisfaction with the surgery experience, and decrease complications and duration of hospital stay.³

Anxiety, depression, and negative thoughts are the psychological factors related to the pathophysiological changes.⁴ High levels of anxiety and substantial symptoms of depression may be experienced by the patients who are awaiting cardiac surgery because of worries, fear, and uncertainties about the outcomes of the surgery.⁵ Psychological distress can aggravate symptoms of the prevailing cardiovascular disease, harmfully affecting the physiological parameters before and during anesthesia, and can lead to prolonged recovery.⁶ Postoperative outcomes of major heart surgery such as severe pain, anxiety, psychological distress, and sleep disturbance are commonly associated with recovery from cardiac surgery. These factors may compromise the effectiveness of treatment and quality of life of the patients.⁷

The aim for those having coronary artery bypass graft (CABG) surgery is to preserve myocardial tissue. However, exposure to high-stress levels during the pre- and postoperative period of major heart surgery may result in the development of disturbing memories and symptoms of long-term stress or even post-traumatic stress disorder, which can have adverse effects on recovery.⁸ Cardiac surgical patients reported apprehension, fear, anxiety, confusion, and hallucinations related to their stay in the intensive care unit. There was a significant relationship between the patients' perceptions of their ICU experiences and their scores for depression, anxiety, avoidance, and intrusion.⁹ Given the high burden of emotional symptoms postoperatively and their impact on long-term

recovery, interventions are needed to prevent these poor outcomes. Nurses caring for patients during the postoperative period find it challenging to manage patient pain and anxiety. There is a need for clinicians and nurses to identify safe and effective therapeutic interventions to use after a major cardiac surgery.¹⁰

Preoperative education is defined as helping the patient to understand and prepare mentally for the surgical procedure and recovery in the postoperative period. Education and preparation of patients before surgery has positive benefits on the care of patients after surgery and at the discharge phase.¹¹ Preoperative patient education is the method by which health care workers provide information to patients to assist them to understand about the surgery and minimize their worry and anxiety.¹² Preoperative education offers patients undergoing surgery with relevant information regarding the surgery and the proposed surgical procedure, as well as expected patient experiences (eg, anxiety, fear); expected sensations; and probable outcomes.¹³ This form of education is also referred to as preoperative psychological preparation for the patients waitlisted for elective surgery, and it has been advantageous for improving the clinical conditions and outcome variables.¹⁴

A meta-analysis reported that information on the surgical procedure and behavioral instructions to patients resulted in positive benefits in managing outcome variables such as duration of hospital stay, behavioral recovery, pain, analgesics, costs, satisfaction, and clinical recovery.¹⁵ The most efficient approach to care for the patient with anxiety is to reassure and provide psychological support. The development of effective interventions to reduce adverse psychological and physical outcomes in cardiac surgery is of importance. Education is often the first choice intervention and has a significant role in the care of patients during the postoperative period.

Many research studies have investigated whether preoperative education interventions were successful in improving postoperative outcomes and increasing physical and psychological recovery after cardiac surgery. However, the efficacy of preoperative education on postoperative outcomes in patients undergoing cardiac surgery is

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