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The Effectiveness of Video Education on Pre-operative Parental Knowledge and Anxiety

Terri Marcischak

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Susan McCrone, PhD, Chair
Kendra Barker, DNP
Juli Shaffer, MD

Department of Nursing

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ABSTRACT

Evaluating the Effectiveness of Video Education on
Pre-operative Parental Knowledge and Anxiety

Terri Marcischak

Pre-operative anxiety is a common and anticipated response to patients expecting to undergo anesthesia in preparation for surgery. Pre-operative parental anxiety can lead to increased anxiety in children, which is associated with physiologic alterations in the child. Pre-operative video education is an inexpensive method to increase knowledge and decrease pre-operative parental anxiety related to the perioperative process. The first goal of this project was to evaluate the effectiveness of a pre-operative video in increasing knowledge of the perioperative experience in parents of children anticipating surgery by viewing a pre-operative video. Parental knowledge was measured before and after viewing the pre-operative video. Scores were analyzed using a paired sample t-test to determine if there was a significant difference between pre and post-test parental knowledge. There was a significant difference between the two scores ($p = 0.004$). The mean knowledge score pre-intervention ($M = 14.16$, $SD = 2.035$) was lower than the mean knowledge score post-intervention ($M = 15.40$, $SD = 1.118$), $t(24) = 3.228$. The second goal of this project was to evaluate the effectiveness of viewing a pre-operative video in decreasing pre-operative parental anxiety in parents of children anticipating surgery by viewing pre-operative video. Parental anxiety was measured before and after viewing the pre-operative video. A paired sample t-test was used to determine if there was a significant difference between pre and post-test anxiety levels. There was a significant difference between pre and post-test parental state anxiety scores ($p = 0.000$). The mean anxiety score pre-intervention ($M = 41.6$, $SD = 12.783$) was higher than the mean anxiety score post-intervention ($M = 33.04$, $SD = 9.914$), $t(24) = 4.381$. Therefore, this project successfully addressed knowledge and stress (or anxiety as measured by the STAI). The video intervention allowed parents to learn, and even see, what their child would experience the day of surgery. By providing parents with this opportunity, their knowledge of what they and their child could expect the day of surgery increased, thereby decreasing the anxiety they were experiencing regarding the upcoming surgery.

Executive Summary

Background: Pre-operative anxiety is a common and anticipated response to patients expecting to undergo anesthesia in preparation for surgery. Pre-operative parental anxiety can lead to increased anxiety in children, which is associated with physiologic alterations in the child. Pre-operative video education is an inexpensive method to increase knowledge and decrease pre-operative parental anxiety related to the perioperative process.

Objective: The first goal of this project was to evaluate the effectiveness of a pre-operative video in increasing knowledge of the perioperative experience in parents of children anticipating surgery by viewing a pre-operative video. The second goal of this project was to evaluate the effectiveness of viewing a pre-operative video in decreasing

pre-operative parental anxiety in parents of children anticipating surgery by viewing pre-operative video.

Design: Twenty-five participants were recruited for this study. Each participant viewed an 8 minute and 5 second educational video developed by the academic medical center. The video was designed to demonstrate a child undergoing anesthesia with visuals of the perioperative area, including the operating room. For the first goal, parental knowledge levels were measured utilizing a questionnaire developed by the DNP student and capstone chairperson. The knowledge questionnaire was administered before and after viewing the video. Scores were analyzed using a paired sample t-test to determine if there is a statistically significant difference between pre and post-test. For the second goal, parental anxiety was measured with the State Trait Anxiety Inventory. This tool has been found to be both valid and reliable. The state and trait portions were administered before viewing the video. The state portion was administered again after viewing the video. A paired sample t-test was used to determine if there is a significant difference between pre and post-test.

Results: There was a significant difference between pre and post-intervention ($p=0.004$). The mean knowledge score pre-intervention ($M = 14.16$, $SD = 2.035$) was lower than the mean knowledge score post-intervention ($M = 15.40$, $SD = 1.118$), $t(24) = 3.228$. The mean increase in knowledge scores was 1.24 with a 95% confidence interval ranging from 0.447 to 2.033.

There was a significant difference between pre and post-test parental state anxiety scores ($p = 0.000$). The mean anxiety score pre-intervention ($M = 41.6$, $SD = 12.783$) was higher than the mean anxiety score post-intervention ($M = 33.04$, $SD = 9.914$), $t(24) = 4.381$. The mean decrease in anxiety scores was 8.560 with a 95% confidence interval ranging from 4.528 to 12.592.

In addition, there was a statistically significant difference between pre-intervention trait anxiety levels and pre-intervention state anxiety levels (0.001). The mean trait anxiety score ($M = 32.64$, $SD = 7.756$) was lower than the mean state anxiety score pre-intervention ($M= 41.6$, $SD = 12.783$). The mean increase in anxiety score was 8.960 with a 95% confidence interval ranging from 4.306 to 13.614.

In a subsample analysis, the mean pre-intervention state anxiety score of parents who had previously undergone surgery themselves was higher than the mean pre-intervention state anxiety score of parents who had not previously undergone surgery. However, an independent t-test determined that there was not a significant difference in scores between those parents who had previously undergone surgery ($n = 20$) ($M = 42.45$, $SD = 12.894$) and those who had not previously undergone surgery ($n = 5$) ($M = 38.2$, $SD = 13.142$; $t(23) = .657$, $p = .52$, two-tailed). Post-intervention state anxiety scores decreased in both groups. However, an independent t-test determined that the mean post-intervention state score of the parents who had previously undergone surgery ($n = 20$) ($M = 34.4$, $SD = 10.148$) demonstrated a decrease that was not significantly different than the mean post-intervention state score of the parents who had not previously undergone surgery ($n = 5$) ($M = 27.6$, $SD = 7.369$); $t(23) = 1.39$, $p = .18$, two-tailed).

Conclusion: This project successfully addressed knowledge and stress (or anxiety as measured by the STAI). The video intervention allowed parents to learn, and even see, what their child would experience the day of surgery. By providing parents with this

opportunity, their knowledge of what they and their child could expect the day of surgery increased and anxiety decreased.

Recommendations: After evaluating the effectiveness of the intervention video, it should be recommended that this academic medical center continue the preoperative video. In addition, adult surgical services may want to explore implementing similar interventions specific to their population. Because this video has been found to be effective in addressing the needs of this population, the video education instructions can be provided for families to view online without the burden of traveling for a pre-operative exam or extending an already lengthy clinic visit to view the video. Leaders in pediatric perioperative services need to be involved if this program is to continue and expand successfully. This would include members of pediatric surgery teams, pediatric anesthesia providers, perioperative nurses and nurse practitioners, as well as child life specialists. If this project is to be implemented in other areas, such as the adult surgical setting, a leader will need to be identified. This leader will need to work with leaders in the adult perioperative setting to develop an effective video. The leader will then need to evaluate the video for its effectiveness in increasing knowledge and decreasing anxiety in the adult surgical population.

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CHAPTER I INTRODUCTION

The Effectiveness of Video Education on

Pre-operative Parental Knowledge and Anxiety

This capstone was designed to evaluate the effectiveness of a pre-operative video on increasing knowledge and decreasing parental anxiety at an academic medical center in north central West Virginia. This project was based on the Double ABCX Model of Family Adaptation. It was implemented to determine if the use of the video was effectively increasing knowledge of the perioperative process and decreasing parental anxiety in parents with children scheduled to undergo surgery.

Background

Pre-operative anxiety is a common and anticipated response to patients expecting to undergo anesthesia in preparation for surgery. This particular anxiety is related to a sense of loss of control, fear of the unknown, and even fear of death (Jawaid, Mushtag, Mukhtar, & Khan, 2007). Furthermore, pre-operative anxiety is characterized as an uncomfortable state of unease or tension in the time period leading up to surgery (Jawaid et al.). Anxiety can be associated with abnormal hemodynamic findings such as hypertension and dysrhythmias. In addition, anxiety increases the amount of medication required to produce unconsciousness as well as decreases overall patient satisfaction with the surgical experience (Jlala, French, Foxall, Hardman, & Bedforth, 2010).

An understandable concern of parents whose child is scheduled to undergo surgery is whether the anesthesia will harm their child. Even though anesthesia has improved tremendously, all anesthesia has an association of risk (Society for Pediatric

Anesthesia, 2012). The purpose of anesthesia is to remove or block the pain and discomfort of surgery. In addition to anxiety about the anesthesia, parents also report anxiety related to the surgery and hospitalization itself (Shirley, Thompson, Kenward, & Johnston, 1998). Family members must weigh the benefits against the risks of anesthesia itself (Society for Pediatric Anesthesia).

Problem Statement

Pre-operative parental anxiety can lead to increased anxiety in children, which is associated with physiologic alterations in the child. Pre-operative video education is an inexpensive method to increase knowledge and decrease pre-operative parental anxiety related to the perioperative process.

Purpose of the Project

Pre-operative education programs can alleviate patients' anxiety (Jlala et al., 2010). Standard pre-operative education often involves verbal instructions by physicians and nurses. Other forms of pre-operative education include provision of written materials, demonstration, and video. One of the objectives of the pre-anesthesia evaluation is to reduce fear and anxiety (Jawaid et al., 2007). Research has shown that the use of video education reduces the level of anxiety for adults undergoing surgery (Jlala et al.; Kakinuma, Nagatani, Otake, Mizuno, & Nakata, 2010; Krouse, 2011). Additionally, evidence has shown that viewing a pre-operative video decreased anxiety levels for parents of children undergoing anesthesia (Berghmans et al., 2012; Cassady, Wysocki, Miller, Cancel, & Izenberg, 1999; Kain et al., 2007; McEwen, Moorthy, Quantock, Rose, & Kavanagh, 2007; Zuwala, & Barber, 2001). However, there are only a small number of studies that have evaluated the effect of video education on parental anxiety. This is

despite the fact that disproportionately high levels of parental anxiety are linked to increases in pre-operative anxiety in children (McEwen et al., 2007). This finding is of importance because pre-operative anxiety in children is linked to postoperative behavioral changes (Kain et al., 2007).

Significance of the Project

This academic medical center provides a video for parents and children to view pre-operatively. However, it was not known whether this video increased parental knowledge of the perioperative process or decreased parental anxiety. Elevated child anxiety can lead to postoperative changes such as nightmares, separation anxiety, eating disturbances, and enuresis. Because there is a correlation between parental and child anxiety, there is a need to address parental anxiety (Kain, 1999).

Research has shown that pre-operative video education not only decreased patient anxiety, but also increased patient understanding in the adult population (Pager, 2005). In addition, research has demonstrated that video education provided increased knowledge of what to expect, and this knowledge played a role in decreasing anxiety in the parents of children anticipating surgery (Cassady et al., 1999; McEwen et al., 2007). A relationship has been identified between pre-operative anxiety and need for information. Patients with a high need for information have been found to possess high pre-operative anxiety (Moerman, VanDam, Muller, & Oosting, 1996). Additionally, parental perception of anesthesia knowledge has been found to influence parental anxiety levels in those with children anticipating surgery. Parents who have viewed a pre-operative video demonstrated both decreased anxiety and need for information. This decrease in anxiety was significantly related to the decrease in need for pre-operative information. As

parents reported a decrease in anxiety, they also reported a decrease in need for information (Miller, Wysocki, Cassady, Cancel, & Izenberg, 1999). Therefore, by providing appropriate education, knowledge levels regarding the perioperative process may increase while simultaneously decreasing pre-operative anxiety levels.

The video being offered at the academic medical center has the potential to impact a large number of people. There are approximately 450,000 children admitted for inpatient surgery each year in the United States (Tzong, Han, Roh, &, Ing, 2012). In 2014, the academic medical center completed 4,552 pediatric surgeries. In 2015, that number increased to 4,721 pediatric surgeries (Donna McIntyre, personal communication, June 14, 2016). Therefore, it was important to determine if the video education tool being utilized at this facility was meeting the needs of this population. By addressing parental anxiety pre-operatively, the anxiety level of children may also be reduced, resulting in a better perioperative experience. In addition, knowledge regarding the perioperative experience may be improved, which may also aide in decreasing parental anxiety.

CHAPTER II LITERATURE REVIEW

Literature Review and Synthesis

Search Strategy

The search strategy included an extensive search of the National Guideline Clearinghouse, CINAHL, West Virginia University (WVU) Databases, PUBMED, and the Cochrane Library. Keywords included: anesthesia, anesthesia education, parental anxiety, video education, pre-operative education, and various combinations of these words and phrases. The initial search of all databases using the keywords yielded 805 articles. The search was further narrowed to 37 articles by including the terms pre-operative video education, pediatric anesthesia, and pediatric surgery. The search was further narrowed to include only studies from 2003 until present, but that limited the results significantly, so the search was expanded to include studies from 1998 to present. Articles were excluded if they did not have key terms of parental anxiety, video education, and pediatric anesthesia or pediatric surgery. WVU Databases and PUBMED yielded the largest number of relevant results. A total of five documents met the inclusion criteria. All five were randomized controlled trials (RCTs) (Berghmans et al., 2012; Cassady, Wysocki, Miller, Cancel, & Izenberg, 1999; Kain et al., 2007; McEwen et al., 2007; Zuwala, & Barber, 2001).

To better evaluate the impact of video education on pre-operative anxiety, articles with the key terms anesthesia education, pre-operative anxiety, video education and various combinations of these terms were also included. This strategy led to eight additional articles being included in the review, (Ayral et al., 2002; Bondy et al., 1999; Cand et al., 2008; Pager 2005; Jlala et al., 2010; Kakinuma et al., 2011; Sorlie et al.,

2006; Tou et al., 2012). Finally, one additional article was included and was identified by snowballing (Wilhelm et al., 2008). To establish validity, the RCTs were critically appraised utilizing the Scottish Intercollegiate Guidelines Network (SIGN, 2013).

Review of Literature

Kain et al. (2007) conducted a RCT to evaluate the effect of a family-centered, behaviorally based preparation program including video education on pre-operative anxiety. The study took place at one site and evaluated anxiety in both parents and children. Four-hundred eight parents and children ages 2-10 years with an American Society of Anesthesiology Class (ASA) class 1 or 2 status and undergoing elective, outpatient surgery were included. ASA classification is the system the American Society of Anesthesiologists utilizes to assess a patient's fitness for surgery (American Society of Anesthesiologists, 2016). The parents were randomly assigned to the intervention group, control group, parental presence group, or midazolam group. The video shown was 23 minutes in length. All relevant outcomes were measured in a standard, valid and reliable way. Parental anxiety was measured using both the state and trait portions of the State Trait Anxiety Inventory (STAI). Parents who viewed the educational video were significantly less anxious in the pre-operative holding area as compared with parents of children in other groups ($p = 0.019$). Parents in the video intervention group remained less anxious than other parents after induction of anesthesia ($p = 0.046$).

The RCT study design was a strength identified in this study. An additional strength of this RCT included participants being randomized to group based on a computer-generated random number table. The randomization sequence was concealed. In addition, the treatment and other groups were similar at the start of the trial with regard

to age, sex, ethnicity, baseline anxiety, parental trait anxiety, parental coping style, and parental education level. Also, the large number of subjects in the study was another strength. Limitations of this trial included inadequate blinding and lack of concealment. The raters were as blind as possible to group assignment. There was also a lack of concealment, as the researcher provided the intervention.

A RCT conducted by Berghmans et al. (2011) evaluated the impact of viewing a video in the holding area before anesthesia induction on parental state anxiety. The study was conducted at one site. One hundred twenty parents with children ages 6 months to 16 years with an ASA class 1 or 2 status were included. Parents were randomized to the intervention and control group. The control group received usual care. The video was four minutes in length and was intended to model what the family would experience during the entire procedure. Anxiety was measured with the STAI (state) and the Amsterdam Pre-operative Anxiety and Information Scale (APAIS). Parental anxiety was measured on admission in the holding area just before entering the operating room and after leaving the operating room. Parental anxiety was significantly lower in the video group than the control group after viewing the video ($p = 0.015$ in the holding area and $p = 0.009$ after leaving the operating room).

Several strengths were identified in this trial. The study design and large number of subjects were strengths. Groups were randomly assigned based on a computer-generated randomly numbered envelope system. The control and intervention groups were similar at the start of the trial in regards to demographics. All relevant outcomes were measured in a standard, valid and reliable way. Limitations of this study included

lack of concealment, as the researcher provided the video intervention. Also, subjects and investigators were not kept blind about treatment allocation.

Zuwala and Barber (2001) conducted a RCT to determine whether viewing a video of an actual pediatric inhalation induction would reduce the level of parental anxiety. The study was conducted at one site. Eighty parents with children ages 10 months to 10 years with an ASA class 1 or 2 who were scheduled for elective outpatient surgery were included and randomly assigned to the intervention or control group. The control group received an informational pamphlet only. The video was two minutes in length. Anxiety levels were measured with the STAI (state) tool. Parental anxiety was measured on admission and again after surgery. The video intervention group had a significantly lower level of anxiety than the control group postoperatively ($p < 0.05$).

There were strengths identified in this trial. Baseline demographics and anxiety levels did not differ significantly between the control and intervention groups. However, the authors stated that randomization was attempted, but the technique was not specified or described. A limitation of this study was that it lacked blinding.

McEwen et al. (2006) conducted a RCT to determine whether videotaped information would reduce parental anxiety. The study was conducted at one site. One hundred eleven parents with children under the age of 16 with an ASA class of 1, 2, or 3 and scheduled for day surgery were included and randomly assigned to the intervention or control group. The control group received usual care. The video was 8 minutes in length. The outcomes were measured with the STAI (state) and the APAIS, which are valid and reliable tools. Parental anxiety was measured on admission the day of surgery and again just prior to the child entering the operating room. The study concluded that

there was a statistically significant reduction in anxiety and desire for information in the intervention group as compared to the control group. ($p < 0.05$)

This study included several strengths. The study design and large number of participants were strengths. Randomization was performed using computer generated random numbers. The intervention and control groups were similar in regards to demographics at baseline. Limitations of this study included: lack of concealment as the researcher conducted the video intervention, the subjects and investigators were not kept blind about treatment allocation, and initially, the intervention group had a higher anxiety score in comparison with the control group. These limitations may have contributed to the greater reduction in anxiety seen in the intervention group.

Cassady et al. (1999) conducted a RCT to evaluate the effect of an educational video on parental pre-operative anxiety and parental knowledge. The study was conducted at one site. Eighty-five parents with children with an ASA class of 1 or 2 and scheduled for day surgery were included and randomly assigned to the intervention or control group. The control group viewed a video with no medical information. Parents employed in the healthcare field and parents of any child who received general anesthesia in the previous three years were excluded. Only one parent per child was included. If both parents were present, the mother was asked to participate. The video was 22 minutes in length. Outcomes were measured using the STAI (state) and APAIS. Parental anxiety and need for information were measured during the pre-operative visit immediately before and after viewing the video. The study concluded that viewing an educational videotape significantly decreased parental anxiety and increased parental knowledge of anesthesia ($p< 0.05$).

There were several strengths identified in this trial. The study design was an identified strength. This study did include randomization, but the technique was not described. The groups were similar at baseline in regards to demographics. There were several limitations. There was a possibility of self-selection bias as 40% of people approached declined to participate. Most often, lack of time was cited as the reason. There was also a lack of blinding. In addition, a $25 stipend was provided to those who agreed to participate, which may have biased the sample.

Kakinuma et al. (2011) conducted a RCT to determine the effect of an interactive video on pre-operative anxiety and knowledge in adults undergoing surgery. The study was conducted at one site. Two hundred eleven patients scheduled for cancer surgery who were admitted at least one day prior to surgery were included. Ambulatory surgery patients were excluded. Patients were randomized into the intervention and control groups. The control group received the usual care. The interactive video took up to 30 minutes to view and was shown the day before surgery during the preanesthetic interview. Anxiety outcomes were measured with the STAI (state). A 14-item knowledge questionnaire was developed by adapting items from similar studies. Patient anxiety and knowledge were measured before the preanesthetic interview and again on the day of surgery. The study concluded that there was no significant difference in anxiety levels between the two groups. However, the study did find that knowledge of anesthesia was higher in the video group.

There were strengths identified in this study. The study design and large number of participants were strengths. The participants were randomly assigned to groups via a random number table. The groups were similar at baseline in regards to demographics.

There were several limitations. The knowledge questionnaire had not been determined to be valid or reliable. This study lacked blinding and concealment. The diagnosis of the patient and type of surgery taking place should have been considered when interpreting the anxiety results. A diagnosis of cancer may have had an impact on patient anxiety levels.

Sorlie et al. (2006) conducted a RCT to determine the effectiveness of video information on emotional well-being in adults undergoing surgery. The study took place at one location. One hundred and nine participants were included. Adult participants were under age 68, had stable angina with a planned first time coronary artery bypass grafting, and had no severe co-morbidity. Participants were randomly assigned to the intervention or control group. The control group received usual care. Anxiety was measured with the Beck Anxiety Inventory, which has been determined to be both valid and reliable. The video was shown to participants during the pre-operative visit and again on the day of surgery. Patient anxiety was measured at baseline, upon hospital discharge, and two years after discharge. The study concluded that the participants in the video group reported less anxiety upon discharge than the standard care group ($p = 0.046$).

There were strengths identified in this study. The study design was a RCT, and there were a large number of participants. The participants were randomized to group assignment, but the technique was not described. Baseline demographics were similar in the control and intervention groups. A limitation was that patients were not blind to group allocation.

Tou et al. (2013) evaluated the effect of an animated video on perioperative anxiety and knowledge retention using a RCT design. The study took place at one location. Thirty-one participants over the age of 18 who were ASA class 1, 2 or 3 and undergoing elective abdominal surgery were included in the study and randomized to intervention or control group. The control group received usual care. The video was 13 minutes in length. Anxiety was measured using the STAI (state and trait) and visual analogue scale (VAS). It was shown to participants the day prior to surgery. Anxiety was measured at baseline, after viewing the video and again after surgery. An immediate reduction in state anxiety occurred in the video intervention group ($p = 0.03$). There was a significant reduction in anxiety in the video intervention group upon discharge as compared to the control group ($p = 0.03$).

There were strengths identified in this RCT. The groups were randomized and the technique was described. Baseline demographics were similar at baseline in both groups. The researchers and participants were blind to group allocation until baseline anxiety scores were obtained. All other staff remained blind to group allocation. A limitation was that the sample size was small.

Ayral et al. (2002) evaluated the effect of video information on pre-operative anxiety levels in patients undergoing joint lavage in a RCT. The study took place at one site. One hundred twelve patients scheduled for knee joint lavage were enrolled and randomly assigned to intervention or control group. No further enrollment criteria existed. The control group received usual care. The video was four minutes and twenty seconds long. Anxiety was measured using the VAS at baseline and upon entering the operating room. The video was shown to the intervention group the day of surgery. This

RCT concluded that anxiety levels were significantly lower in the video intervention group ($p = 0.0056$).

Strengths were identified in this study. The study design and number of participants were strengths. Participants were randomized using a pre-established list of randomization. Baseline demographics were similar in both groups. The nurses collecting data were blind to group allocation.

Bondy et al. (1999) evaluated the effect of anesthetic patient education on pre-operative patient anxiety using a RCT design. The study took place at one location. One hundred thirty four patients were randomized into the intervention or control group. The intervention included a video and pamphlet. The control group received usual care. The video was 10 minutes in length. Anxiety was measured using the STAI (state and trait). State anxiety was measured at the pre-operative appointment and again the day of surgery. The state anxiety level of the intervention group was significantly lower than the control group after viewing the video and pamphlets ($p = 0.035$).

There were strengths identified in this study. Study design and number of participants were strengths. Randomization was completed by a randomization schedule. Baseline demographics were similar in both groups. However, blinding is not discussed in the article, which is a possible limitation

Jlala et al. (2010) evaluated the effect of a video on perioperative anxiety in patients undergoing regional anesthesia using a RCT study design. The study was completed at one site. One hundred ten patients were included in the trial and randomized to the intervention or control group. The control group received usual care. The participants were ages 18-80, ASA 1 or 2, and undergoing elective surgery under

regional anesthesia. The video was nine minutes in length. Anxiety was measured using the STAI (state and trait). The VAS was also used and has been found to be a validated tool for measuring anxiety. The intervention group viewed the video two weeks prior to surgery. State anxiety was measured at baseline, immediately before surgery, and again after surgery. The video intervention group was significantly less anxious than the control group after completion of the surgery ($p = 0.005$).

There were several strengths identified in this RCT. The study design and large number of participants were strengths. Randomization was completed using computer randomization. Control and intervention groups were similar at baseline. Researchers were blinded to group allocation. A limitation was that 22 eligible patients declined participation. This may have caused selection bias.

Cand et al. (2008) conducted a RCT to evaluate the effect of video education on patient anxiety. The study was completed at one location. Two hundred twelve patients were included and randomized to the intervention or control group. Outpatient surgeries were excluded because of the desire to study those undergoing major operations. The control group received usual care. The video length was not provided. Anxiety levels were measured with the STAI (state) and the VAS. The intervention group viewed the video during a pre-operative visit within two weeks of surgery. Anxiety was measured before and after viewing the video. The study concluded that there was no difference in anxiety levels between the groups. However, it did find that the video education group had a significantly higher knowledge level than the control group ($p = 0.009$).

There were strengths identified in this study. The study design and number of participants were strengths. Randomization was completed using a closed-envelope

technique. Groups were similar in regards to baseline demographics. Researchers were kept as blind as possible. The authors suggested that patient interaction with the anesthesiologist may have been a more important factor on patient anxiety than the video. In addition, the patients in this study were undergoing major surgery, which may have explained the small effect of the video on patient anxiety.

Pager (2005) evaluated the effect of pre-operative information on the patient experience and satisfaction in a RCT. The study was completed at one location. One hundred forty-one patients undergoing cataract surgery participated and were randomized into the intervention or control group. The control group viewed a video showing the anatomy of a cataract, and the intervention group viewed a video explaining what to expect from the surgery. The videos were 10 minutes in length. Anxiety was measured using the VAS at baseline and postoperatively. The study concluded that a videotape showing patients what to expect from cataract surgery resulted in significant knowledge gain ($p < 0.001$) in addition to decreased anxiety levels ($p < 0.001$).

Strengths were identified in this RCT. The study design and number of participants were strengths. Randomization did take place, but the technique was not described. Baseline demographics were similar between groups. The interviewer was blinded to group allocation.

Wilhelm et al. (2009) evaluated the effect of video education as a tool for providing patients pre-operative information using a RCT study design. The study took place at one location. Two hundred twelve patients scheduled to undergo a cholecystectomy were included. The video was 26 minutes in length. The study did find

that video education significantly increased patient knowledge pre-operatively ($p < 0.001$).

There were strengths identified in this study. The study design and number of participants were strengths. Randomization did take place, but the technique was not specified. Baseline demographics were similar between groups. A possible weakness of the study was that surgeons at the facility developed the questionnaire.

Synthesis

Evidence from five RCTs showed that viewing a pre-operative video decreased anxiety levels for parents of children undergoing anesthesia (Berghmans et al., 2011; Cassady et al., 1999; Kain et al., 2007; McEwen et al., 2007; Zuwala & Barber, 2001). Six additional RCTs showed that viewing a pre-operative education video decreased anxiety in adults anticipating surgery (Ayral et al., 2002; Bondy et al., 1999; Pager 2005; Jlala et al., 2010; Sorlie et al., 2006; & Tou et al., 2012). Two RCTs (Cand et al., 2008; Kakinuma et al., 2011) did not show a statistically significant decrease in anxiety in the adult population. However, one trial evaluated patients with cancer, and the other evaluated patients undergoing major surgery. These factors may explain the failure of the video to significantly decrease anxiety levels. One additional RCT (Wilhelm et al., 2008) found that pre-operative video education increased patient knowledge.

Although a limited number of studies have been completed regarding this specific topic and population, each of the five RCTs focusing on the pediatric population support pre-operative video education as an intervention to reduce anxiety levels for parents of children anticipating surgery. Additional studies with the adult population also support the use of video education in decreasing pre-operative anxiety. Interestingly, five of the

studies (Cand et al., 2008; Cassady, 2010; Kakinuma et al., 2011; McEwen et al., 2007; Pager, 2005) evaluating anxiety levels in both adults undergoing anesthesia and parents of children undergoing anesthesia found that pre-operative video education also increases knowledge levels.

There are gaps remaining in the knowledge base regarding this specific topic. First, there are inconsistencies regarding the timing of viewing the video. Future research should evaluate whether viewing the video prior to the day of surgery has a different impact on parental anxiety than viewing the video the day of surgery. In addition, there were variations in the length of the video used in the trials. Future research should evaluate whether the length of the video has an impact on parental anxiety levels. Another area for research on this topic is whether the age of the child-undergoing anesthesia has an impact on the anxiety level of the parent. Finally, future research should further investigate the link between the impact of video education on both anxiety and knowledge levels, and whether it is an increase in knowledge that contributes to the decrease in anxiety.

Conclusion

Patient education programs have a strong impact on perioperative outcomes (Danielson, 2012). It is recommended that institutions develop a patient-centered approach to pre-operative education (Danielson). In addition to discussing pre-operative surgical instructions and evaluating patient health status, one of the main goals of pre-operative education programs is to reduce anxiety by increasing knowledge about surgery and anesthesia (Kitts, 1997). The findings from this literature review strongly support the utilization of pre-operative video education as an intervention to reduce the anxiety levels

of parents with children undergoing surgery. In addition, parents who viewed a pre-operative video demonstrated a significant increase in anesthesia knowledge (Cassady et al., 1999). A pre-operative video is a relatively inexpensive tool that could accomplish these positive outcomes (Kain, 1999).

As this literature review demonstrates, pre-operative video education is effective in decreasing anxiety levels of parents with children anticipating surgery. Evaluating this recent practice change for its effectiveness in increasing knowledge and decreasing parental anxiety was an important step in assuring that the site for this project is addressing the needs of pediatric patients and families. Therefore, this review supports evaluating the effectiveness of the newly implemented video education program as part of the pre-operative preparation of parents with children anticipating surgery. By ensuring that this practice change is effective, parents may experience more satisfaction with the surgical experience due to increased knowledge and lower levels of anxiety during a stressful time in parenthood.

Theoretical Model Framework

It is important to understand the relationship between stress and anxiety. Stress and anxiety are normal reactions that all people experience. However, stress is the body's reaction to a perceived threat (Anxiety and Depression Association of America, 2016). Stress can be caused by an event that makes a person nervous, such as a child undergoing a surgical procedure. Anxiety is the reaction that occurs in response to stress (Anxiety and Depression Association of America, 2016). Because of the link between stress and anxiety, the Double ABCX Model of Family Adaptation is well suited to guide this capstone project.

The Theory of Family Stress and Adaptation is a developmental theory and was borrowed from family science. It was generated to explore some reasons why some family systems adapt, grow, and thrive when faced with situational stressors, while some will deteriorate and disintegrate under similar circumstances (McCubbin & McCubbin, 1993). The original family stress theory was developed by Reuben Hill, whose studies focused on families' responses to war, separation, and eventual reunion after World War II. The theory has been modified and integrated into a newer model known as the Double ABCX Model of Family Adaptation.

The purpose of the Double ABCX Model of Family Adaptation is to allow nurses and caregivers to understand the illness situation and to understand how families are able to adjust and adapt to a crisis situation. Each of these models contribute to the understanding of what a family is and how it is able to function and adapt during both tranquility and stress. The Double ABCX Model will provide the theoretical framework for this project.

McCubbin and Patterson developed the Double ABCX Model, which includes post crisis concepts to explain how families adapt over time (McCubbin, Cauble, & Patterson, 1983). The ABCX Model details how three factors interact to predict the likelihood of a crisis (X) occurring (Beckett, 2000). The three factors include: a stressor event, the family's perception of that stressor, and the family's existing resources (ABC components) (Beckett, 2000). This model incorporates variables such as community relationships to explain how families function in periods of tranquility as well as stress. The Double ABCX Model has been utilized frequently to evaluate family stressors such as chronic illness in children as well as cancer and elder care (Smith & Lieher, 2008).

The Double ABCX Model of Family Adaptation includes nine major concepts. These concepts include: Stressor, Resources, Perception, Crisis, Pile-up, Existing and New Resources, Perception of Stressor, Coping, and Adaptation. The first concept, the stressor, is the life event affecting the family that has already or may produce change in the family social system (McCubbin, Cauble, & Patterson, 1983). Stressors are often discussed along with hardships. The stressor has the ability to impact some or all areas of a family's life. The illness or an anticipated surgery of a child is an example. The second concept, existing resources, includes the family's use of community resources and intrafamilial systems. Depending on the family's level of functioning or the nature of the stressor event, the existing resources may be either adequate or inadequate. Resources can include hardiness and religious beliefs. They can also be economic or social.

Perception of the stressor, the third concept, is the meaning a family unit places on a crisis event as well as the circumstances that lead to the crisis (McCubbin, Cauble, & Patterson, 1983). In other words, it asks if the family can define and grasp the problem and understand the situation. Perception is whether the problem the family is facing is viewed as manageable or unmanageable. If it is viewed as unmanageable, family disintegration may occur (Smith & Liehr, 2008).

Crisis, the fourth concept, is described as a demand for change that results from the combination of the family's disorganization, turmoil, and disruption, which was caused by an event (Burr, 1973). The interaction of the stressor, the interaction with the resources, and the family perception of the stressor produces the crisis (Hill, 1958). The crisis can be averted if the family is capable of meeting the demands of the stressor. Management of changes, strains, and stressors over time leads to pile-up, the fifth

concept (McCubbin, Cauble, & Patterson, 1983). This term comes from the idea that families are generally dealing with multiple stressors at any given time.

Existing and new resources, the sixth concept, allow the family to adapt to a stressor. Existing resources are the typical means of support while new expanded resources are strengthened or developed as a result of the pile-up of stressors (McCubbin, Cauble & Patterson, 1983). Self-reliance, family integration, social support, and collective group support are examples of resources, which are strengthened or developed in response to a crisis situation (McCubbin et al., 1983).

Family perception of the stressor is evaluated once again as the seventh concept in this framework. It is the way the family views and defines the stressor as well as the significance that is given to the stressor. A family whose goal is to understand the meaning of the situation can minimize the psychological toll as well as increase their ability to cope, utilize resources, and adapt (McCubbin, Cauble, & Patterson, 1983). Therefore, a family's perception of the stressor is a key factor in how the family will cope with the stressor.

Coping, the eighth concept, includes the utilization of existing and new resources to strengthen the family unit, decrease the effect of stressors, and to augment the family's perception of the crisis. According to Smith and Liehr (2008), "Parent's coping strategies are an important management resource during crisis. Coping allows the family to eliminate, reduce, or avoid stressors and strain, manage the situation, and implement changes where necessary to maintain the family system" (p. 231).

Adaptation, the ninth concept, occurs when the family has accommodated, compromised, and recognized the meaning in the crisis. It exists along a spectrum from

bonadaptation to maladaptation (McCubbin, Cauble, & Patterson, 1983). Adaptation is considered to be the outcome concept in the Double ABCX Model of Family Adaptation.

The problem identified in this project was the stress and anxiety the parents experience in anticipation of their child undergoing surgery. The Theory of Family Stress and Adaptation, operationalized through the Double ABCX Model of Family Adaptation, was very applicable to this particular problem. The applicability can be demonstrated by revisiting the concepts of the Double ABCX Model of Family Adaptation.

The first concept, the stressor, in this situation was a child being scheduled to undergo surgery and anesthesia. This stress is often related to the fear of the unknown. Another stressor for the family is the condition that has led the child to need surgery.

The second concept, resources, includes existing support systems the family already has in place. The family's perception of the stressor, the third concept, is an important concept in this framework. Family stability may be disturbed if the stressor is viewed as unmanageable (McCubbin, Cauble, & Patterson, 1983). In the pre-operative period, there is an opportunity to provide the family with the information needed to view this stressor as manageable by increasing knowledge and understanding of what to expect. This information was the pre-operative educational video. With proper knowledge and support provided, families may very well be able to avert a crisis. Crisis is the fourth concept of this framework, and the aim is to provide the family with the ability to avoid a crisis. All families will not be able to avert the crisis, but it was the goal of the video to make the stressors more manageable. By successfully going through

the previous steps and implementing this theoretical framework, the peri-operative team is able to lead families to bonadaptation, the final concept.

Studies have utilized the Double ABCX Model of Family Adaptation in the pediatric surgical population. However, these studies involved chronically ill children seeking liver transplantation (LoBiondo-Wood, Bernier-Henn, & Williams, 1992; LoBiondo-Wood, Williams, Kouzekanani, & McKee, 2000; LoBiondo-Wood, Williams, & McGhee, 2004). These studies support the idea that the pile-up of stressors throughout the process can lead to bonadaptation or maladaptation. By providing families with strategies such as education and staff support, the families are better equipped to manage the stressors surrounding the surgery of their child and reach bonadaptation.

CHAPTER III METHODOLOGY

Project

Description of Project

The purpose of this capstone project was to evaluate the effectiveness of an 8 minute and 5 second pre-operative video in increasing parental knowledge of the peri-operative period and reducing pre-operative parental anxiety. Inclusion criteria for participation included: families going through the surgical experience of a child for the first time, the child being American Society of Anesthesiology (ASA) Class 1 or 2 physical status classification, the child being between the ages of 18 months and 12 years, and undergoing placement of ventilation tubes, tonsillectomy and/or adenoidectomy. ASA classification is the system the American Society of Anesthesiologists utilizes to assess a patient's fitness for surgery. Normal healthy patients are classified as ASA 1 and patients with mild systemic disease are classified as ASA 2 (American Society of Anesthesiologists, 2016). Demographic information collected included: race, gender of participating parent, age of participating parent, whether or not the participating parent has undergone a surgical procedure, whether or not the parent was a healthcare worker, gender of child, age of child, and surgical procedure the child was scheduled to undergo (Appendix A). Participating parents were provided with a demographic form, knowledge questionnaire, as well as the STAI questionnaire to complete prior to viewing the video on the day of their pre-operative visit. After viewing the video, the questionnaires were completed again. The state and trait portions were administered before viewing the video. The state portion was administered after viewing the video. The knowledge questionnaire was administered before and after viewing the video (Appendix B). Scores

were analyzed using a paired sample t-test. This data was analyzed to determine if the video being offered was serving the purpose of increasing knowledge and decreasing anxiety. The rationale for this project was that by evaluating a video that demonstrates the anesthesia experience for children, the knowledge level of parents can be increased and their anxiety level can be decreased.

Feasibility Analysis

The need identified for the pediatric surgical population and their families was increased education. Increased education is necessary to address parental anxiety, which is linked to pre-operative anxiety in children. It was unknown whether or not the current practice at the academic medical center was adequately meeting this need for the pediatric surgical population and their families. The need for this change in practice was identified in several ways. Based on informal feedback from parents of children undergoing anesthesia, it was realized that although some pre-operative education was taking place, there were still gaps. For example, parents often state that their child is fearful of what the operating room will look like, or how they will fall asleep. Parents report anxiety themselves regarding the unknown of what their child will experience once the child leaves their care. Informal interviews of nurse practitioners in the pre-operative evaluation center agreed with this finding. The nurse practitioners felt that the focus of the pre-operative visits tend to be identifying patients at risk for anesthesia complications and optimizing current medical problems rather than alleviating patient or parental anxiety.

After completing a review of the literature, it was determined that the use of video education reduces the level of anxiety for adults undergoing surgery (Jlala et al. 2010;

Kakinuma, Nagatani, Otake, Mizuno, & Nakata, 2011; Krouse, 2001). It was also determined that, although little research has evaluated the effect of video education on parental anxiety, the research completed does support the use of video education in reducing parental anxiety (Berghmans et al., 2012; Cassady, Wysocki, Miller, Cancel, & Izenberg, 1999; Kain et al., 2007; McEwen et al., 2007; Zuwala & Barber, 2001). The institution had developed a pre-operative video. However, it had not been determined if the current video provided to the pediatric surgery population at the hospital was effective in addressing these concerns.

A SWOT Analysis was performed on the proposed practice evaluation. Internal strengths and weaknesses along with external opportunities and threats were identified. Internal strengths included West Virginia University Medicine being an academic center providing specialized pediatric care to the citizens of West Virginia and the surrounding areas. West Virginia University Medicine has a strong reputation for providing outstanding pediatric care that is patient and family focused. West Virginia University Medicine has implemented state of the art technology in their electronic medical record system and the MyWVUChart system. Internal weaknesses identified included the pre-operative testing nurse practitioners being understaffed. The pre-operative testing area also has limited space, with the space at the time of this project designated primarily for less healthy patients needing an in-person physical assessment by a nurse practitioner. That has meant healthy children do not have a physical visit with a nurse practitioner for face-to-face education regarding the anesthesia experience. There also continue to be budget cuts and restraints. External opportunities included the lack of competition in the immediate area for specialized pediatric care. New web-based video education

opportunities were identified as another external opportunity. External threats included: insurance plan changes, slow economic growth, and the potential of new competition in the pediatric care area.

Capstone Resources

Key stakeholders identified in this practice change were numerous. They included: pediatric surgical patients and their families, peri-operative nursing staff, nurse practitioners, physician assistants, surgeons, anesthesiologists, nurse anesthesia providers, hospital administration, and the information technology/marketing department. This project had human resources support throughout, which includes the support of management and employees involved in the project. The Doctor of Nursing Practice (DNP) student served as the primary interventionist.

A budget was developed to cover project implementation and organization costs (Appendix C). The cost of a nurse practitioner implementing the project was $52 per hour. However, as this project was implemented as a DNP capstone project, the DNP student implemented this project at no cost to the institution. Questionnaires to be completed by project participants were printed at a cost of $0.10 for a total of $10. The State-Trait Anxiety Inventory was purchased at a cost of $50 for 100 copies. The DNP student utilized a tablet borrowed from the School of Nursing and another donated by the capstone chairperson. Items such as computers and desks were already in place in the surgery offices so there was no additional charge for these services. Therefore, there was minimal cost to the health center for implementation of this project. To increase knowledge, decrease parental anxiety, and improve patient outcomes, peri-operative services was willing to absorb this small expense.

Needs Assessment

The purpose of this project was to evaluate parental knowledge and anxiety levels before and after video education to determine if knowledge levels increased and anxiety levels decreased with this method of education. There were several basic goals associated with this project. An estimated return of investment can be looked at both short and long-term. Short-term gains included increased parental knowledge and decreased parental anxiety. There was also the potential for decreased patient anxiety and increased staff awareness regarding parental anxiety, but these variables were not measured with this project. For the long term, an increased number of customers might begin seeking pediatric surgical services due to word of mouth of the helpful services provided. In addition, there would be a smoother and a more efficient pre-operative nursing experience for nurses caring for families who have completed the video education program. There were no identified regulations in conflict with the proposed change. It was thought that the project would reinforce the use of the pre-operative video if the video was found to be beneficial in increasing knowledge and decreasing anxiety.

The content of the video that was evaluated came from a compilation of suggestions from pediatric anesthesia, perioperative nurses and nurse practitioners, pediatric surgeons, child life specialists, and videos from other facilities. The video was designed to demonstrate a child undergoing anesthesia with visuals of the perioperative areas, including the operating room. The video will be reviewed annually for accuracy. The video will be updated by the nurse practitioner leader and marketing. A tablet and I-pad were available for viewing the video in clinic. Forms with instructions for viewing the video in clinic, as well as copies of the questionnaires were needed.

There were no extraordinary privacy, confidentiality, or security issues. The proposed change was feasible within known technical constraints and current skill level of the staff involved. The proposed change did not place unacceptable demands on any resources required for the development, testing, functional or clinical environments. The video can be viewed from home or while waiting in clinic or pre-operative clinic area. For purposes of this project, the video was viewed in the clinic. The questionnaires were completed while waiting to be seen in the clinic. The surgical scheduler notified the DNP student when a child met inclusion criteria. There was minimal impact on workflow. The change did not affect any system component that triggers recertification. There was the potential for trouble accessing computers or I-pads for families to use while onsite. There were no identified possible adverse side effects or other risks of the proposed project.

A plan for succession of the project once the capstone project is complete is essential for successful continuation of the project. A leader for this project needs to be identified. A nurse practitioner in the pre-operative evaluation center would fit this role perfectly, which the DNP student currently performs. Sharing all information and contacts with this leader is essential to allow for smooth continuation of the project as well as expansion of the project with other surgical specialties. Including the identified long-term leader early in the process and throughout implementation would be ideal for a smooth transition. One consequence of not implementing this project would be failure to address an important need identified in the pediatric surgical population.

Link to Strategic Plan

This particular project fits well into the mission, values, goals, and strategic plan of this academic medical center. The mission of West Virginia University Medicine is to, "improve the health of West Virginians and all we serve through excellence in patient care, research, and education" (WVU Medicine, 2016). By evaluating the effectiveness of the pre-operative video education program, West Virginia University Medicine is actively improving the healthcare experience for their pediatric patients and families through education. West Virginia University Medicine lists patients as one of their main values stating that, "You and your family are the first priority in everything we do. We strive for your satisfaction" (WVU Medicine, 2016). As mentioned previously, pre-operative video education has been shown to increase patient satisfaction. West Virginia University Medicine has a vision, or goal, of, "development of new approaches to improve health care", which supports the implementation of an effective video education program (WVU Medicine, 2016). Finally, West Virginia University Medicine's strategic plan, "calls for a patient-centered system of care that emphasizes quality and effectiveness, and solves some of the persistent access problems faced by those seeking care at University-related sites" (WVU Medicine, 2016). If this video was found to be effective in addressing the needs of this population, the video education program can also be made available through MyWVUChart. With this system, patients and families are granted access to important information without the burden of traveling for a pre-operative exam or extending an already lengthy clinic visit to view the video. Therefore, it was evident that the evaluation of this video education program fits into the mission, values, goals, and strategic plan of West Virginia University Medicine.

Key Site Support and Smart Objectives

Key site support was obtained in the form of letters from perioperative services manager, Paula Fotta, and Department of Otolaryngology Chairman, Dr. Ramadan. A SMART Workplan was outlined with realistic timeframes for project completion (Appendix D). The SMART Workplan was utilized to map out a course for the project and was evaluated for how well the project follows the timeline.

CHAPTER IV RESULTS

Twenty-five participants were recruited in the ENT clinic at the academic medical center. Twenty-seven were approached, but two declined participation. Analyses were conducted using SPSS. Frequencies were used to present demographics. Paired t-tests were used to measure the two project objectives. Inclusion criteria for this project included: being scheduled for a tonsillectomy, adenoidectomy, and/or ventilation tube surgery; being between the ages of 18 months and 12 years; American Society of Anesthesiology physical status classification 1 or 2; and having no previous surgical experience. The race of the sample was 88% Caucasian, 8% African American, and 4% Hispanic. Of the participating parents, 68% were female and 32% were males. The mean age of parents was 31.2 years (SD = 6.825). Eighty percent of parents had previously had surgery themselves. Eighty-four percent of parents did not work in the healthcare industry. Sixty-four percent of the children were females while 36% were males. The mean age of the children was 4.7 years (SD = 2.56563). Tonsillectomy and adenoidectomy were the most commonly scheduled surgeries (40%) followed by bilateral ventilation tubes (BVTs) (32%). Various combinations of these surgeries made up the remaining scheduled procedures. See Table 1 for the characteristics of the sample.

The first goal of this project was to evaluate the effectiveness of a pre-operative video in increasing knowledge of the perioperative experience in parents of children anticipating surgery by viewing a pre-operative video. To evaluate this goal, parental knowledge was measured before and after viewing the pre-operative video utilizing a questionnaire developed by the DNP student and capstone chairperson. Scores were analyzed using a paired sample t-test to determine if there was a statistically significant

difference between pre and post-test parental knowledge. There was a statistically significant difference between the two scores ($p = 0.004$). The mean knowledge score pre-intervention ($M = 14.16$, $SD = 2.035$) was lower than the mean knowledge score post-intervention ($M = 15.40$, $SD = 1.118$), $t(24) = 3.228$. The mean increase in knowledge scores was 1.24 with a 95% confidence interval ranging from 0.447 to 2.033.

The second goal of this project was to evaluate the effectiveness of viewing a pre-operative video in decreasing pre-operative parental anxiety in parents of children anticipating surgery by viewing a pre-operative video. To evaluate this goal, parental anxiety was measured before and after viewing the pre-operative video with the State Trait Anxiety Inventory. The state and trait portions were administered before viewing the video. The state portion was administered again after viewing the video. A paired sample t-test was used to determine if there was a statistically significant difference between pre and post-test state anxiety levels. There was a statistically significant difference between pre and post-test parental state anxiety scores ($p = 0.000$). The mean anxiety score pre-intervention ($M = 41.6$, $SD = 12.783$) was higher than the mean anxiety score post-intervention ($M = 33.04$, $SD = 9.914$), $t(24) = 4.381$. The mean decrease in anxiety scores was 8.560 with a 95% confidence interval ranging from 4.528 to 12.592.

In addition, there was a statistically significant difference between trait anxiety levels and state anxiety levels ($p = 0.001$). The mean trait anxiety score ($M = 32.64$, $SD = 7.756$) was lower than the mean state anxiety score pre-intervention ($M= 41.6$, $SD = 12.783$). The mean increase in anxiety score was 8.960 with a 95% confidence interval ranging from 4.306 to 13.614.

To determine the impact of previous experience on state anxiety, the mean pre-intervention state anxiety scores were compared between those who had and had not experienced surgery themselves using an independent samples t-test. The mean pre-intervention state anxiety score of parents who had previously undergone surgery (n = 20) (M = 42.45, SD = 12.894) was higher than the mean pre-intervention anxiety score of parents who had not previously undergone surgery (n = 5) (M = 38.2, SD = 13.142; t (23) = .657, p = .52, two-tailed). However, this finding was not statistically significant. Post-intervention anxiety scores decreased in both groups. However, the mean post-intervention score of the parents who had previously undergone surgery (n = 20) (M = 34.4, SD = 10.148) was not significantly different than the mean post-intervention score of the parents who had not previously undergone surgery (n = 5) (M = 27.6, SD = 7.369; t (23) = 1.39, p = .18, two-tailed).

CHAPTER V DISCUSSION AND RECOMMENDATIONS

The Double ABCX Model of Family Adaptation provided a guide for this project. The problem being addressed in this project was the stress and anxiety the parents experience in regards to their child undergoing surgery. The Theory of Family Stress and Adaptation, operationalized through the Double ABCX Model of Family Adaptation, was utilized to better understand what families were experiencing during a stressful experience.

The first concept, the stressor, in this situation was a child being scheduled to undergo surgery and anesthesia. This stress is often related to the fear of the unknown. The family's perception of the stressor, the third concept, is an important concept in this framework. Family stability may be disturbed if the stressor is viewed as unmanageable (McCubbin, Cauble, & Patterson, 1983). In the pre-operative period, there was an opportunity to provide the family with the information needed to view this stressor as manageable by increasing knowledge and understanding of what to expect in the form of an educational video. With increased knowledge, families may very well be able to avert a crisis. Crisis is the fourth concept of this framework, and the goal is to provide the family with the ability to avoid a crisis. All families will not be able to avert the crisis, but it was the goal of this intervention to make the stressors more manageable. This project demonstrated a statistically significant increase in knowledge scores after viewing the educational video. It also demonstrated a statistically significant decrease in anxiety scores after the intervention. Therefore, this project successfully addressed knowledge and stress (or anxiety as measured by the STAI). By implementing this theoretical

framework, this project was able to lead the participating families to bonadaptation, the final concept.

A limited number of studies utilized the Double ABCX Model of Family Adaptation in the pediatric surgical population. However, unlike previous studies using the Double ABCX model of Family Adaptation that involved chronically ill children (LoBiondo-Wood, Bernier-Henn, & Williams, 1992; LoBiondo-Wood, Williams, Kouzekanani, & McKee, 2000; LoBiondo-Wood, Williams, & McGhee, 2004), this study involved healthy children undergoing common surgical procedures in the pediatric population. This study demonstrated that this theoretical framework could guide projects involving a healthy pediatric population.

In addition to evaluating parental anxiety, this project evaluated parental knowledge levels. Similar to five of the studies reviewed that demonstrated not only decreased anxiety levels, but also increased knowledge levels (Cand et al., 2008; Cassady, 2010; Kakinuma et al., 2011; McEwen et al., 2007; Pager, 2005), this project also found that parental knowledge levels increased after the intervention. Therefore, the results of this project are similar to the current research available on the subject. Similar to the five RCTs that concluded that viewing a pre-operative video decreased anxiety levels for parents of children undergoing anesthesia (Berghmans et al., 2011; Cassady et al., 1999; Kain et al., 2007; McEwen et al., 2007; Zuwala & Barber, 2001), this study supported the use of a preoperative educational video to decrease parental anxiety. This project also produced similar results to the six RCTs that showed that viewing a pre-operative education video decreased anxiety in the adult population anticipating surgery (Ayral et al., 2002; Bondy et al., 1999; Pager 2005; Jlala et al., 2010; Sorlie et al., 2006;

& Tou et al., 2012). The literature review found variation in the length of the videos used in the trials. The video utilized in this project was 8 minutes and 5 seconds in length. Completing the questionnaires took participating parents between 10 and 20 minutes.

The video intervention allowed parents to learn, and even see, what their child would experience the day of surgery. There was a significant increase in mean knowledge scores pre-intervention (M = 14.16) to post intervention (M = 15.40). By providing parents with this opportunity, their knowledge of what they and their child could expect the day of surgery increased, thereby decreasing the anxiety they were experiencing regarding the upcoming surgery.

STAI scores range from 20–80 for each subtest, the higher score indicating greater anxiety. A score of 39–40 has been suggested to detect clinically significant symptoms for the state anxiety scale (Knight, Waal-Manning, & Spears, 1983). The mean pre-intervention state anxiety score (M= 41.6) suggests that the participants were experiencing symptoms of anxiety. However, the mean post-intervention state anxiety score (M = 33.04) decreased to below the threshold suggesting significant anxiety symptom reductions. This project was able to both increase knowledge and decrease anxiety in the parents of children scheduled to undergo surgery.

Ninety-three percent of those approached to participate in this study agreed to participate. One of the participants who declined stated she was a nurse and knew what to expect. Three small children accompanied the other participant who declined. She apologized for declining to participate, but was overwhelmed with caring for these children on her own in the office.

The key facilitators to making the project objectives achievable include the participants being a captive audience that were anxious to learn more about the events surrounding the pending surgery of their child. They were already present in the ENT when approached for project participation. In addition, experts in pediatric surgical services developed the video intervention. Because of this, it included the important information families need to increase knowledge and decrease anxiety. A key barrier was the difficulty some parents encountered while trying to watch their young child while completing the intervention. This led to some distraction and interruption. An unintended positive consequence was that some of the older children watched the video with their parents. They all expressed positive comments regarding the information contained in the video. No unintended negative consequences were identified.

This project does have limitations. One identified limitation is the use of one facility and the small sample size. Another limitation is that an investigator-developed tool was utilized to measure knowledge. Because of this, the validity of the tool is unknown. Further testing with a larger sample would need to be completed to determine the validity.

After evaluating this project, it should be recommended that this academic medical center continue this project. In addition, adult surgical services may want to explore implementing similar interventions specific to their population. The strategic plan of this academic medical center "calls for a patient-centered system of care that emphasizes quality and effectiveness, and solves some of the persistent access problems faced by those seeking care at University-related sites" (WVU Medicine, 2016). Because this video has been found to be effective in addressing the needs of this population, the

video education instructions can be provided for families to view online without the burden of traveling for a pre-operative exam or extending an already lengthy clinic visit to view the video. Leaders in pediatric perioperative services need to be involved if this program is to continue and expand successfully. This would include members of pediatric surgery teams, pediatric anesthesia providers, perioperative nurses and nurse practitioners, as well as child life specialists. If this project is to be implemented in other areas, such as the adult surgical setting, a leader will need to be identified. This leader will need to work with leaders in the adult perioperative setting to develop an effective video. The leader will then need to evaluate the video for its effectiveness in increasing knowledge and decreasing anxiety in the adult surgical population.

Attainment of DNP Essentials

Each of the DNP Essentials were attained during the capstone project. Attainment of each of the essentials will be described below.

Essential I: Scientific Underpinnings for Practice: This essential was met by utilizing the Double ABCX Model of Family Adaptation as the theoretical framework to guide the project and identifying relevant literature upon which to base the outcome measures.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking: This essential was attained by evaluating a new form of education for the pediatric surgical population. This effective means of education can now be provided for families to view online at their convenience, which meets the needs of the rural population seeking care at this medical center. This DNP project helped multiple services across the organization address a systems issue for provision of education.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice: This essential was attained by using research methods to identify gaps in the evidence for practice. A review of literature determined that preoperative parental anxiety and video education is not a widely studied subject area. Using a systematic review process, evidence was found to address a practice change, and this pilot project was implemented to review and analyze the practice change.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care: This essential was met by evaluating the effectiveness of the educational video on parental knowledge and anxiety.

This video was viewed by participants on an I-pad or tablet. The electronic record system at the project site has the capability to display this video on their internal charting system which will transform how individuals can access the video and prepare for surgery from their own homes.

Essential V: Health Care Policy for Advocacy in Health Care: This essential was attained by demonstrating leadership within the institution through advocating that this video education format should be available to all services.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes: This essential was attained by employing collaborative skills in the implementation and evaluation of this project. Collaboration took place with management, physicians, nurse practitioners, nurses, surgical schedulers, child life specialists, and marketing personnel. The interprofessional collaboration for this project improved outcomes for parental knowledge and anxiety.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health: This essential was met by evaluating the educational video for its effectiveness in addressing parental preoperative anxiety.

Essential VIII: Advanced Nursing Practice: This essential was attained by designing and evaluating this project based on nursing science. The development and implementation of this project, now being prepared for dissemination, through the course of the doctoral program is an example of how an individual advances nursing practice.

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Appendix A

Demographic Questionnaire

1. Race
2. Gender of participating parent
3. Age of participating parent
4. Have you ever had a surgical procedure?
5. Occupation of participating parent
6. Gender of child undergoing surgery
7. Age of child undergoing surgery
8. Surgical procedure the child is undergoing

Appendix B

Knowledge Questionnaire

1. When your child receives their hospital bracelet, what will the registration specialist ask them?
a. Name
b. Birthdate
c. All of the above

2. The same day surgery waiting room does not have a special room with toys and a TV.
a. True
b. False

3. A nursing assistant will weigh and measure the height of your child
a. True
b. False

4. Your child will have their vital signs (temperature, oxygen level, blood pressure) checked in the "get ready room". This will not be painful.
a. True
b. False

5. If your child is 10 years or older, the nurse may need to start an IV before he or she enters the operating room.
a. True
b. False

6. You and your child will not be able to speak with the surgeon before the surgery begins.
a. True
b. False

7. The special sleep doctor is called an anesthesiologist.
a. True
b. False

8. Your child may need to drink a special medicine or "juice" that is given to them by the anesthesiologist before going to surgery.
a. True
b. False

9. Only your child, the nurses, and doctors can go into the operating room.
a. True

b. False

10. Your child is not permitted to bring a stuffed animal or blanket from home into the operating room.
a. True
b. False

11. Once inside the operating room, the anesthesiologist may ask your child to take deep breaths into a soft mask.
a. True
b. False

12. The special medicine given by the anesthesiologist will provide a special kind of sleep where your child will not hear, feel, or see anything during the surgery.
a. True
b. False

13. You will be able to be with your child in the “wake-up room”.
a. True
b. False

14. Your child will not be able to receive any medicine in the “wake-up room”.
a. True
b. False

15. Your child will never wake up with an IV in the hand or foot.
a. True
b. False

16. Your child will be asked to drink some juice or eat a popsicle or cracker after they wake up from surgery.
a. True
b. False

Appendix C

Capstone Budget Plan Form and Justification

Budget Categories	Personal Funds	Organizational Contributions
ADMINISTRATIVE COSTS	$0	$0
Administrative Justification: The cost of a nurse practitioner implementing this project is $52 per hour. However, the project is being implemented as a DNP project and will be implemented by the NP at no cost to the institution. A surgical scheduler may be utilized for assistance in identifying participants. The salary of the scheduler is in place for provision of care.		
MARKETING	$0	$0
Marketing Justification: No marketing plans at this time other than briefing at department meetings.		
EDUCATIONAL MATERIALS/ INCENTIVES	$10	$0
Educational Materials/Incentives Justification: Printed and laminated handouts with instructions for staff regarding the implementation of this project. (10 @ $1 each = $10)		
HOSPITALITY (food, room rentals, etc.)	$0	$0
Hospitality Justification: N/A		
PROJECT SUPPLIES (office supplies, postage, printing, etc.)	$60	$0
Project Supplies Justification: Printed questionnaires (100 @ $0.10 each = $10). Estimated $50 for the purchase of 100 copies of the State-Trait Anxiety Inventory. A tablet will be borrowed from WVU SON at no charge.		
TRAVEL EXPENSES	$0	$0
Travel Expenses Justification: N/A		
OTHER	$0	$0
Other Justification:		
TOTALS	$60	$0

Appendix D

SMART Workplan

Project Goals: Evaluate the effectiveness of a pre-operative video in increasing knowledge and thereby decreasing parental anxiety at an academic medical center in north central West Virginia.

SMART Objective	**Activities**	**Projected Completion Date**	**Projected Number of People Reached**	**Organization(s)/ Partner(s) collaborating with to conduct activity**	**Evaluation Plan** (Describe measures used to assess satisfaction, project outcomes, benefits, etc.)
By August 1, 2016, develop forms to be utilized for staff and patient education, develop questionnaire & purchase STAI tool	*Meet with project champions/capstone committee to develop forms and questionnaire *Obtain permission to utilize STAI tool and purchase tool	August 1, 2016	3	DNP Project Champion Capstone Committee	Forms are developed Permission to use STAI obtained and tool purchased
By September 1, 2016, proposal defense will be complete & management approval	*Defend capstone proposal to committee *Meet with Preadmission Testing Manger, Lead	September 1, 2016	3 4	Capstone Committee PAU manager, Lead RNs, &	Successful defense of proposal, approval of implementation plan and IRB proposal

for project implementation will be received. Proposal will be submitted to IRB	unit RN, & Medical Director of PAU *Submit proposal to IRB for approval		IRB Committee	Medical Director Academic Hospital DNP Project Champion	submitted. Approval received within 45 days of IRB submission
By October15, 2016, print instructions and questionnaires to be provided to families participating in intervention		October 15, 2016		DNP Project Champion	Questionnaires printed
By October 25, 2016, staff training sessions will be complete	*Hold staff training sessions on educating families on how to identify particpants.	October 25 2016	2	DNP Project Champion Surgical Schedulers	Staff training sessions are completed
By January 15, 2017, family survey data will be compiled	*Compile survey data from families to determine effectiveness of video in increasing knowledge and reducing parental anxiety	January 15, 2016		DNP Project Champion	Evaluation summaries are ready for analysis

By February 15, 2017, complete data analysis and monitor and evaluate sustainability of project	*Complete data analysis	February 15, 2016	1	DNP Project Champion Capstone Chair	Statistically significant improvement shown in parental knowledge and anxiety from prior to viewing video to post video
By March 20, 2017, defend capstone. Begin to monitor and evaluate sustainability of project and begin to make changes as needed	*Defend capstone *Monitor and evaluate program for sustainability, making changes as needed	March 20, 2016	3 plus those present for defense	DNP Project Champion Capstone Committee WVU SON	Successful defense of capstone Project sustainability is determined and plans for changes are determined and ready for implementation

Table 1

Parental and Child Characteristics

Characteristic	Parent (n = 25) (%)	Child (n = 25) (5)
Race		
Caucasian	22 (88)	22 (88)
African American	2 (8)	2 (8)
Hispanic	1 (4)	1 (4)
Gender		
Male	8 (32)	9 (36)
Female	17 (68)	16 (64)
Previous Surgery		
Yes	20 (80)	0 (0)
No	5 (20	20 (100)
Healthcare Worker		
Yes	4 (16)	
No	21 (84)	
Age		
Minimum	20	1.5
Maximum	43	10
Mean	31.2	4.7
Standard Deviation	6.825	2.56563
Surgical Procedure		
BVT		8 (32)
Tonsillectomy		3 (12)
Adenoidectomy		1 (4)
Tonsillectomy & Adenoidectomy		10 (40)
BVT and T&A		1 (4)