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Preoperative Nurses' Teaching for Open Heart Surgery Patients

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Abstract

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MS, PACE University, 2007

BS, Long Island University, 1997

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Every year thousands of patients in the United States undergo cardiothoracic surgery. These patients have high levels of anxiety because they do not know what to expect. At the same time, many nurses on the cardiac telemetry/surgical floor are not aware that effective preoperative teaching can make a significant difference in patients' outcomes; thus, nurses had focused on postoperative teaching. The purpose of this project was to develop a preoperative teaching program through which nurses could help patients undergoing open heart surgery. The mentioned above practice initiative used Neuman's systems model as a framework. The project used a before-and-after design: Data were analyzed by comparing the results of preeducational and posteducational questionnaires. The goal of the program was to increase the level of knowledge of the nurses about preoperative education to a minimum of 90% correct answers. The findings showed that the knowledge of the nurses who attended the 1st educational intervention session increased from a baseline score of 87% to a posttest score of 95%, and the knowledge of the nurses who attended the 2nd session increased from a baseline score of 90% to a posttest score of 100%. The educational intervention also helped to improve communication between nurses and patients, and consequently, the quality of care. This project has implications for positive social change: The nurses' improved knowledge led to improved patient education, decreased patient anxiety and fear of the unknown, increased compliance with postoperative instructions, improved satisfaction with treatment, and positive postoperative outcomes.

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Section 1: Nature of the Project

Introduction

One of the most stressful events that a patient may experience is surgery. According to Nigussie, Belachew and Wolancho (2014) "Patients may perceive the day of surgery as the biggest and the most threatening day in their lives" (para. 1). Patients about to experience open heart surgery tend to have especially high levels of anxiety (Mahdavi et al., 2016). It is ironic because one of the biggest causes of heart attacks is stress, and thus it is extremely important to find ways to reduce the stress levels of patients undergoing open heart surgery. One of the strategies to lower patients' preoperative stress is to improve the preoperative teaching that patients receive. The paper discusses how improving nurses' preoperative teaching could decrease patients' stress and anxiety, which may lead to improvement in the quality of patients' care and outcomes. Section 1 covers the following topics: background, problem statement, purpose, project question and objectives, frameworks for the project, nature of the project, definitions, assumptions, scope and delimitations, limitations and significance.

Background

Approximately 7 million patients in the United States underwent cardiovascular surgery in some form in 2006 (Viars, 2009). Such patients have high levels of anxiety and stress because they do not know what to expect as a result of the surgery. The lack of necessary information and teaching during the preoperative period leads to unfounded expectations, fears and complications in the postoperative period. Delays in ambulation contribute to the risk of deep vein thrombosis and lack of knowledge as to how to use

incentive spirometry effectively may cause pneumonia, both of which could prolong hospitalization. The lack of information about regular discharge planning on Day 5 after coronary artery bypass surgery and 5–7 days after valve surgeries, can also lead to a lack of patients' preparedness for the post-hospitalization period and thus delay discharge. Education-based stress and anxiety reduction interventions for patients about to undergo cardiac surgery could help reduce the negative outcomes associated with pre-surgical stress.

Problem Statement

Patients who are about to undergo open heart surgery often experience a great deal of stress and anxiety because they do not know what to expect (Mahdavi et al., 2016). The problem at this hospital was that many nurses were not aware how big a difference preoperative teaching could make on patients outcomes and that they should focus on providing this teaching. Once trained in the use of preoperative teaching to reduce patient anxiety, and when they see results in practice, they may be more likely to start using preoperative teaching on a regular basis. Therefore, they needed to be taught about the effects of preoperative education and how to use it effectively. In addition, supervisors need to encourage nurses to conduct preoperative education even when there are time constrains. Preoperative education can yield fewer postoperative complications because patients know what to expect and their anxiety levels are thereby decreased.

In addition, surgery results in significant stress for the family, especially in the cases of open heart surgery. The lack of needed information and teaching during the preoperative period can lead to unfounded expectations, fears, and complications in

postoperative period and therefore, prolonged hospital stay (Ali, Lalani, & Malik, 2012). According to the Society of Thoracic Surgeons (2016) a short length of stay after coronary artery bypass graft (CABG) and valve surgeries is 6 days. Peterson et al. (2002) found variability in the length of stay after CABG with 53% of the patients discharged on Day 5 or sooner. Data on the length of stay after CABG and valves surgeries in the target facility were not available.

The lack of preoperative teaching on the floor had a multifactorial origin. The acuity level of patients had drastically increased over the years. There had been an increase in the number of critical care patients on single or multiple intravenous infusions such as nitroglycerine, primacore, dopamine, and dobutamine, which requires care comparable to that found in an intensive care unit. Every patient in the unit must be connected to the telemetry monitoring systems for continuous observation. The patients can be monitored using a wired or wireless connection. For patients to be ambulatory, they should be monitored using the wireless connection. Patients were frequently bounded by the location of their beds or recliners because wireless connections for telemetry monitoring were missing or inadequate. In addition, the cardiac care unit was frequently understaffed, thus leaving nurses overwhelmed. As a result, there was an increase in the number of sick calls by the nursing staff, which, in turn, led to even higher patient–nurse ratios and concerns related to patient safety. Management tried to solve the understaffing by hiring new nurses, but retention of nursing staff is low.

Purpose

The purpose of this doctoral project was to develop a new preoperative teaching program for nurses to use for patients undergoing cardiac surgery. The program goal was to improve nurses' knowledge about such teaching so that they could educate the patient individually and decrease the anxiety about their upcoming open heart surgery. The program included information the patient needed to know— what to expect before and after surgery, pain management, and early ambulation after surgery. Before surgery, the nurses planned to teach patients how to use incentive spirometry and how to practice breathing exercises so that they would be familiar with these actions after surgery. The doctoral project aligned with the types of scholarly projects conducted by doctorate students because it used a question that can be tested in practice.

There is evidence in the literature that preoperative teaching of patients about to undergo surgery can reduce anxiety. Chen et al. (2014) found that preoperative teaching helped reduce anxiety in patients having knee replacement surgery. In addition, Perry, Hooper and Masiongale (2012) discovered that preoperative teaching was effective in pediatric patients about to undergo surgery provided the teaching methods were tailored to their ages.

Educational interventions by nurses prior to open heart surgery can reduce patient anxiety. Ku, Ku, and Ma (2002) found that of patients who experienced open heart surgery 76% reported that preoperational education significantly reduced their anxieties. Guo, East and Arthur (2012) found that preoperative education can reduce cardiac patients' hospital stays and recovery time. These are valuable sources of evidence that

were used to support the implementation of preoperational education for open heart surgery patients at the medical center.

Practice-Focused Question and Objectives

The practice-focused question for the project was as follows: Will an educational program to teach the nurses what preoperative information they need to emphasize for the patients about to undergo open heart surgery improve their knowledge of the content necessary for preoperative teaching? The change in the nurses' knowledge measured before and after the educational sessions used a self-designed questionnaire based on the target hospital's "Clinical Pathway for Post CT Surgery Patient" protocol. An educational program on the importance of preoperative teaching for nurses was developed and implemented.

The project had two primary objectives: Objective 1 was to create a program to teach nurses on the cardiac telemetry/surgical floor about the importance of preoperative teaching for the patients that require open heart surgery. In the program, the nurses learned what to emphasize in preoperative teaching. Specifically, they learned what patients will expect during and after surgery, pain management techniques, how often to practice incentive spirometry, deep breathing exercises and coughing, and the importance of earlier ambulation.

Objective 2 was to implement the educational program. This included the actual training of the nurses using the program that was developed in Objective 1. Any increase in knowledge was measured with a self-designed questionnaire based on the hospital

"Clinical Pathway" protocol, which started with a baseline score and then measured knowledge again after the educational intervention.

Frameworks for the Project

The theoretical framework for this practice initiative was Neuman's systems model, whose main assumption was that every part of the client's experience is part of a larger system of interrelated parts. A significant part of this model revolves around internal and external stressors, and along with a focus on patient education (Neuman & Fawcett, 2010).

Patients experience different physiological, psychological, emotional and spiritual stressors. Given the need for the surgery, patients' levels of defense are diminished. Nurses provide primary prevention by teaching patients what to expect during their surgery and trying to relieve their anxiety. A full description of the model is given in Section 2.

Nature of the Project

The prospective project used a before-and-after design. A program was created to educate nurses on the cardiac telemetry/surgical floor on the importance of preoperative teaching for the patients requiring open heart surgery. The education emphasized what patients should expect during and after surgery, pain management techniques, how often to practice incentive spirometry, deep breathing and coughing, and the importance of earlier ambulation. The nurses used the information at the bedside in the preoperative teaching for the patients. The detailed explanation of the project will be provided in Section 3.

Definitions

The definitions of terms that will be used in the project paper are:

Aortic aneurysm repair: A procedure where the weakened part of the aorta replaced with the graft (Moorjani, Ohri, & Wechsler, 2014).

Aortic valve replacement: A procedure where patient's aortic valve replaced with metallic or tissue valve by using open or minimally invasive approach (Moorjani et al., 2014).

Atrial fibrillation ablation: A procedure where electrical energy is transmitted through a catheter inserted into the heart to reset a patient's heart rhythm (Moorjani et al., 2014).

Coronary artery bypass graft: A procedure where patient's one or more damaged segments of the coronary arteries replaced with the piece of vein from the leg or mammary artery to bypass the blockage (Moorjani et al., 2014).

Deep vein thrombosis: A condition where blood clot or thrombus develop most often in the lower legs and caused by different predisposing factors (e.g. major surgery) (Miller et al., 2003).

Incentive spirometry: A method that helps patients to provide a deep breathing by using spirometer and prevent postoperative complication of surgery (Miller et al., 2003).

Left ventricular assist device: A mechanical pump surgically inserted in congestive heart failure patients that helps left ventricle to pump the blood (Moorjani et al., 2014).

Mitral valve replacement: A procedure where patient's mitral valve replaced with metallic or tissue valve by using open or minimally invasive approach (Moorjani et al., 2014).

Transcatheter aortic valve replacement: A procedure where patient's aortic valve replaced with tissue valve by using percutaneous approach (Moorjani et al., 2014).

Assumptions

The first assumption was that the nurses would be responsive to the educational intervention. It was anticipated that they will find the information to be essential in providing care to the preoperative patient undergoing open heart surgery. The second assumption was that the nurses will use the education gained in the preoperative teaching plan for the patients undergoing open heart surgery.

Scope and Delimitations

Every year, the target medical center performs at least 700 open heart surgeries. Patients who are about to undergo this surgery often experience a great deal of anxiety. Creating a preoperative teaching program directed for stepdown unit nurses, who were taking care of preoperative and postoperative patients, could help relieve patients' anxiety, improve patients' outcomes, and decrease hospital length of stay after surgery.

The project took place and included nurses on a single hospital's cardiac telemetry/surgical floor and had to be implemented before the beginning of the summer. The time frame was chosen because many nurses take vacation during the summer months due to a low patient census during that period.

Limitations

The first limitation was that the cardiac telemetry/surgical floor was frequently understaffed, thus leaving nurses overwhelmed due to the higher patient-nurse ratio. The shortage in staffing contributed to the insufficiency of preoperative education for the patients undergoing open heart surgery. The second limitation was that the nurses provided education only to inpatients who electively scheduled for surgery. These patients had enough time to ask questions and develop understanding of upcoming surgery. Meanwhile, the patients scheduled for emergent surgeries are frequently overwhelmed by the fast pace of events and may not have time to fully comprehend procedures and there implications.

Significance

Patients about to have open heart surgery experience a high anxiety, which can have a detrimental effect on their condition, and on surgical outcomes (Guo, 2015). These anxieties are generally based on concerns about pain, about the outcomes of the surgery, about something going wrong during the surgery, and about life changes after the surgery (Viars, 2009). Providing preoperative teaching to patients about to undergo open heart surgery would decrease their fears of the unknown and thereby relieve some of their anxiety. In addition to decreasing their anxiety, preoperative teaching would provide patients with pain management techniques, teach them how often to practice (a) incentive spirometry, (b) deep breathing exercises and (c) coughing. Finally, it would emphasize the importance of earlier ambulation, and thus decrease complications and length of post-surgery stay.

Postoperative pulmonary complications are a major contributor to patients' morbidity and mortality after surgery, and can result in increased length of stay and costs of care. Frequently these patients have comorbid conditions, such as chronic obstructive pulmonary disease or congestive heart failure which make them more prone to postoperative complications (Weissman, 2004). Early extubation and immediately beginning pulmonary toileting interventions contributes to better patient outcomes after surgery. Snowdon, Haines, and Skinner (2014) found that preoperative pulmonary education decreased postoperative pulmonary complications and length of stay.

Reduction of the Gaps

Despite the evidence that supports the use of stress and anxiety reduction interventions for surgical patients, there is a lack of preoperative education for patients on the cardiac telemetry/surgical floor who are about to undergo open heart surgery. The lack of knowledge leads to high level of anxiety and stress which can cause unfounded expectations, fears and complications, and consequently delay hospital discharge (Ali, Lalani, & Malik, 2012). Nurses on the floor are often overwhelmed due to increase in acuity of patients and frequently understaffed units. As a result, there is an increase in the number of sick calls by the nursing staff, which in turn leads to even higher patient-nurse ratios and a decrease in preoperative teaching.

Guo, East and Arthur (2012) found that preoperative education can reduce cardiac patients' hospital stays and recovery time. According to the Society of Thoracic Surgeons (2016), a short length of stay after CABG and valve surgeries is considered to be 6 days. Peterson et al. (2002) found variability in the length of stay after CABG with 53% of the

patients discharged on Day 5 or sooner. Preoperative education provided to patients is influenced by the knowledge and expertise of nurses (Guo, 2015). Developing a new program to increase the cardiac telemetry/surgical floor nurses' knowledge of the importance of preoperative education for patients requiring open heart surgery contributed to decreased complications, anxiety and length of stay (Ali, Lalani, & Malik, 2012). Hence, the project helped to fill the gap in the practice that is occurring on the cardiac telemetry/surgical floor regarding education for patients undergoing open heart surgery patients.

Implications for Social Change

The goal of Walden University (2016) is having students develop a project that could "positively impact the quality of health care and advance the nursing profession though integration and application of knowledge" (p. 1). Creating an educational program for nurses to improve patients' knowledge about what to expect after open heart surgery —and thereby decreasing their anxiety—met Walden's requirement for a project to provide positive social change. Studies have shown that preoperative teaching decreases patients' anxieties (Guo, East, & Arthur, 2012; Ku, Ku, & Ma, 2002). Reduction in preoperative anxiety is an important nursing intervention. It helps decrease postoperative pain and infection. Historically, nurses have played an important role in patients' education. Today, there is an expectation that patients will play an active role in the medical management of their health. Effective education would decrease anxiety and fear of the unknown, increase compliance with postoperative instructions and satisfaction with treatment, which promote positive postoperative outcomes (reduction in pain and

infection). An educational intervention would also help to improve communication between nurses and patients, and consequently, improve the quality of care.

Improving preoperative teaching enhanced nurses' roles on the cardiac telemetry/surgical floor. Because of improved knowledge, the nurse can better act as a patient advocate, resulting in improved communication between nurses and physicians. In addition, with improved knowledge came improve communication between day and night shift nurses and therefore, the shift report became more comprehensive. Lowering the communication barrier between providers improved the quality of care and led to better patient outcomes. Furthermore, enhanced communication among the nurses, the physicians and the nurse, and the nurse and patient improved the safety of health care.

Summary

Every year many patients in the United States undergo some form of cardiovascular surgery. Studies showed that preoperative education decreased patients' anxiety. The patients who are undergoing open heart surgery often have high levels of anxiety and stress because they do not know what to expect with the surgery. The lack of needed information and teaching during the preoperative period leads to unfounded expectations, fears, and complications in the postoperative period. Improved patient education is expected to decrease patients' stress, anxiety and postoperative complication, improve patients' outcome and satisfaction, and thus decrease length of stay after surgery. Hence, the purpose of this project was to create a new educational program for nurses about the keys elements of preoperative teaching. The project had two main objectives: to develop an educational program for nurses and then implement it. The

significance of the project was to reduce the lack of preoperative nursing education for open heart surgery patients and therefore, decrease anxiety, complications and length of stay after surgery. Improved nursing knowledge would lead to improve communication between patients and provider, and provide for positive social change. Following section will discuss review of literature and the theoretical framework for the project.

Section 2: Review of Literature and the Theoretical Framework

Introduction

There is a wealth of evidence in the scholarly literature that shows that preoperative teaching of patients about to undergo surgery can reduce their anxiety and improve outcomes. The literature on preoperative interventions for heart patients strongly supports the use of anxiety-reducing educational approaches (Asilioglu & Celik, 2004; Guo, East, & Arthur, 2012) although there is some difference and some debate about what methods are best.

Section 2 presents the literature search strategy, theoretical framework, literature review related to method, background and context, a summary of the findings and their implications for nursing practice.

Literature Search Strategy

Scholarly databases contain peer-reviewed journals; peer-reviewed means that other experts have reviewed the data and have confirmed that it is legitimate (Terry, 2012). Scholarly articles for this study were located on the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Cochrane Library database, EBSCO, ProQuest Nursing and Allied Health Sources, PubMed, and Medline. Boolean search included: *preoperative education* AND *patients' anxiety, preoperative education* AND *Neuman's model, nursing teaching* AND *open heart surgery, surgical patients* AND *anxiety, open heart surgery patients* AND *anxiety, surgery* OR *heart surgery* OR *education* OR *anxiety* OR *outcome*. The goal was to conduct a comprehensive search of all published peer-reviewed articles.

The search identified 32 articles on preoperative education and anxiety. Three articles were immediately eliminated because they were theses and did not discuss patients' anxiety. Fifteen studies were excluded because they contained music and video interventions as a method to relieve anxiety; two others discussed the link between preoperative education and stress, and three used a population of pediatric subjects. The remaining nine studies were published between 2004 and 2016; five of them discussed patients undergoing open heart surgery. The kept articles were focused on improving patient outcomes and anxiety through preoperative education.

Concepts, Models and Theories

The theoretical framework that best applies to this practice initiative was the Neuman's systems model. The model uses a holistical and multidimensional approach. It is assumed that patient health exists in varying states of physiological, psychological, sociological and developmental well-being. A significant part of this model revolves around internal and external stressors, and along with a focus on patient education. Additionally, her model promotes preventive care and health education programs. Neuman believes that nurses should help individuals, families and groups attain a maximum level of wellness which is the ultimate goal of the project.

Frameworks

The framework for the project was the Neuman's systems model. The Neuman's systems model main concepts are client, environment, wellness and nursing intervention (Neuman & Fawcett, 2010). The Neuman's model is a systems model with the main assumption based on the idea that every part of the client's experience is part of a larger

system of interrelated parts (Figure 1). There are different stressors in the environment which could influence a client's state. When the client is sick and the defense system is low, the stressors break the client's stability. Nursing interventions are based on an accurate assessment of the client's health and by the use of primary, secondary or tertiary prevention interventions to return the client's system to equilibrium (Neuman & Fawcett, 2010).

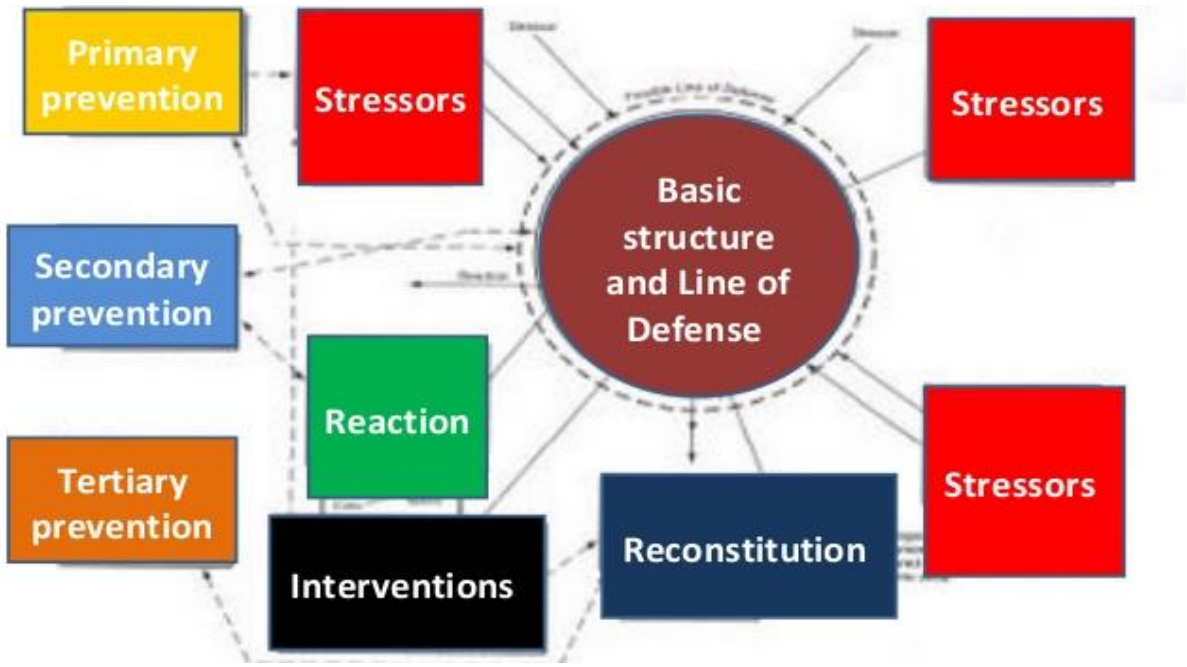

Figure 1. The Neuman system model. Neuman, B., & Fawcett, J. (2010). *The Neuman systems model* (5th ed.). Upper Saddle River, NJ: Pearson.

The Neuman model was a good fit for this project. The client is a patient who is scheduled for an open- heart surgery. The patients all experience different physiological, psychological, emotional and spiritual stressors. Due to the reason for the heart surgery, the clients' levels of defense are diminished. Nurses provide primary prevention by educating patients about what expect regarding their surgery and relieving their anxiety. The outcome after the open- heart surgery, is part of the larger system that includes the patient's interaction with nurses, his/her level of anxiety before and after the surgery, the mental state of the patient, physiological, psychological, emotional and spiritual stressors. With preoperative education programs intended to relieve anxiety, the system parts can work together to create optimal outcomes for cardiac patients.

Neuman's systems model, first published in 1972, has evolved significantly over time, however the core of her theories remains essentially consistent (Turner & Kaylor, 2015). According to Lowry, Walker and Mirenda (1995) "In the early years, the model was primarily used to guide education and practice and as a conceptual framework for some master and doctoral level research" (p. 64). Therefore, not only does this model have the applicability to this project related to stressors and patient education, but it also has its roots in the nursing research process.

Literature Review Related to Method

Specific Literature

Preoperative education and outcome. Guo (2015) conducted a systematic literature review with the purpose of synthesizing the evidence supporting the effectiveness of preoperative education on improving patient outcomes. The six

randomized control studies analyzed included 1,406 subjects scheduled for CABG. They discussed preoperative education for patients scheduled for CABG. The studies included in the review compared an intervention group who received preoperative education and a control group who received the standard education. Due to the difference in the results the researcher concluded that knowledge and expertise of nurses could influence delivering the information. It was recommended that quality of education for nurses should be improved. The recommendation supports the purpose of the project to develop educational program for nurses.

Deyirmenjian, Karam and Salameh (2006) conducted a quasi-experimental study in a University hospital in Beirut to measure the impact of preoperative patient education on anxiety and recovery for Lebanese patients who were scheduled for open-heart surgery. The experimental group received preoperative education and the control group received the standard hospital protocol prior to surgery, which included very little education. The instrument used to measure patient anxiety was the well-established Beck Anxiety Inventory. It was found that the experimental group woke up from surgery more quickly than the control group. They found no benefits to the patients from receiving preoperative education and concluded that patient education should not be used for patients about to undergo cardiac surgery. However, patients in the interventional group were satisfied with education. Therefore, preoperative teaching had a positive effect on patients' satisfaction which supports this project's goal to further improve patients' education.

Preoperative education and anxiety. Asilioglu and Celik (2004) conducted a randomized controlled trial to evaluate the pre-and post-surgical anxiety levels of patients about to undergo open heart surgery. The control group did not receive the preoperative education. Patients' anxiety levels were measured on the Day 3 postoperatively using the Self-Evaluation Questionnaire for State and Trait Anxiety Inventory. There was no significant difference in the mean postoperative state and trait anxiety scores between the groups, although the scores were slightly more elevated in the control group. A weakness of the study was not measuring preoperative anxiety levels of both groups. Even though, the results of the study were not statistically significant, it was found that patients in the intervention group were educationally and psychologically satisfied. In addition, there was slightly more anxiety in control group. Asilioglu and Celik (2004) did not find that preoperative teaching could decrease anxiety, but their patients were educationally and psychologically satisfied with their education. Therefore, preoperative teaching had a positive effect on patients' satisfaction and supports this project purpose to further improve patients' education.

Guo, East, and Arthur (2012) conducted a randomized controlled study in two hospitals in China to evaluate if the preoperative education in open heart surgery patients reduced anxiety and improved postoperative outcomes. The subjects in the intervention group received preoperative education and the control group received the standard education. Patients' anxiety and depression were measured before the beginning of the study and on the seventh day after surgery using the Hospital Anxiety and Depression Scale. They found that patients in the intervention group had much lower levels of

anxiety and depression, and a slightly shorter length of stay after open heart surgery. A weakness of the study was that it was not completely blind, and it was suspected that the preoperative booklet with information was shared between the groups. It was concluded that preoperative teaching decreases anxiety and depression, and slightly decreases the length of stay after open heart surgery. Given that this study's findings show preoperative education decreases anxiety and improves patients' outcomes, it lends support to the project.

Zhang et al. (2012) conducted a prospective randomized control study on patients undergoing CABG to evaluate how preoperative nursing education can influence postoperative complications and anxiety. Patients in the control group received regular nursing education one or two days before surgery, and patients in the intervention group received structured education by the specially trained nurses three days before surgery. Zung's self-rating anxiety scale was used to evaluate anxiety on admission and on day three after surgery. It was found that the mean anxiety score was lower in the intervention group. In addition, the subjects in the intervention group reported lower respiratory and cardiovascular complications as well as lower incidence of extremity edema, urinary retention, and constipation. It was concluded that preoperative structured education reduces anxiety and other complications in patients who underwent CABG. Given that this study's findings show preoperative education decreases anxiety and improves patients' outcomes, it lends support to the project.

General Literature

Not all of the literature focuses specifically on preoperative education for open heart surgery patients. However, the use of preoperative teaching in other surgical specialties still contributes to the overall evidence-based knowledge regarding improved patient outcomes due to reduced anxiety. Pinar, Kurt and Gungor (2011) performed a quasi-experimental case control study using gynecological patients to investigate how preoperative education influences their level of postoperative anxiety. They compared an intervention group that received a preoperative teaching intervention to a control group who received the standard nursing care. The researchers used the Individual Information Form data collection and the State-Trait Anxiety Inventory tool to measure patients' anxiety a day before surgery and at the time of discharge. The results showed that the intervention group exhibited less anxiety than the control group. Therefore, the researchers recommended to improve nursing education regarding preoperative education. Although, the study involved subjects undergoing gynecological surgery, it demonstrated that preoperative teaching decreases postoperative anxiety and, therefore, could be applied to the patients undergoing open heart surgery in this project.

Yeola and Jaipuriya (2016) conducted a prospective case control study of patients who underwent a hernia repair to investigate how preoperative teaching affects the postoperative outcomes of postoperative pain, anxiety and length of stay. The intervention group received extensive preoperative education and the control group received the standard education. Spielberger's State–Trait Anxiety Inventory scale (STAIS) and visual analogue scale (VAS) were used to measure patient anxiety on the

seventh postoperative day. It was found that preoperative teaching significantly decreased postoperative anxiety, pain, and length of stay. A weakness of the study was that they did not measure the patients' anxiety levels until the seventh day after the surgery, which could possibly have led to other factors to affect patients' anxiety states. Even though, the study involved subjects undergoing hernia repair surgery, it demonstrated that preoperative teaching decreases postoperative anxiety and, therefore, could be applied to the patients undergoing open heart surgery in this project.

Lin and Wang (2005) conducted a randomized controlled study in Taiwan to measure the impact of preoperative nursing education on anxiety and pain in patients who underwent abdominal surgery. The subjects were divided into a control group that received education in preparation for surgery, postoperative breathing and coughing exercise, and the intervention group received the same information with the addition of pain management teaching. The Visual Analogue Scale for Anxiety was used to measure anxiety and American Pain Society Patient Outcome Questionnaire and the Chinese version of the Brief Pain Inventory were used to measure pain. It was found that the subjects' anxiety decreased after education. In addition, subjects in the experimental group had less pain, and initiated earlier pulmonary care and ambulation in the postoperative period. Although, the study involved subjects undergoing abdominal surgery, it demonstrated that preoperative teaching decreases anxiety and, therefore, could be applied to the patients undergoing open heart surgery in this project.

Background and Context

Approximately 7 million patients in the United States underwent cardiovascular surgery in some form in 2006 (Viars, 2009). The patients who are undergoing open heart surgery have high levels of anxiety because they do not know what to expect because of the surgery. The lack of necessary information and teaching during the preoperative period leads to unfounded expectations, fears and complications in the postoperative period. Delays in ambulation contribute to the risk of deep vein thrombosis and lack of knowledge as to how to effectively use incentive spirometry may cause pneumonia, both of which may prolong hospitalization and increase anxiety. The lack of information regarding regular discharge planning, on day five after coronary artery bypass surgery and five to seven days after valve surgeries, can also lead to a lack of patients' preparedness for the post hospitalization period and thus delay the discharge. Education-based anxiety reduction interventions for patients about to undergo cardiac surgery may help reduce the negative outcomes associated with presurgical stress at Maimonides Medical Center (MMC).

Maimonides Medical Center (MMC) is a non-profit, non-denominational hospital in Brooklyn that welcomes a diverse population of patients and employees. Maimonides Medical Center's Heart and Vascular Institute one of the top hospitals for management of heart attacks and congestive heart failure patients performs 700 open heart surgeries every year. The cardiac surgery team at MCC specializes in coronary artery bypasses, minimally invasive and open valve surgeries (such as mitral/aortic valve replacement and TAVR), aortic aneurysm surgeries, and atrial fibrillation treatment. Maimonides Medical

Center is the first and the only hospital in Brooklyn which is accredited by the Joint Commission to run the left ventricular assist device (LVAD) program. Unfortunately, when it comes to reducing patient anxiety in preoperative open heart surgery patients, progress still needs to be made.

The role of the student in the project was to create a program to educate nurses on the cardiac telemetry/surgical floor at the MMC on the importance of preoperative teaching for the patients undergoing open heart surgery. The topic for this project was chosen because there are many patients undergoing open heart surgeries who clearly experience anxiety. The student's role in exploring this topic and observing the environment involved enhancing the knowledge about the importance of evidence-based practice (EBP) and how to best use it in the profession. The project was aligned with DNP essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking. Doctor of Nursing Practice (DNP) nurses "must be able to assess the impact of practice policies and procedures on meeting the health needs of the patient populations with whom they practice" (AACN, 2006, p. 10). By taking on the role of starting a clinical change initiative with the collaboration and support from the higher authorities this student was able to improve the cardiac patient's experience and discharge planning at the hospital.

Summary

Educational interventions by nurses prior to open heart surgery may reduce patient anxiety. Despite a wealth of evidence that supports this claim, many patients go into their surgeries with high levels of anxiety that could be reduced if they were

educated on what they were about to experience and what to expect. Section 2 discussed Neuman's systems model which was a good fit for this project. The model revolves around internal and external stressors. Additionally, the model promotes preventive care and health education programs. The literature review examined patient education from both a specific perspective and a general perspective, and demonstrated that the literature supported preoperative educational interventions as a possible technique to relieve patients' anxiety. Section 2 examined the background of the problem. There is a large population of patients undergoing open heart surgery and it was identified from the clinical practice that they experienced anxiety and stress related to their surgeries. Therefore, the student came with the idea of practice initiate to create educational program for nurses directed to educate patients. Next section will discuss methodology.

Section 3: Methodology

Introduction

With an effective nursing intervention, patients undergoing open heart surgery may experience a reduction in anxiety. The research in the scholarly literature is primarily in support of anxiety-reducing educational interventions for patients prior to their open-heart surgery. However, these practices were not used effectively in the acute care setting on the cardiac/telemetry floor. Therefore, there was a need for additional evidence to support the benefits of these practices to increase their usage. The project is important because, simply by providing preoperative teaching, it could help nurses relieve some of the anxiety that open heart surgery patients experience.

Section 3 presents the approach and rational, which include project design, population and sampling, data collection, data analysis, and evaluation plan.

Approach and Rational

Project Design

The project used a prospective, before-and-after design. It compared pre-educational and post-educational questionnaires. The comparison allowed me to identify change in nurses' knowledge before and after the educational session. The purpose of the questionnaire, which was based on the hospital's "Clinical Pathway" protocol, was to identify the overall improvement in nurses' knowledge about preoperative teaching after their educational sessions.

Population and Sampling

The project was carried out in a 710-bed, tertiary prevention urban hospital on a 15-bed cardiac telemetry/surgical floor, that has a combination of medical and surgical patients. The inclusion criterion was female and male nurses who worked both day and night shifts on the cardiac/telemetry floor. All the nurses on the floor were RNs and three were senior staff nurses, but the rest varied from new graduate to up to 10 years of experience. Nurses who were floated to the unit were excluded.

Data Collection

The days for the educational sessions were discussed with the nurse manager. Based on the schedule, she selected the best days and organized the sessions at the hospital conference room. It was after the morning shift reports, because this tends to be the best time to cover the largest portions of day and night shift nurses. On the mornings of the days scheduled for education sessions, the questionnaire (Appendix A) labeled "preeducational" was placed on the table in the department's conference room. The questionnaire was based on the hospital protocol "Clinical pathway for post CT surgery patient" (Appendix D) and was designed to determine nurses' overall knowledge about preoperative teaching. All day- and night-shift nurses on duty finished their shift reports and proceeded to the conference room. There, they picked up the anonymous preeducational questionnaire and filled it out. Its purpose was to identify nurses' overall knowledge about preoperative teaching. Nurses had 10 minutes to complete the questionnaire and place it in the folder labeled "Preeducational Questionnaire." The closed folder stayed on the table until the end of the educational session.

After the questionnaire was completed, a copy of the educational materials that contain information regarding postoperative patients' education and prevention of pneumonia distributed to the nurses (Appendices B and C). The explanation and discussion of the educational content included what to tell patients regarding expectations during and after surgery, pain management techniques, incentive spirometry, deep breathing exercises and coughing, and the importance of early ambulation to prevent complications. The information was presented as a discussion that includes a PowerPoint presentation (Appendix E) and model of incentive spirometer. The educational sessions lasted approximately 15 minutes with time for questions and answers.

At the end of the educational session, the DNP student distributed the questionnaire labeled "post-educational" to the nurses to evaluate their improvement in knowledge. Nurses filled it out with a pen. The purpose of the questionnaire was to identify the overall improvement of nurses' knowledge about preoperative teaching after the educational session. It was done while the DNP student waits behind the closed door of the conference room. Nurses had ten minutes to complete the questionnaire and place it back in the same folder labeled "Posteducational Questionnaire". The questionnaire was anonymous and did not require name identification. The folder was taken to the nurse manager's office where it kept in a locked cabinet.

The nurse Manager and DNP student compared the results of the preeducational and posteducational questionnaires. The number of correct responses before the educational session compared with the number of correct responses after the educational session to identify the overall change in knowledge on the unit. If 90% of the nurses

answered the questionnaire correctly the educational session would be considered a success. If the questionnaires indicated that there was an insufficient increase in the nurses' knowledge level (result below 90%), a second educational session would be scheduled for one week later.

Instrument

Self-designed questionnaire. The DNP student has been working with open-heart surgery patients for many years and has found that the new nurses have a lack of knowledge regarding the normal postoperative care of open heart surgery patients. It has led to the creation of an educational program for nurses. As a part of the preoperative teaching program for nurses, the pre- and post- education questionnaire (Appendix A) was developed by myself to include the content that nurses must preoperatively teach patients undergoing open-heart surgery. The questionnaire was based on the hospital "Clinical Pathway" protocol (Appendix D) and included questions that were based on the postoperative protocol. The protocol described what patients should expect immediately post open heart surgery and what was expected from them in the days following surgery. The questionnaire has been developed by the student and its validity and reliability was based on the validity and reliability of the protocol approved by the hospital.

Protection of Human Subjects

Prior to initiation of the practice initiative it was submitted and approval obtained from the Walden University Institutional Review Board and Maimonides Medical Center. The project was strictly adhere to the Health Insurance Portability and Accountability Act (HIPAA) to ensure all the participants' privacy. All survey responses were confidential

with no individual respondent identifiable in the final report. The data were accessed from the medical center computers which are encrypted, password protected, and have the latest antispyware software.

Data Analysis

The data were analyzed by comparing the results of preeducational and posteducational questionnaires. The purpose of the questionnaires was to identify the overall improvement of nurses' knowledge about preoperative teaching after the educational session. The results demonstrated the improvement in nurses' knowledge.

Evaluation Plan

Evaluation for effectiveness of a practice initiative is an important part of the project. According to Kettner, Moroney and Martin (2016), "The primary purpose of program evaluation is to provide feedback on results, accomplishments or impacts" (p. 196). The objective of the project was to increase nurses' knowledge of preoperative teaching for patients undergoing open-heart surgery. The goal was to evaluate if effective preoperative teaching provided by nurses to the patients decrease their anxiety level. A long-term goal was to provide preoperative teaching to patients undergoing any surgical procedures to decrease anxiety. The evaluation model that was most appropriate for the project was the CIPP model. The acronym CIPP stands for Context Evaluation (C), Input (I), Process Evaluation (P), and Product Evaluation (P). The context evaluation aspect of the program occurred during the planning process. It was used to identify needs that have not yet been satisfied and to identify underlying problems that are creating barriers to the satisfaction of those needs. The Input evaluation occurred during the structural decision-

making process of the evaluation, so that it was used to effectively analyze alternatives. The process evaluation occurred as the project is being monitored for effectiveness. Lastly, the product evaluation was at the end of the evaluation cycle, as a means of determining how well the goals of the project have been met. Success measured based on the level of impact that the project has had on patient attitudes and outcomes, in terms of the effectiveness of the intervention and in regard to what types of revisions need to be made to improve. The identified problems were required immediate correction to ensure the long-term sustainability.

Summary

The goal of the practice initiative was to help nurses to relieve some of the anxiety that open-heart surgery patients experience by providing preoperative teaching. There was a need for additional evidence to support the benefits of these practices to increase their usage. Prior to initiation of the project approval was obtained from the Walden University Institutional Review Board and hospital. The project had a before-and-after design and was prospective in nature. It took place in a tertiary prevention urban hospital on a 15-bed cardiac telemetry/surgical floor that has a combination of medical and surgical patients. The data were collected by providing educational sessions for nurses. All the nurses on the unit have been trained in how and what content to teach the preoperative patients and they will apply their knowledge to teach patients. Section 3 ended with the evaluation plan to determine the effectiveness of the interventions. Following section will discuss findings and recommendations.

Section 4: Findings and Recommendations

Introduction

The goal of this doctoral project was to develop a new preoperative teaching program for nurses. The program was designed to improve nurses' knowledge about preoperative teaching related to cardiac surgeries so that they could educate patients individually about their upcoming surgery and decrease the anxiety experienced by open heart surgery patients'.

Section 4 presents the findings, the results and implications, project strengths, project limitations, and an analysis of myself.

Summary of the Results

The practice-focused question was as follows: Will an educational program to teach the nurses the preoperative information they need to emphasize for their patients about to undergo open heart surgery improve nurses' knowledge? To address the question, the project involved two primary objectives. The first was to create a program to educate nurses on the cardiac telemetry/surgical floor on the importance of preoperative teaching for the patients requiring open heart surgery. Objective 2 was to implement the educational program. The objective included the actual training of the nurses using the program that was developed in Objective 1.

Demographics

Demographic characteristics for the sample (N = 36) can be found in Table 1. The sample size for the project was 30 female nurses and 6 male nurses. The participants' ages ranged from 24 to 60, however, most were between the ages 30 and 40; most of the

nurses were Black, had a BSN degree and 5-10 years of experience working on the unit. Descriptive statistics were used to analyze the demographic data (Table 1).

Table 1

Demographic characteristics

Variable	N (%)
Race	
White	12 (33.3)
Black	17 (47.2)
Asian	4 (11.1)
Hispanic	3 (08.3)
Gender	
Female	30 (83.3)
Male	6 (16.7)
Age	
<30	1 (02.8)
30-40	21 (58.3)
40-50	10 (27.8)
>50	4 (11.1)
Degree	
AND	2 (05.6)
BSN	32 (88.9)
MSN	2 (05.6)
Years on the unit	
1-4	14 (38.9)
5-10	19 (52.8)
>10	3 (08.3)
Employment Status	
Full-time	34 (94.4)
Part-time	2 (05.6)

Objective 1: Create a program for nurses

Project Objective 1 was to create a program to educate nurses on the cardiac telemetry/surgical floor on the importance of preoperative teaching for the patients requiring open heart surgery. In the program, nurses learned what to emphasize in preoperative teaching. Specifically addressed was what patients will expect during and

after surgery, pain management techniques, how often to practice incentive spirometry, deep breathing exercise and coughing, and the importance of earlier ambulation.

The preoperative teaching program for nurses involved creating the pre- and post-education questionnaire (Appendix A) to include the content that nurses must preoperatively teach patients undergoing open-heart surgery. The questionnaire was based on the hospital "Clinical Pathway" protocol (Appendix D) and included questions that are based on the postoperative protocol. The elective educational material was printed and a PowerPoint presentation (Appendix E) was also created by this student which discussed the necessary information the nurses would need for effective preoperative education for open heart surgery patients. It was designed to help them correctly answer the questions in the self-designed questionnaire.

The objective was met. The goal of the program was to increase the level of knowledge of the nurses about preoperative education to a minimum of 90% correct answers. The nurses exceeded expectations by doing above the minimum of 90% correct answers. The first group had an average score of 87 during the pretest stage and 95 after the intervention. The second group had an average score of 90 during the pretest stage and 100 after the intervention.

Objective 2: Implement the Educational Program

Objective 2 was the implementation of the educational program. The implementation of this objective included the actual training of the nurses using the program that was developed in objective one. Increases in knowledge were measured with a self-designed questionnaire based on the hospital's "Clinical Pathway" protocol

that started with a baseline score and then measured knowledge again after the educational intervention. The goal was to increase the level of knowledge of the nurses about preoperative education to a minimum of 90% correct answers as a group.

Nurses completed the demographic and preeducational questionnaire and placed it in the folder. After the questionnaire was completed, a copy of the educational materials that contain information regarding postoperative patients' education and prevention of pneumonia were distributed to the nurses (Appendices B and C). Nurses listened to PowerPoint presentation (Appendix E). At the end of the educational session they completed posteducational questionnaire. The results of the preeducational and posteducational questionnaires were compared. The number of correct responses before the educational session was compared with the number of correct responses after the educational session to identify the overall change in knowledge on the unit.

The nurses exceeded expectations by doing above the minimum of 90% correct answers. Two sessions were performed with two different groups of nurses simply due to scheduling. The comparative results pre- and posteducational intervention presented as a bar graph (Figure 2). There blue bar represents pre- and red bar posteducational scores. The first group had an average score of 87 during the pretest stage. After the intervention, their group average score went up to 95, which was an 8% increase. The second group had an average score of 90 during the pretest stage and after the intervention, everyone scored 100%. There was a 10% increase and showed that the intervention was helpful in increasing the knowledge levels of the nurses about preoperative education.

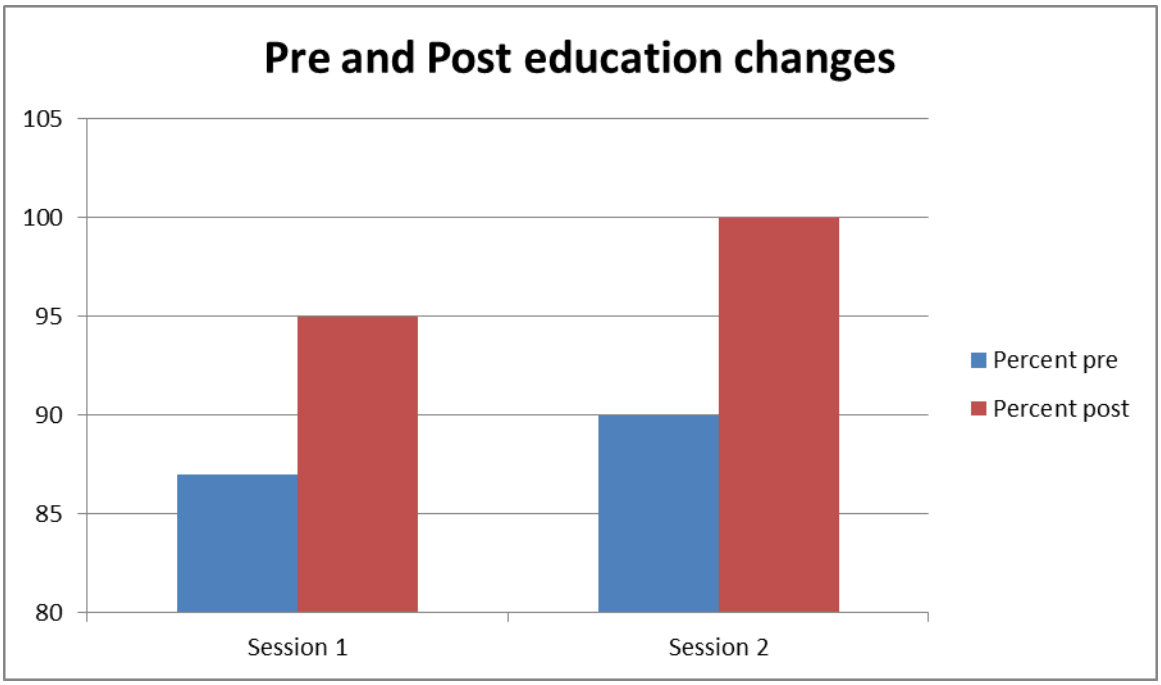

Figure 2. Comparison of pre- and posteducational intervention.

Discussion of Findings in the Context of the Literature

There are studies on patients undergoing open heart surgeries as well as surgeries in other subspecialties regarding importance of preoperative education. The studies by Lin and Wang (2005), Yeola and Jaipuriya (2016), Pinar, Kurt and Gungor (2011) demonstrated that preoperative teaching in other surgical specialties improved patient outcomes due to reduced anxiety. Zhang et al. (2012) concluded that preoperative structured education provided by trained nurses reduces anxiety and other complications in patients who underwent CABG. Guo, East, and Arthur (2012) concluded that preoperative teaching decreases anxiety and depression, and slightly decreases the length of stay after open heart surgery.

Therefore, implementation of the project was in alignment with the existing literature. The pre and post educational questionnaires showed that nurses' knowledge of

how to educate cardiac patients increased after the intervention. There were two educational sessions. The knowledge of the nurses who attended the first session increased from a baseline score of 87% to a posttest score of 95% after the educational intervention. The knowledge of the nurses who attended the second session increased from a baseline score of 90% to a posttest score of 100% after the educational intervention.

Implications

Policy

Nursing policy has to be based on the best and current evidence-based practice. DNP (DNP) prepared nurses act as leaders in health care; they can utilize their skills acquired in the program to become actively involved in implementation of the best health care policies. They are prepared "critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums" (AACN, 2006, p. 14).

According to Viars (2009), approximately seven million patients in the United States underwent cardiovascular surgery in some form in 2006. According to NYS Department of Health (2015) there were 57,512 heart surgeries over one-year period from 2011 to 2012. Our hospital alone performs 700 surgeries per year. Literature supports preoperative teaching as means of decrease anxiety, improve patients' outcome, recovery time and hospital length of stay (Guo, East & Arthur, 2015; Snowdon, Haines, and Skinner, 2014). Meanwhile, present hospital policy based on providing postoperative patients' teaching. The project targeted the changes in standards of care will involve

reevaluating the current policies for patient education. Therefore, implementation of the project to improve nursing education to provide the preoperative teaching to patients advocate for the best health care policy at the hospital.

Practice

The implications for practice are that nurses will play a vital role in reducing patient anxiety and in turn, improving the satisfaction of their experience. Patients who are about to undergo open heart surgery often experience a great deal of stress and anxiety because they do not know what to expect (Guo, et al., 2012). Currently, many nurses are not aware of the positive impact preoperative teaching can make on the patients' outcome. Therefore, it was important to teach about the effects of preoperative education and how to use it effectively in practice. Hence, the nurses who participated in the project were trained on the use of preoperative teaching to reduce patient anxiety. The findings of the project supported improvement in preoperative nurses teaching.

Preoperative education can result in less postoperative complications as the patients know what to expect and their anxiety levels are decreased. Patients about to have open heart surgery are at high risk of anxiety, which can have a detrimental effect on their condition, and on surgical outcomes (Guo, 2015). These anxieties are generally based on concerns regarding pain, the outcomes of the surgery, fears of something going wrong during surgery, and life changes after the surgery (Viars, 2009). Therefore, improvement in nurses' education will lead to improvement in preoperative patients' education and, as a result, will improve patients' satisfaction and surgical outcomes.

Another way the finding of the project will improve practice by diminishes effect on the families and discharge planning. Patient's surgery results in significant stress for the family, especially in the cases of open heart surgery (Guo, et al., 2012). The lack of necessary information and teaching during the preoperative period leads to unfounded expectations, fears and complications in postoperative period and therefore, prolonged hospital stay. Yeola and Jaipuriya (2016) found that preoperative teaching significantly decreased postoperative anxiety, pain, and hospital stay. Guo, East and Arthur (2012) found that preoperative education can reduce cardiac patients' hospital stays and recovery time. Therefore, improvement in patients' education will help families to make arrangements in advance for safe family member discharge.

Research

The research literature showed that preoperative teaching of patients about to undergo surgery can reduce anxiety. Ku, Ku, and Ma (2002) found that 76% of patients who experienced open heart surgery reported that preoperational education by their nurses reduced their anxieties in a significant way. Guo, East and Arthur (2012) found that preoperative education can reduce cardiac patients' hospital stays and recovery time. The findings of the project showed improvement in preoperative nursing education. Therefore, this project will serve as a base for the future researches to investigate how preoperative education decrease patients' anxiety, improve postoperative outcome and decrease postoperative length of stay.

Social Change

The goal of Walden University (2016) is having students develop a project that could "positively impact the quality of health care and advance the nursing profession though integration and application of knowledge" (p. 1). Creating an educational program for nurses to improve patients' knowledge about what to expect after open heart surgery and therefore, decrease their anxiety provided such a positive social change. The project initiative positively changed management and nurses' attitudes and priorities regarding preoperative patients' education.

The findings of the project showed improvement in nursing education related to preoperative care. The implementation of improved knowledge will improve patients' education and it will help patients play an active role in the medical management of their health. Effective education will decrease anxiety and fear of the unknown, increase compliance with postoperative instructions and satisfaction with treatment, both of which will promote positive postoperative outcomes. Hartmann et al. (2013) found that preoperative education decrease hospital stay and cost, and make patients proactive during physical therapy exercise.

The improved education also helps to improve communication between nurses and patients, and consequently, quality of care. "Good communication between nurses and patients is essential for the successful outcome of individualized nursing care of each patient" (Kourkouta & Papathanasiou, 2014, p. 65). Improved preoperative teaching will enhance nurses' roles on the cardiac telemetry/surgical floor. Because of improved

knowledge, the nurse can better act as a patient advocate, resulting in improved communication between nurses and physicians.

Strength and Limitations of the Project

Strength

A major strength of this study was the use of Neuman's systems model. The Neuman's systems model main concepts are client, environment, wellness and nursing intervention (Neuman & Fawcett, 2010). The Neuman's model indicates that when the client is sick and the defense system is low, the stressors break the client's stability. Nursing interventions are based on an accurate assessment of the client's health and by the use of primary, secondary or tertiary prevention interventions to return the client's system to equilibrium (Neuman & Fawcett, 2010). The patients experience different physiological, psychological, emotional and spiritual stressors. Due to the reason for the heart surgery their levels of defense are diminished. Nurses provide primary prevention by providing preoperative teaching to patients what expect postoperatively and how to relieve their anxiety.

Another strength was the active help of the leadership in implementation of the project. Strong leadership promotes effective implementation of EBP and improvement in the health care system (Rokstad et al., 2015). The nurse manager played an active role in the scheduling process and organizing sessions. Another strength was the teaching method; it combined a PowerPoint presentation, print outs and discussion. The discussion allowed nurses to ask questions. Knight and Wood (2005) referred to a benefit of

"interactive and collaborative course format" – a discussion in this case – as providing "significant increases in student learning" (p. 304).

Limitations

The first limitation is that the questionnaire had to be done in two separate sessions due to scheduling reasons. Therefore, there could have been some variables that were different between the two sessions, although I tried to ensure consistency in both sessions. The second limitation was that the knowledge levels of the nurses were higher than expected during the pretests, so there was only small room for improvement. The third limitation was that project was implemented on one cardiac floor. In addition, some of the nurses were on vacation and several did not complete the session due to patient related emergencies. The fourth limitation was that due to time constraints the project did not investigate the influence of preoperative teaching on patients' anxiety level.

Recommendations for Remediation of Limitation in Future Work

Evaluation of results of the quality improvement project led to several recommendations for future work. Due to time constraints the project did not investigate the effect of preoperative teaching on patients' anxiety level. Therefore, it is recommended to examine the correlation between preoperative teaching and patients' anxiety. In addition, it is recommended to implement the project on the other floors who care for patients with cardiac and surgical problems.

Lastly, the results of project showed that an educational intervention was successful at raising the levels of knowledge of the nurses regarding preoperative open heart surgery patients. The pretest showed that nurses had a high baseline score.

Therefore, in the future it is recommended a longer, more complicated questionnaire be developed and distributed in order to widen the scope of knowledge that the nurses are able to obtain.

Analysis of Self

As Scholar

Throughout my journey as a scholar, I have come to exhibit a great deal of professional and personal growth. But my journey did not start now; it is based in my childhood when my parents taught me the importance of education. Since then, I have graduated from several universities and have earned multiple degrees. Lifelong learning is a continuous process that helps expand a person's knowledge and skills, while constantly stimulating her (Laal & Salamati, 2012). Initially, I had a Masters Degree in engineering; later, I changed my track to nursing. Since then, I have continued expanding my career in nursing.

In my current journey, I am seeking to obtain the terminal degree in nursing. When I began this process, I was not nearly as confident in my abilities as I am now. I am aware that I could not have done and continued to do this alone. I have met many people who have helped me and were willing to collaborate with me. Yet at the same time, I know that my sense of independence has grown tremendously. In addition, I am very confident about my project choice. Since there is evidence to support the need for preoperative education for open heart surgery patients, I know that implementation of the project will provide the best evidence-based practice. This is at the core of DNP Essential

III, which states that DNP graduate nurses “provide leadership for evidence-based practice” (AACN, 2006, p. 11).

Advancing my education has been core to my long-term strategy for success. I have always known that I wanted to help people, but the DNP program has helped me grow into a future leader in health care. My practicum has taught me that I do have the qualities necessary to be a successful nurse leader. I have become more confident and more communicative. I have learned the value of collaborative leadership and of delegation. Simultaneously, I am developing my independent leadership skills by focusing on emotional intelligence and self-discovery. The goal of Doctorate of Nursing Practice program to prepare students to provide “effective team leadership and are prepared to play a central role in establishing interprofessional teams” (AACN, 2006, p. 14).

As Practitioner

Walden University (2017) identifies a scholar-practitioner as someone who integrates her academic knowledge with her real-world practice by using her environment as a source of ongoing learning and research. This means that as a DNP, I must always strive for improvement and never feel content with the status quo. I need to constantly strive to learn and achieve more; by relying on my previous achievements, I am missing out on finding new and better ways to improve people’s wellbeing. No matter how many years of experience a nurse accrues, there is always more to learn and know about theory, about technology, about research and about people in general.

Leadership has a tremendous influence on the translation of evidence into practice. Without the support of leaders who understand the value of EBP, nurses are less likely to pursue opportunities for change on their own. As a scholar-practitioner, I intend to use my practicum experience to further my goals by advocating for new EBP to improve patient care and outcomes of cardiac patients. Zaccagnini and White (2011) pointed that "the key to making best-practice decisions is in using the best-quality evidence" (p. 68).

As a Project developer

The DNP program teaches inter-professional collaboration for best health care and outcome (AACN, 2006). Throughout my project, I learned to promote knowledge integration by interacting with doctors, nursing educators, nursing leadership, and nurses to develop a viable plan for reducing preoperative anxiety for open heart surgery patients through education. Although it was quite challenging at times, it helped me to improve my navigation skills. I used the leadership skills developed in DNP program to present the evidence that this project was necessary in a persuasive and convincing way. The project helped me improve my focus and concentration on details. For example, because I sought to identify the best articles, I spent weeks researching while working on the literature review. In addition, it taught me how to be patient and continue working while feeling frustrated.

Future professional development

I have a tremendous amount of passion for making people's lives better. It is passion and compassion that drives me to continue to learn and to seek ongoing

improvements, and I feel these are my greatest strengths. As I proceed throughout my professional development, I plan to use these strengths to make positive changes in policy and patient care. My future plan is to be more engaged in politics to influence changes in health care. “Political activism and a commitment to policy development are central elements of professional nursing practice” (AACN, 2006, p. 14). I believe that this project has helped me to become an effective scholar-practitioner who creates positive change.

Summary

There are a lot of patients undergoing different types of open heart surgery. The purpose of this doctoral project was to develop a preoperative teaching program for nurses to use for patients undergoing cardiac surgery with the aim to decrease their anxiety. There were two educational sessions. The implementation of quality improvement project showed increase in nurses’ knowledge after the educational intervention. Section four discussed findings as they related to policy, practice, research, and social change. The improvement in preoperative nurses teaching should lead to change in the hospital policy and practice because it would decrease patients’ anxiety, improve patients’ outcome, hospital length of stay as well as patients’ satisfaction and communication between patients and nurses. In addition, section four discussed project’s strengths and limitations, and my self-analysis as a scholar, practitioner and project developer. Next section will discuss dissemination plan.

Section 5: Dissemination Plan

Dissemination of information is an important part of any project. Dissemination of the findings provides interested parties with new information and knowledge. It helps "improve practice and improve health outcomes" (Zaccagnini & Waud, 2011, p. 119). There are different ways to disseminate findings, such as published manuscripts, reports, posters, and PowerPoint presentations. I plan to disseminate the results of my project in the form of a poster presentation to the nursing leadership. I am also planning to present it to those responsible for nursing education and at the nursing research conference.

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Appendix A: Pre- and Posteducation Questionnaire

- How often patient should use incentive spirometry while awake?
- How often patient should do deep breathing exercise while awake?
- When should the patient do coughing?
- How often should the patient be assessed for pain?
- How often should the patient ambulate?
- What are the possible complications of open heart surgery?

Appendix B: Preoperative Education

- Incentive spirometry must be used 10 times per hour while patient is awake.
- Deep breathing exercise must be done 10 times per hour while patient is awake.
- Coughing must be performed after using incentive spirometry and deep breathing exercise.
- Patient has to be accessed for pain every 30 minutes. Patient has to be instructed to request pain medication when pain level reaches 3-4 on the scale 0-10.
- Patient has to ambulate in the hallway as least three times a day and exercise the legs while in bed.
- Possible complications of post open-heart surgery related to inactivity are pneumonia, deep vein thrombosis, and pulmonary embolism.
- Postoperative plan:
    - On Day 1 patient has to be moved out of the bed in the recliner. Patient should also start pulmonary toileting.
    - On Day 2 patient has to start ambulation and continue pulmonary toileting.
    - On Day 3 patient's ambulation has to increase to three times a day.
    - Patient has to continue pulmonary toileting.
    - On days 5-7, patient will be discharged home.

Appendix C: Prevention of Postoperative Pneumonia

1. Instruct preoperative patients, especially those at high risk for contracting pneumonia, about taking deep breaths and ambulating as soon as medically indicated in the postoperative period. Patients at high risk include those who will have abdominal aortic aneurysm repair, thoracic surgery, or emergency surgery; those who will receive general anesthesia; those who are aged ≥60 years; those with totally dependent functional status; those who have had a weight loss >10%; those using steroids for chronic conditions; those with recent history of alcohol use, history of COPD, or smoking during the preceding year; those with impaired sensorium, a history of cerebrovascular accident with residual neurologic deficit, or low (<8mg/dL) or high (>22 mg/dL) blood urea nitrogen level; and those who will have received >4 units of blood before surgery.
2. Encourage all postoperative patients to take deep breaths, move about the bed, and ambulate unless medically contraindicated.
3. Use incentive spirometry on postoperative patients at high risk for pneumonia.

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Appendix D: Clinical Pathway for CT Surgery Patient

Clinical Pathway for Post CT Surgery Patient

POD #	Immediate pre-op	Immediate post-op	POST-OP DAY #1	POST-OP DAY #2	POST-OP DAY #3	POST-OP DAY # 4	POST-OP DAY # 5
Location	SDS	CTICU	CTICU/ G2	Gellman 2	Gellman 2	Gellman 2	Gellman 2
Diagnostics	Pre-op labs	CXR, EKG, CA, MAG, CBC, BMP, PT/PTT, ABG STAT, ABG q 4 H x 3	Semi-upright CXR, EKG, BMP, CBC	CXR, EKG, CBC, BMP,	If temp spikes > 101 pan culture	If temp spikes > 101 pan culture	If temp spikes > 101 pan culture
Assessment	Pre-op hair clipping of chest and legs	VS q 15 min x 4, then q 30 min x 2, then q 1 H. Temp q2H x 12 then q 4 H	Daily weight, D/C CT	Vital signs q 4 H, Daily weight	Vital signs q 4 H, Daily weight	Vital signs q 4 H, Daily weight	Vital signs q 4 H, Daily weight
Cardiac Status	Vital signs on admission and q 4 H	CO/CI, SVR q1H, Do not wedge swan unless specified by MD, AV wires to pacemaker set on VVI, wean drips as tolerated with VS q 15 min	Wean drips; D/C swan , a-line and TLC, Insert saline lock and flush q 8 H	Telemetry, saline lock	Telemetry, saline lock, D/C pacing wires	Telemetry and saline lock	Telemetry and saline lock
Respiratory Status		Vent settings; ETT suction prn. Weaning and extubation protocol	IS, C/DB q1H, SpO2 > 92%, cpt prn; O2 NC 2-5L/min	NC 2-5 L/min, Keep SaO2> or = 92%	Oxygen prn	Room air	Room air
Wound/ Sternum	N/A	Check midsternal & leg incisions. Report to CT surgery team if dsgs become saturated with blood. Check CT's q 15 min x4 then q1H	Maintain sternal dressing for 5 days Remove leg ace wrap(s)	Maintain sternal dressing and leg dressing (s)	Maintain sternal dressing and leg dressing (s)	Maintain sternal dressing and leg dressing (s)	Remove dressings
Fluid Status	I & O	Foley to BSD; I & O q1H	D/C Foley, I & O q shift	I & O q shift	I & O q shift	I & O q shift	I & O q shift
Nutrition	NPO	Irrigate NGT prn, D/C NGT when extubated, ice chips	Clear liquid, advance as tol. Dietary Consult	Diet as tol: 1800 ADA, regular diet.	Diet as tolerated Initiate dietary teaching	Reinforce dietary teaching prior to D/C	Reinforce dietary teaching prior to D/C
Medication	Pre-Op Meds on call to OR	IV meds & infusions: volume & electrolyte replacement;, pain medication	Initiate po cardiac meds; pain mgt Anticoagulation as indicated	Pain medication Anticoagulation as indicated	Pain medication Laxatives if no BM Anticoagulation as indicated	PO meds Anticoagulation as indicated	PO meds Anticoagulation as indicated
Activity		Bed rest, Turn q 2 H	OOB to chair/ w/meals, PT consult	OOB to chair for meals, ambulate in hallway with assistance	OOB to chair Ambulate in hallway with assistance	Ambulate independently	Ambulate independently
Outcome	Pre-op and post-op instruction review. Teaching material provided. Initiate pathway	Patient will be extubated 4 hours post-op, VS will be stable	Patient will: • Ambulate and review pathway • Perform IS/C/DB 10 x's q1H	Patient will: • Ambulate • Perform IS/C/DB q1H • Verbalize expected day of D/C	Patient will: • Perform ADL with minimal assistance • IS/C/DB	Patient will: • Identify critical s/s to report to MD • State date and time of f/u visit	Patient will: • Identify critical s/s to report to MD • State date and time of f/u visit
Discharge Planning/Teaching	See Outcome	Orient Family to CTICU. Explain procedures: IS, incision splint, pain mgt	Instruct pt. on IS/C/DB & incision splinting. Case management assessment: HC and SS if needed	Reinforce IS/C/DB.	Meds, wound care and D/C teaching. Instruct family to bring in clothes for D/C. Finalize HC if needed	Reinforce teaching	Reinforce teaching

Not part of the medical record.

Appendix E: PowerPoint Presentation