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Pre-Operative Education for Elective Spine Patients

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DNP Scholarly Project

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Chapter One: Introduction

Background and Significance

Spine surgery is currently on the rise in the United States, as evidenced by a 62.3% increase in lumbar fusions alone from 2004 to 2015 (Martin et al., 2019). Two vital reasons for this increase in spinal surgery: the natural degenerative aging process and chronic low back pain. Low back pain is one of the most substantial reasons for the use of sick leave and has a lifetime prevalence of 49-80% (McGregor et al., 2010). More and more patients are looking for a surgical fix to their pain rather than lifestyle intervention alone. For that reason, researchers and healthcare workers have investigated ways to make spine surgery more successful. A key element in spine surgery's success is engaging the patient in post-operative self-care through education (Dayucos, et al., 2019; Kennedy et al., 2017; Majid et al., 2015; McClure, 2017; McGregor et al., 2010). The purpose of this education is to increase the patient's understanding of their healing process, decrease their anxiety about home care and medication management, and finally increasing their self-control.

One essential aspect of education that increases patient anxiety is the management of pain medicine. According to the Centers for Disease Control and Prevention (CDC), spine surgery and chronic back pain are major driving forces of the opioid epidemic due to unrealistic expectations of pain level and pain medicine mismanagement (Dowell, D., Haegerich, T.M., & Chou, 2016). This focus on pain control has played a part in the opioid epidemic, but healthcare providers remain uncertain about preventing it. Moreover, the recovery process of elective spine surgery can be long and painful, and without adequate education on post-operative recovery and contradictory information, the patient may experience decreased self-control of their recovery. (McGregor, et al., 2010).

In a study conducted by McGregor et al. (2010), patients reported contradictory information regarding physical activity and post-operative instructions, leading to a decreased understanding and confusion. Thus, it is imperative that pre-operative education address critical elements that impact patient outcomes and rehabilitations, such as pain management, physical activity restrictions, and rehabilitation. Revamping pre-operative education for spine surgery patients could aid in improving each of these concerns, resulting in increased understanding, decreased anxiety, and increased feeling of self-control.

There is an assumption that the patient will receive adequate education during the hospitalization phase; however, nurses are involved with more complex patient care and lack resources or time to meet this expectation. This study confirmed that nurses spend approximately 10-15 minutes with patients in the pre-operative setting, and patients receive little if any individualized instruction, and more importantly, this lack of education is known to increase patient anxiety (Dayucos, French, Kelemen, Liang, & Sik Lanyi, 2019). Another vital element is that patients are discharged sooner after surgery leaving even less time for this education. For these reasons, there is a growing need to provide evidence-based and patient-centered pre-operative education to the elective spine surgery population to engage patients in their healthcare management.

There have been varying results from pre-operative education studies and their effectiveness, reporting both positive and neutral results. A common finding in studies on pre-operative education is that they are consistently inconsistent in their route of knowledge sharing, quality of content, and lack of informational consistency (Dayucos et al., 2019; Kennedy et al., 2017; Majid et al., 2015). Kennedy et al. (2017) declared that quality education is key to patient engagement and self-management of their healthcare. One of the central needs in pre-operative

education among orthopedic surgeries is to address pain medication management and frequently asked questions of individual patients (Kennedy et al., 2017). Researchers have laid the groundwork for the increasing need for quality education to improve surgical outcomes and patient quality of life (Dayucos et al., 2019; Kennedy et al., 2017; Majid et al., 2015; McClure, 2017; McGregor et al., 2010). Quality education includes a surgery specific and well-structured educational program, critical in the success of increased understanding, decreased anxiety, and an increased feeling of control (Majid, Lee, & Plummer, 2015).

Problem Statement

There is an expectation that a patient's healthcare will include physical, social, and psychological needs (Lane-Carlson, 2011). Included in these needs is patient education. Sadly, increasing medical costs and decreased hospital stays have changed the landscape of all patient education delivery (Dayucos et al., 2019). Thus, the discharged patient has minimal to no knowledge regarding their post-operative care appropriately. In addressing these areas of concern through a pre-operative educational program, this Scholarly Project proposes that patients' understanding will increase, patients' anxiety will decrease, and the feeling of control will increase.

Clinical Question

This Scholarly Project aims to demonstrate that a pre-operative education program can improve patient understanding, decrease patient anxiety, and increase patients' feelings of control in patients undergoing elective lumbar spinal surgery. It is an assumption that pre-operative education yields a favorable surgical recovery period while enhancing the patient's quality of life. Thus, this scholarly paper will answer the clinical question: How does pre-operative education in patients scheduled to have spine surgery impact patient understanding,

patient anxiety, and perceptions of control? Additionally, this Scholarly Project's long-term goal is to help close the gap in scientific research and clinical practice by expanding the knowledge of pre-operative education and their benefit to integrating patient-centered medicine and evidence-based practice (Lane-Carlson, 2011). This knowledge can potentially be applied to further the options of quality pre-operative education to areas other than spine surgery.

Theoretical Framework

Biblical belief is a significant underpinning for this Scholarly Project, and the integration of patient-centered medicine and evidence-based practice guides the progression of positive change, as depicted in Figure 1. Thus, this conceptual framework is a result of integrating the Creation Model and Bandura's Social Learning Theory.

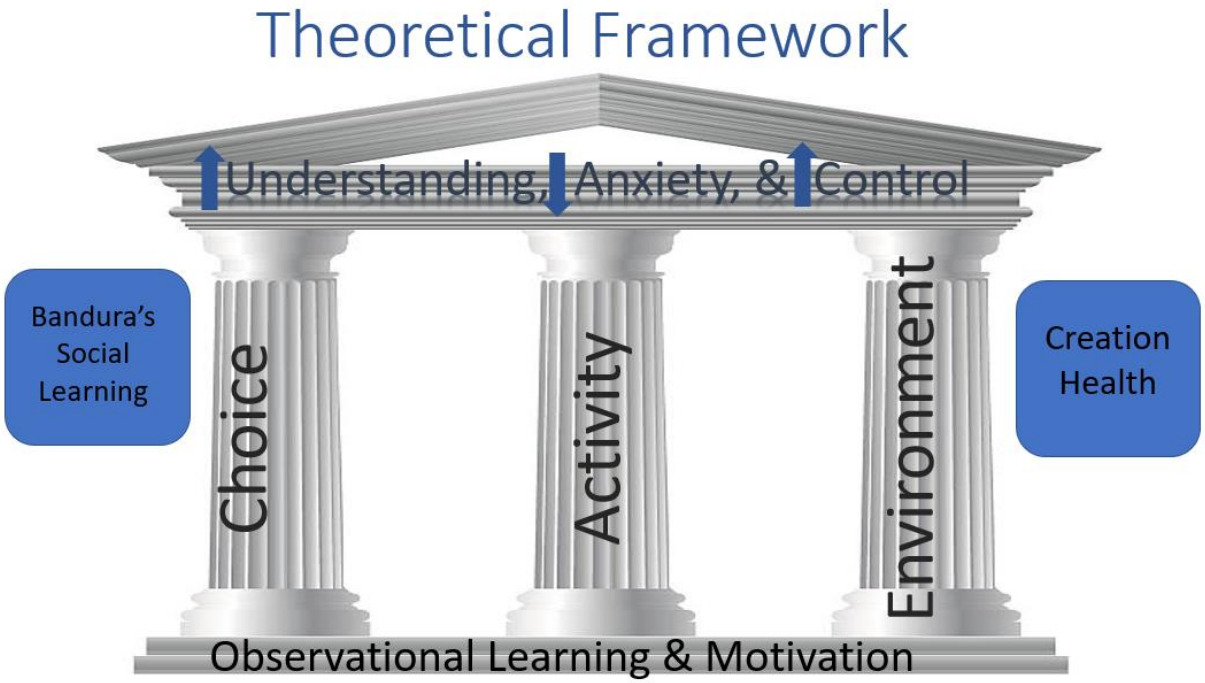


Figure 1. The theoretical framework of pre-operative education for elective spine surgery patients.

Bandura's Social Learning Theory

This theory posits that observational learning and motivation are fundamental driving forces in adult learning (McLeod, 2016). Pairing Bandura with three concepts from Creation Health: choice, activity, and trust (Creation Health, 2016) results in a natural flow of enhanced understanding, decreased anxiety, and perception of increased control.

Bandura's 1977 social learning theory incorporates two essential elements: observational learning and motivation; when used together, it provides the formula for the educational process with the most useful information and motivation (McLeod, 2016). Moreover, Bandura facilitates the educational venue, which results in the best acquisition of patient education.

Motivation in social learning is described as a mental state of readiness to learn and the desire to learn and, thus, apply new knowledge (McLeod. 2016). Another vital aspect of motivation is the by-production of personal pride, self-satisfaction, and a sense of accomplishment as these elements directly influence mental and emotional status (McLeod, 2016). It is within the mental and emotional state where the Creation Model integrates properly with this theoretical framework study to aid the patient in healing their whole self, including the mind, body, and spirit.

Creation Health

This faith-based wellness philosophy integrates eight principles, that when used consistently, aids in bettering the whole self in mind, body, and spirit (Creation Health, 2016). This model aims to use a Christ-like attitude to promote self-efficacy in the person wanting to heal the whole self. The concept of attaining self-efficacy to heal the body is also the focus of this study and will guide the Scholarly Project. The principles selected for this paper are choice, activity, and trust. Patients will use their inner motivation for excellent surgical outcomes to

choose to join the pre-operative education program. They will trust that they will receive accurate information to guide them through their recovery, and they be more motivated to increase their activity level through the education program. Through these steps, the patient's understanding and perception of control will be increased, and their anxiety will be reduced.

The first principle is choice and is the first step because every person has control of their own life and how they wish to live it (Creation Health, 2016). Each patient has the choice to participate and what aspects of the education they choose to integrate into their life to better their self. The second principle is the activity and is encouraged by providing activities approved by the surgeon and physical therapist to allow the patient a safe way to reach recovery through movement and exercise. The third principle is environment. This principle proposes that what is outside of us will come inside us and can affect our mood and mind. This principle is applied by creating educational videos that use sight and sound that creates an environment of absorbing the information into our minds. Additionally, a healthy environment is encouraged throughout the recovery process for the best possible recovery.

Chapter Two: Literature Review

Introduction

The review of literature will reflect gaps in the literature regarding the most effective type of education and outcome measurements such as pain, satisfaction, anxiety, physical activity, and others. These findings indicate the crucial need for more studies and data on successful patient education. As patients are discharged from hospitals sooner and sooner this need continues to rise (Dayucos et al, 2019).

Type of Education

Since the evolvement of patient education, there have been many approaches tried and tested. Various types of patient education found in the literature included two prime examples: self-read pamphlets and in-person classes. It is evident from the literature review that little effort has been used over the years to determine which patient education approach would yield the most useful adult education venue. Educational processes must appeal to patients from various backgrounds and educational backgrounds. Leiner et al. (2004) found that using animated instructional videos was advantageous education approach in patients with low reading scores. Furthermore, video-type education has shown to improve communication between providers and patients by increasing short-term memory retention (Kennedy et al., 2017; Leiner et al., 2004). Additionally, a study found that web-based learning and face-to-face education alone didn't conclude with very significant results. Still, when provided together, it was vital to improve patients' knowledge about their recovery process (Dekkers et al., 2018).

Unfortunately, there has been little to no studies on spine surgery specifically. Some studies in orthopedics used in person classes but did not compare this type of education with any

other form. This exemplifies more reason for research specifically with spine surgery patients and their concerns.

Outcome Measures

The specific outcome measures of pre-operative education in surgical patients have been studied in a variety of different methods. The most common outcomes measured in literature using pre-operative education are anxiety, pain, patient satisfaction, and physical activity. This Scholarly Project will address how these outcomes can be addressed through the goals of increasing understanding, decreasing anxiety, and increasing feeling of control. The current literature on these outcomes as well as other potential needs on additional outcome data is included in this review. One study found that there is no standard practice in the information provided to patients and a wide range of inaccuracy with a limited scientific basis; thus, the authors concluded that more significant, well-executed trials are needed to acquire more substantial data (McGregor et al.,2010). This Scholarly Project aims to add to the knowledge of what pre-operative education can improve for patients.

Pain

The outcome of pain is one of the most common measures among researchers of pre-operative education. The opioid epidemic has driven researchers to find a superior way to control pain. The conversation is changing from pain scores to the expected amount of pain because no surgery is painless and giving patients these expectations set them up with dissatisfaction with their treatment. Opioids are excellent short-term pain relievers and can get the pain scores the lowest. Still, with their long-term side effects, such as addiction, the harm versus benefit is off-balance, causing the overuse of opioids to drain the health and finances of communities (Manchikanti et al., 2017). The combination of the overuse of opioids and giving patients

unrealistic ideas of pain levels after surgery has driven patients to feel helpless and unsatisfied with their treatment (Kennedy et al., 2017). Thus, research is trending towards looking at how many opioids are required to reach an adequate and expected pain level instead of decreasing pain level scores alone (Kennedy et al., 2017). Before this switch in mindset, the healthcare team was apt to focus only on getting the pain score down and not on the number of opioids it took to reach that pain level making the results skewed on the effectiveness of adding pre-operative education (Kennedy et al., 2017). Another piece of opioid addiction was the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey and basing treatment guidelines on patient satisfaction levels (Van Eck et al., 2018).

Kennedy et al. (2017) hypothesized that patients lack instruction on how to use opioids, when to wean from opiates, and types of other pain relief options. This lack of adequate education has left patients frustrated, confused, and set up for failure managing their pain. Once an effective pre-operative education program is in place, the patients' understanding of pain medication management and their feeling of control to manage their pain at home will improve. Pre-operative education can empower the patient to prevent dependence concerns and ultimately reduce the opioid epidemic.

The research is overwhelming that proper education can positively affect opioid weaning. Several research study results discovered that patient education had the power to decrease the need for post-operative pain meds and thus positively impact the opioid epidemic (Syed et al., 2018, Lemay et al., 2017). Crucial elements from these studies bubbled to the top patients in the treatment group, overall, reported less pain post-operatively, better use of non-opioid pain strategies, and even better physical function post-operatively. For example 1) the treatment group consumed significantly fewer narcotics than the control group (51.2 pills versus 87.2 in control);

2) patients in the treatment group were 2.2 times more likely to discontinue narcotics by their three months follow up (p=0.03); and 3) patients with a history of narcotic use that were in the treatment group were 6.8 times more likely to discontinue narcotics by their three months follow up (p= 0.008).

Patient Satisfaction

This outcome measure comes in at a close second to pain among popularity with researchers of pre-operative education. Before the arrival of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, patient satisfaction was not a national standard. While used privately in hospitals, they weren't publicly reported (Van Eck et al., 2018). Patient satisfaction is growing in importance as it is more commonly used to maintain market share and avoid loss of reimbursement through the HCAHPS survey system (Van Eck et al., 2018).

Research has concluded that education by the surgeon alone doesn't allow patients to retain the information. Moreover, when patients perceive a lack of knowledge, their satisfaction with their treatment goes down (Van Eck et al., 2018 & Dekkers et al., 2018). In a randomized control study, the researchers found that patient satisfaction was statistically higher in the pre-operative education group than in the control group (97 ± 5 vs. 94 ± 8; $P = 0.019$) (Van Eck et al., 2018). Another study claimed that after pre-operative education, 81% of patients' expectations were met by surgery, while patients without additional knowledge were much lower (58-69%). The findings are attributed to unrealistic expectations (McGregor et al., 2010). This research study supported the concept that surgeons were favorable for pre-operative education, noting that the pre-operative education did not negatively affect the normal flow of patients and did offer a competitive advantage for areas of saturation (Van Eck et al., 2018).

Lastly, a study on using video education in particular, concluded that education reduced anxiety. Results found that when a patient's anxiety was alleviated, satisfaction and surgery success went up, as evidenced by less anesthetics and less complications immediately post-operatively (Arabul et al., 2012). This is most likely due to assisting the patient in creating realistic expectations as mentioned above. By targeting the concept of anxiety in this Scholarly Project, it appears through this research that the outcome of increased satisfaction will also increase. This added benefit would be of value to the hospital setting as the rely heavily on patient satisfaction scores.

Anxiety

The unknown and the unfamiliar of major surgeries, such as spine surgery, is sure to cause anxiety in patients. Unfortunately, anxiety can be challenging to measure accurately and consistently. A patient's anxiety score is self-reported and influenced by their current mental health status and underlying chronic anxiety. Because of this, studies vary on their outcome data and how anxiety is measured. Even though this measure has many confounding factors, it is still a significant factor in a patient's overall health. One qualitative study found that pre-operative education prepared patients on what to expect, and patients stated that this significantly reduced their anxiety (Spalding, 2003). Another study found that pre-operative education had a 4% absolute improvement in anxiety scores (McDonald et al., 2014). Individual differences in their coping style of dealing with acute anxiety can affect patient education. A study found that using video for education allowed for communication to increase in effectiveness since verbal information from the surgeon usually includes vocabulary that may be difficult to understand, which can increase anxiety. This study additionally found that decreasing anxiety also decreased the use of anesthetics (Arabul et al., 2012).

Physical activity

Function and physical activity are essential factors to quality of life after surgery. The sooner patients move, the quicker they return to their normal life, work, and the less post-operative complications, such as deep vein thrombosis (DVT) (McGregor et al., 2010). Physical activity results are variable in the research, mostly because knowledge is scarce regarding post-operative physical activity, and addressing this reality could provide a significant health impact (McGregor et al., 2010). There is a wide variety of information on how surgeons typically only offer advice without giving specific interventions for how, when, and the amount of physical activity conducted after surgery (McGregor et al., 2010). The researchers also observed that only 35% of surgeons give written physical activity advice, and some even restricting patients from sitting or encouraging bed rest (McGregor et al., 2010).

Pre-operative education could provide a more universal and evidence-based approach to encouraging patients to move sooner, which could increase their understanding and feeling of control of their post-operative activity. There have been studies showing positive results with pre-operative education regarding physical activity. One study found a 7% absolute improvement after using knowledge compared to a control group (McDonald et al., 2014). In a double-blind study, the researchers concluded that pre-operative education on physical activity after surgery allowed the patients to return to normal activities of daily living significantly earlier than control groups ($p<0.002$) (Aleksandra et al., 2008).

Smoking

There were no studies found that investigated the effectiveness of pre-operative education and smoking status. However, many studies point to the dangers of tobacco immediately before and after spine surgery. Smoking can be detrimental to spine surgery patients. Smoking affects

bone mineral density, leading to more fractures; smoking adversely affects the spinal disc's health and impedes bone healing (Zaballos et al., 2015).

Other Measures

The other measures found in the research of the effectiveness of pre-operative education worth mentioning is the reduction of length of stay in the hospital, reduced hospital bills, the improvement of patients going home instead of to rehab after surgery, and the increased retainment of knowledge (Dekkers et al., 2018; Tait et al., 2015; Van Eck et al., 2018). Dekkers et al. (2018) hypothesized that pre-operative education increases knowledge of the procedure, improved self-efficacy of health management, and reduced length of stay. More specifically, another study found that participants of a pre-operative education class had 2.12 days (49.5%) less in the hospital compared to the control ($p= 0.01$) and were 62% more likely to be discharged home (Tait et al., 2015). Additionally, total hospital cost among the pre-operative education group was an average of $4,016 (27.2%) less than the control group ($p < 0.01$) (Tait et al., 2015). Finally, another research reported that patients tested on their knowledge retained, and the group that attended a pre-operative education was significantly more informed than the control group (Van Eck et al., 2018).

Conclusion

A substantial amount of research has begun to shine a light on the benefits of pre-operative education with very limited if any, negative results. Most benefits of pre-operative education shown in research are functional improvements such as decreasing use of opioids, getting back to activities of daily living sooner, and decreased hospital stays. While there are some patient reported improvements in current research, such as improved anxiety and increased patient satisfaction, this Scholarly Project aims to add additional insight to the improvement

possibilities that pre-operative education can provide. The current research has shown that pre-operative education is not harmful to patients and can improve many factors in the recovery process. Through this literature review, effective pre-operative education can increase patient understanding, decrease anxiety, and increase the patients' feeling of control. By doing this, the patient will become self-efficacious in their care at home and ultimately return to normal life sooner.

Chapter Three: Methodology

Introduction

This Scholarly Project included a mixed methods research using qualitative and quantitative data retrieved through a pre-test/post-test design which evaluated the implementation of an intentional pre-operative education program for elective spine surgery patients. The pre-operative education was conducted using animated educational videos designed by the researcher, animators, and animation students. This Scholarly Project also aimed to add to the current research about the potential benefits of quality pre-operative education that can be adapted, revised, and implemented in all surgical specialty areas.

Setting

The setting of this Scholarly Project took place at a spine surgery office in Southeast Tennessee. This office holds three orthopedic spine surgeons, each surgeon sees patients in the office two to three days a week, with the other days used for surgery. Between the three surgeons, the office schedules approximately fifteen surgeries per week. Once scheduled for surgery, the patients receive their surgery anywhere from two weeks up to four months. The study group received pre-operative education that consisted of animated videos. This education took place in the office after the participants and surgeon decided that they are a surgical candidate and agreed on their surgical plan. The surgeon described the study to the patient after their surgical conference and once participants agreed to be part of the study group, the medical assistant brought them an iPad (owned by the researcher) and pulled up their consent for them to read and sign using a Google Forms program. Once they agreed to the consent Google Forms automatically brings them to the Pretest. This pretest acquired demographic data including age, gender, race, education level, and type of surgery. Then they were asked nine questions

regarding pain management, physical activity, and wound care as it pertained to their understanding level, anxiety level, and their personal feeling of control over these topics. Questions on understanding and feeling of control were answered on a Likert scale of very good, good, poor, or very poor. Questions on anxiety level were used with the Faces Scale as seen below (Cao et al., 2017).

Anxiety Level	None	Mild	Mild-Moderate	Moderate	Moderate-High	Highest
Faces						

Once this was completed, Google Forms automatically brought them to the three short educational videos (less than three minutes each) on topics of pain management, physical activity, and wound care at home after surgery. Once the videos were complete Google Forms automatically brought them to the post-test. This consisted of the same nine questions asked previously along with three statements for the participants to rate as strongly disagree, disagree, agree, or strongly agree. These statements were, “the content of the preoperative education materials reduced my fears/anxiety about surgery,” “the content of the preoperative education materials was useful in preparing me for concerns about my recovery,” and “I would recommend these education materials to others considering spine surgery.” Once the participants completed the post-test, the form was submitted. The researcher was the only person that had access to the Google Forms information, which was password protected.

Participants

The participants were selected via convenience sampling from the office after scheduling their surgery. All participants scheduling to have a spine surgery during the implementation phase of this Scholarly Project were asked if they would like to participate in the study by the surgeon doing their surgical conference, as long as the met the inclusion/exclusion criteria. The

inclusion criteria included: a planned operation for one of the following spine surgeries: cervical spine fusion, artificial cervical disc, lumbar spine fusion, thoracic spine fusion, and lumbar spine decompression/discectomy; over the age of 18; able to speak and understand English proficiently; have no severe mental or physical handicap; and agree to participate voluntarily. Exclusion criteria included: any participant that doesn't meet the inclusion criteria and any patient employed by the spine surgery office, or direct family member of any employees or the researcher. The participants did not receive any compensation, and the participants were allowed to leave the research study at any time without any negative consequences.

To attain a statistically significant sample, at least 30 participants were needed for a pretest/post-test pilot study design (HyLown Consulting LLC, 2019); however, it was the researcher's goal to obtain at least 50 participants in the case of dropouts.

Intervention

For this Scholarly Project, animated videos were created with the collaboration of the Arts and Animations division at a local university. The content of the animated videos was created by the researcher and approved by the surgeons of the spine surgery practice where this project was implemented. The animation was put together by an undergraduate class on animation. The videos were their class project and they worked as a group, and worked closely with the researcher and the animations instructor. Most of the videos were created, however, the unforeseen circumstance of Covid-19 pandemic occurred, and classes were abruptly ended. The researcher suggested a previous student that creates animation and advertisements professionally to finish up the work needed on the animated videos. This person agreed to finish up the animation and was paid for this work by the researcher. The voice over of the videos was completed by the instructor and a student from the animations class. Before finalization of the

videos, they were shown to the surgeons of the spine surgery practice where the Scholarly Project was implemented for content approval. There were no changes needed at this time and the videos were sent via email as an MP4 file to the researcher and then posted privately to YouTube. The videos can only be viewed with the access link of the videos. The links are listed below:

https://youtu.be/6W5xZdXjIGI

https://youtu.be/HoU8Ctba0-Q

https://youtu.be/KRnMwoik2wc

The pretest/post-test was created by the researcher using Likert type scales and the Faces Scale to measure the feeling of control, understanding, and anxiety (Cao et al., 2017). The surveys were read by people in the local community from differing educational backgrounds to assess the readability of the surveys. The Scholarly Project was then submitted to the Institutional Review Board (IRB) for approval.

Once the IRB approval was acquired, voluntary participants were collected from the spine surgery practice. Once the pre-and post-tests were collected, responses were coded and entered into Statistical Package for Social Sciences (SPSS) for evaluation with the assistance of a local statistician. The overall timeline of implementation and collection was four months from September 2020 through December 2020.

Measures

This Scholarly Project used a pretest/post-test survey given to participants in the study group. Part A of the survey included demographic data such as age, sex, race, educational background, and type of surgery. Part B of the survey assessed the feeling of control, understanding, and anxiety. Demographic data was represented with pie charts. The rest of the

data was entered into SPSS and evaluated with the assistance of a statistician to evaluate any themes in the data.

Reliability and validity

Reliability confirms that the findings of this Scholarly Project are consistent and could be repeated with similar results. The reliability of this research was tested with a Cronbach's alpha, which tests internal consistency and resulted as 0.64. This has been rated as acceptable an acceptable internal consistency of research.

Validity can be grouped into internal validity and external validity. Internal validity is the validity of the study construct and confirms that the differences seen are from the independent variable, preoperative education. The content of the preoperative education derived from current literature and validated by content experts, which consisted of the surgeons in the spine surgery practice (A. Caputo, E. Emanski, & R. Pearce, personal communication, February 2020). Additionally, readability and clarity were addressed by allowing different members of the community read the questions of varying educational backgrounds. Lastly, Likert type scales were used, which have been validated in an abundant of research. Anxiety was measure using the Faces Scale which was validated in another research and approval from the author was obtained (Cao et al., 2017).

The data was evaluated in SPSS. The type of tests the researcher used in SPSS will be through the recommendations of the book *IBM SPSS by Example* and was confirmed through a statistician (Elliott & Woodward, 2016). Any qualitative data that cannot be measured in SPSS will be reported and left to the reader to determine the transferability of the data and the environment in which they wish to apply it.

External validity which applies relevance of the results to other settings, was confirmed by obtaining a Cohen's D. This statistical test provides the effect size of the results to determine if there is clinical significance among the results. This Scholarly Project determined a small to moderate effect. This will be addressed further in the results.

Analysis

The post-operative surveys were analyzed using SPSS to compare the differences between the pre-test and post-test. Tests used in SPSS included the Wilcoxon Signed-Rank test, Paired t-test, Cohen's D, & Cronbach's Alpha. The Wilcoxon Signed-Rank test will be used as the nonparametric test to test the same group of people in a pretest/post-test scenario to determine any statistically significant differences. This test was chosen due to the small sample size limiting the and accuracy of a paired t-test. (Elliott & Woodward, 2016). However, it was determined with the collaboration of the statistician that a paired t-test could show accurate data since we were able to obtain over 50 responses. Since both tests were run, they will both be reported. Cohens D was the test used to show effect size to determine any clinical significance. Lastly, Cronbach's alpha was used for the reliability of the test scored to assess their internal consistency. A power of 80% and an alpha of .05 will determine if there is a statistically significant difference.

Ethics

This Scholarly Project applied all four of healthcare ethics within the constructs of preoperative education. Autonomy was achieved by giving the patients a deeper understanding of their own healthcare allowing them to be more self-efficacy in the recovery process. Beneficence was achieved by providing information that can better the patient outcomes and reduce their anxiety, delivering good to the patients involved. Non-maleficence was achieved by

providing true and valid information. The information was derived by current research and was approved by the surgeons of the practice to assure there was no misinformation that might cause harm to a patient. Justice was achieved because no participant was left out due to race, ethnicity, or socioeconomic background. The same information was provided to every participant of this study.

The researcher completed many steps to assure ethical research was conducted for this Scholarly Project. Collaborative Institutional Training Initiative (CITI) training was completed by the researcher which established knowledge of responsible and ethical research. The completion certificate of this training can be found in Appendix A. This Scholarly Project was submitted to the Institutional Review Board (IRB) at Southern Adventist University. The IRB approval can be found in Appendix B. The implementation and data gathering occurred after approval from the IRB. All participants were given consent to be participants of the study and were fully informed of the study's risks, benefits, process, and purpose along with a statement that they are free to leave the study at any time. The consent was approved in the IRB process and can be found in Appendix C. Participants were not be coerced to join the study and had the opportunity to withdraw from the study without consequence.

During data collection, participants will not have their names recorded on the survey. The collection will occur on one iPad that is owned by the researcher. The iPad is password protected and is only known by the medical assistants administering the iPad to the patient and the researcher. The only content on the iPad is the link to the Google Forms document. The consent, pre-test, and post-test are all stored as one in Google Forms. Limitations were set in Google Forms so that the participant cannot move forward with the study until they agree to the consent. Other participant information cannot be accessed without the researchers log in name and

password and is only known by the researcher. Once the implementation process has finished the results will be printed from Google Forms at the researcher's home and will be stored under lock and key in a lock box at the researchers' home. Once the Scholarly Project is completed and presented in its entirety the Google Forms document and the results will be deleted. The printed forms will be kept in the lockbox at the researcher's home for seven years and then will be destroyed via shredder at the researcher's home. The survey will not include names, dates of birth, social security numbers, or personal patient numbers and be.

Risk versus Benefit

This study aimed to reduce anxiety, improve quality of life, and enhance pain management to provide for a healthier future of the participants. One risk is that the pre-operative education could harm the patient if they do not follow the advice contained within the post-operative education videos. Safety advisement was included throughout the pre-operative education to bring awareness to the adverse risk. One example: phone numbers for participants to call will be readily available.

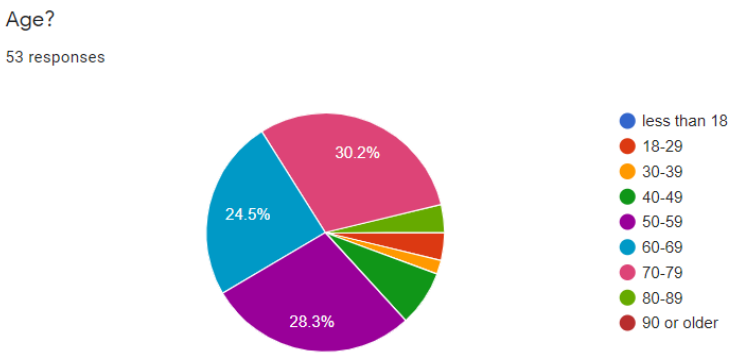
Chapter Four: Analysis of Results

Introduction

This chapter analyzes the demographics of the participants and the statistical findings of this Scholarly Project that satisfies the research question, how does pre-operative education in patients scheduled to have spine surgery impact patient understanding, patient anxiety, and perceptions of control? These three variables will be divided and analyzed separately to determine statistically significant results.

Population Description

There was a goal of 50 participants and 53 participants were obtained, of these participants, 58.5% were female and 41.5% were male. The age of the participants was largely between 50-79 years old (83%), the age of participants are as follows and seen below: 18-29 (3.8%), 30-39 (1.9%), 40- 49 (7.5%), 50-59 (28.3%), 60-69 (24.5%), 70-79 (30.2%), 80-89 (3.8%).



The race of the participants was largely Caucasian, 92.5%, with “other” being the only other race chosen represented 7.5% of the participants. Education was also ascertained from the participants, showing the majority of participants had completed some portion of college education (58.5%). Education of participants is as follows: No GED or High school diploma (3.8%), GED or High school diploma (37.7%), associates college degree (26.4%), bachelors

college degree (30.2%), and masters or higher college degree (1.9%). Lastly, the type of surgery the patient was scheduling was also established and was reported as follows: Cervical fusion or cervical disc replacement (24.5%), lumbar fusion (41.5%), lumbar decompression or discectomy (30.2%), other (3.8%).

Key Terms and Variables

The major dependent variables of this study included patient understanding, patient anxiety, and perceptions of control. This was measured using a pre/posttest study, in which the participants analyzed their own understanding, anxiety, and perception of control over their post-operative recovery from spine surgery using Likert type scales and the Facial Analog Scale. These dependent variables were applied to three main post-operative topics: wound care, physical activity, and pain management. The independent variable in this study is pre-operative education, which consisted of three short, animated videos that were created for this study. Possible confounding variable that should be considered in the evaluation of these results is if the patient has had previous spine surgery, which was not ascertained in this Scholarly Project, but will be discussed further in chapter five.

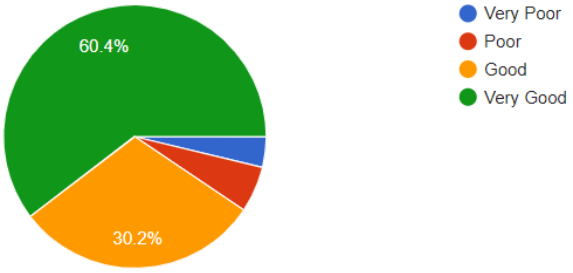
Statistical Analysis

Each survey question was evaluated through SPSS using Wilcoxon Signed Rank test and Paired t-Test. These tests are the statistical evaluation for a pre- and post- test of the same group of people. The Wilcoxon Signed rank is the non-parametric test to use for small sample sizes and was used originally for this reason. However, after consulting with a statistician it was discovered that a Paired t-Test could also be beneficial and relevant, for this reason, they will both be reported. Additionally, a Cohen's D was run on each question to evaluate effect size of each question. Lastly, a Cronbach's alpha was ascertained to assure internal consistency. This

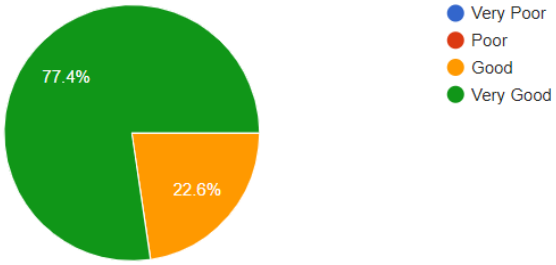
was found to be .64, which is within the acceptable range among researchers. The descriptive statistical evaluation can be found in Appendix D. A confidence level of 95% or .05 was used in the evaluation of statistical significance.

Question One. How would you rate your understanding of your wound care at home after surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .003 fourteen positive ranks, three negative ranks, and thirty-six ties. Paired t-Test reported t(52)= -2.839, one-tailed *p*= .003. Cohen's D reported .48.

Pre-test

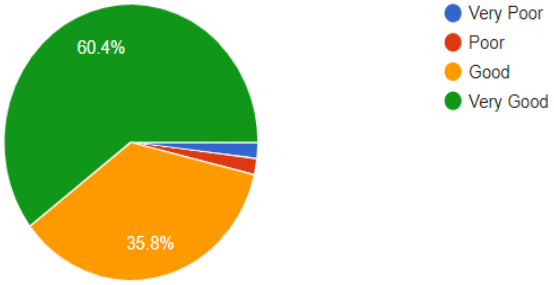


Post-test

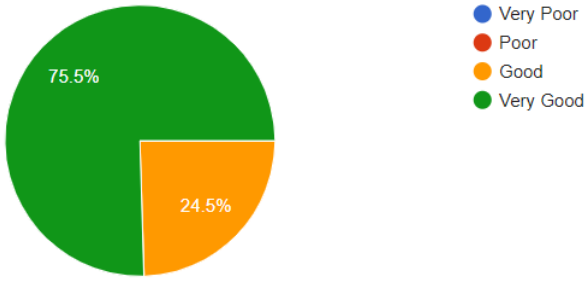


Question Two. How would you rate your understanding of physical activity you should do to optimize healing after surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .025 fourteen positive ranks, six negative ranks, and thirty-three ties. Paired t-Test reported t (52) = -2.033, one-tailed *p*=.024. Cohen's D reported .37.

Pre-test

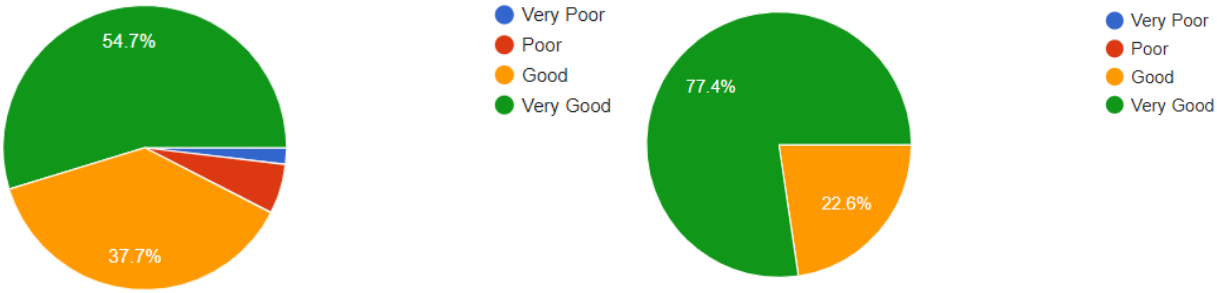


Post-test



Question Three. How would you rate your understanding of the management of your pain at home after your surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported , one-tailed *p*= .003 seventeen positive ranks, five negative ranks, and thirty-one ties. Paired t-Test reported t(52)= -2.907, one-tailed *p*=.003. Cohen's D reported .56.

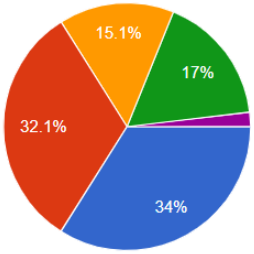
Pre-test



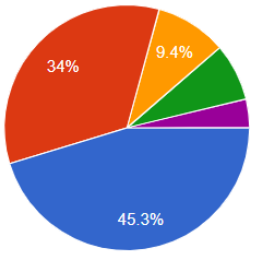
Post-test

Question Four. Using the faces below, which best describes your anxiety level about your wound care at home after surgery? This question reports a statistically significant reduction in anxiety post-survey when compared to pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .029 sixteen negative ranks, five positive ranks, and thirty-two ties. Paired t-Test reported t (52) = 2.026, one-tailed p=.024. Cohen's D reported .27.

Pre-test

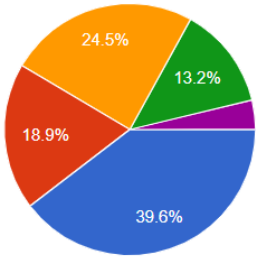


Post-test

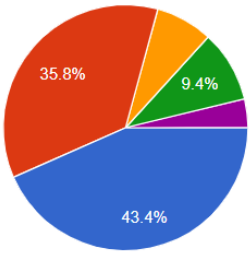


Question Five. Using the faces below, which best describes your anxiety level about increasing your physical activity at home after surgery? This question reports a statistically significant reduction in anxiety post-survey when compared to pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .011 fifteen negative ranks, six positive ranks, and thirty-two ties. Paired t-Test reported t (52) = 2.387, one-tailed *p*=.011. Cohen's D reported .25.

Pre-test

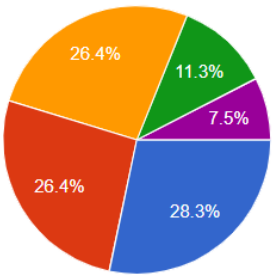


Post-test

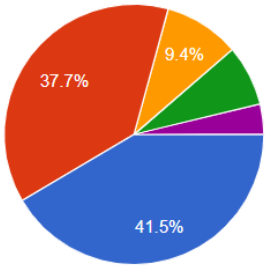


Question Six. Using the faces below, which best describes your anxiety level about managing your pain at home after surgery? This question reports a statistically significant reduction in anxiety post-survey when compared to pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .002 twenty-three negative ranks, six positive ranks, and twenty-four ties. Paired t-Test reported t (52) = 3.141, one-tailed *p*=.002. Cohen's D reported .42.

Pre-test

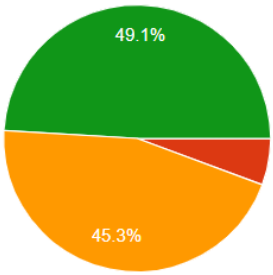


Post-test

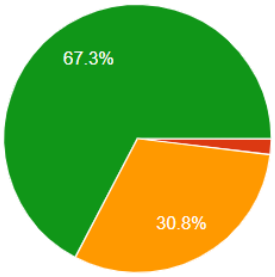


Question Seven. How would you rate your personal feeling of control over preventing infection after surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .008 fourteen positive ranks, four negative ranks, and thirty-four ties. Paired t-Test reported t (51) = -2.521, one tailed *p*=.008. Cohen's D reported .37.

Pre-test

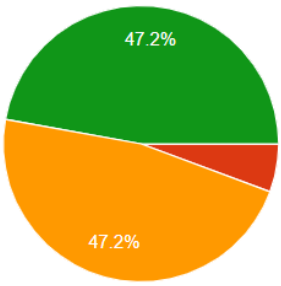


Post-test

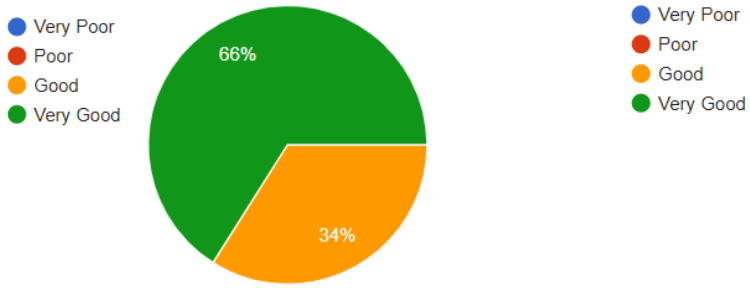


Question Eight. How would you rate your personal feeling of control over increasing your physical activity at home after surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .005 fifteen positive ranks, four negative ranks, and thirty-four ties. Paired t-Test reported t (52) = -2.757, one-tailed *p*=.004. Cohen's D reported .44.

Pre-test

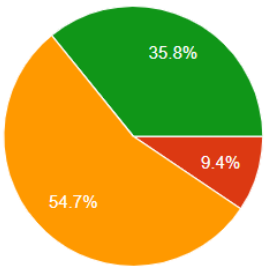


Post-test

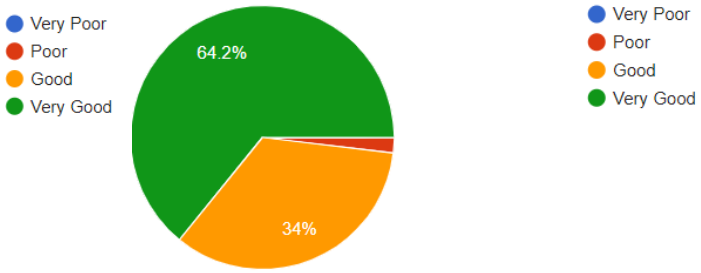


Question Nine. How would you rate your personal feeling of control over your pain management after surgery? This question reports a statistically significant improvement in the post-survey when compared to the pre-survey. Wilcoxon Signed Rank reported, one-tailed *p*= .000 eighteen positive ranks, two negative ranks, and thirty-three ties. Paired t-Test reported t (52) = -3.995, one-tailed *p* =.000. Cohen's D reported .62.

Pre-test



Post-test



Additional Analysis

Additionally, participants were asked to rate three statements that pertained to their opinion of the pre-operative education and their recommendation for the use of this education in the future. Statement one, the content of the preoperative education materials reduced my fears/anxiety about surgery. Ninety-six percent of participants either agreed or strongly agreed with this statement. Statement two, the content of the preoperative education materials was useful in preparing me for concerns about my recovery. One hundred percent of participants either agreed or strongly agreed to this statement. Statement three, I would recommend these education materials to others considering spine surgery. One hundred percent also either agreed or strongly agreed to this statement.

Conclusion

In chapter four, the statistical analysis process was discussed in detail for each of the three variables of understanding, anxiety, and perception of control. These results will be discussed further in chapter five, along with discussion of clinical significance and recommendations for future research. During the implementation process of this Scholarly Project it was noted that there was zero drop out from participants.

Chapter Five: Discussion of Findings

Introduction

This chapter reviews the results as it relates to this Scholarly Project and how it might further future research. A review of limitations will be included as this Scholarly Project was conducted during the Covid-19 pandemic and how this might have affected the study. Additionally, recommendations for practice change will be assessed.

Relationship of Outcomes to Current Research

Current research shows many advantages to pre-operative education in patients having any orthopedic surgery. These advantages included improving outcome measures, such as increased physical activity, reduced hospital stays, and reduced opioid use, among many more (Kennedy et al., 2017, Lemay et al., 2017, McGregor et al., 2010, & Syed et al., 2018). Moreover, advantages in current research also include decreased anxiety, increased knowledge, and increased self-efficacy (Dekkers et al., 2018, McDonald et al., 2014, Spalding, 2003, &Van Eck et al., 2018). It is no surprise that there are little to no disadvantages to pre-operative education, with patients and surgeons showing overwhelming support (McGregor et al., 2010).

This Scholarly Project also found many advantageous rationales for increased pre-operative education. As seen in the results of this Scholarly Project, patients' anxiety was significantly reduced, and their understanding and perception of control increased. This Scholarly Project focused on three main educational topics: wound care, physical activity, and pain medicine management. In current research, these were the main topics that supported improved surgical outcomes (Kennedy et al., 2017, Lemay et al., 2017, McGregor et al., 2010, & Syed et al., 2018). While this Scholarly Project was limited in time to measure outcomes, it did

show significant results in patients understanding, anxiety, and perception of control as it pertains to these topics.

Patient Understanding

Participants in this Scholarly Project reported an increased in understanding across all three educational topics.

Understanding: reporting "Very Good"

Topic	Pre-test	Post-test
Wound Care	60.4%	77.4%
Physical Activity	60.4%	75.5%
Pain Management	54.7%	77.4%

Participants reporting "very good" on their understanding of wound care went from 60.4% to 77.4% after pre-operative education, their understanding of physical activity went from 60.4% to 75.5%, and their understanding of pain management went from 54.7% to 77.4%.

As reported in current studies, pain management is of great concern due to the current opioid epidemic and this was the largest difference seen when comparing surveys before education versus after. This supports current research that pre-operative education has potential of positively influencing the opioid epidemic (Syed et al., 2018, Lemay et al., 2017). Additionally, these results support current research, in that, animated videos increase patient's knowledge level, which has shown to increase satisfaction levels (Van Eck et al., 2018 & Dekkers et al., 2018).

Anxiety

In current research, there has been many challenging efforts reported in measuring anxiety. This element can be manipulated by personal mental states that have many outside influencers. That is why for this Scholarly Project it was chosen to use a research-tested method of measuring anxiety, the Facial Anxiety Scale (Cao et al., 2017). Additionally, measuring anxiety immediately before education and immediately after education lessons the chance of outside influencers manipulating anxiety, as would different days. Participants of this Scholarly Project reporting's of "no anxiety" in all three topics improved from pre-education to post education.

Anxiety: reporting "none"

Topic	Pre-test	Post-test
Wound Care	34%	45.3%
Physical Activity	39.6%	43.4%
Pain Management	28.3%	41.5%

Wound care went from 34% to 45.3%, physical activity went from 39.6% to 43.4%, and pain management went from 28.3% to 41.5%. Again, pain management showing the largest difference in pre- and post-scores. McDonald et al. (2014), suggests that pre-operative education provided a 4% absolute improvement in anxiety scores. This Scholarly Project differs from that study in that it only reports overall anxiety and this Scholarly Project reports anxiety associated with specific topics. However, this Scholarly Project suggests that pre-operative education could have a much larger effect on anxiety, especially in regard to pain management. Arabul et al. (2012) also reported that providing education via video format reduced anxiety. The author

hypothesized that it improved effectiveness of communication by using easy to understand vocabulary that is typically not used by surgeons. This Scholarly Project supports this idea by providing consistent and easy to understand vocabulary in an animated video format.

Perception of Control

Lastly, this Scholarly Project measured changes in participants perception of control over their own care before and after receiving pre-operative education. This element is important to patient centered care because current research ascertains that it increases self-efficacy and patient engagement in their own healthcare (Kennedy et al., 2017). This Scholarly Project concludes that participants perception of control increased across all three topics.

Perception of Control: reporting "Very Good"

Topic	Pre-test	Post-test
Wound Care	49.1%	67.3%
Physical Activity	47.2%	66%
Pain Management	35.8%	64.2%

Participants reporting "very good" on their perception of control over preventing infection went from 49.1% to 67.3%, increasing physical activity after surgery went from 47.2% to 66%, and feeling of control over pain management went from 35.8% to an astounding 64.2%, almost doubling after pre-operative education. Current studies have shown functional improvement in opioid management using pre-operative education. Studies have reported significant decrease in opioid use (51.2 pills versus 87.2 in control), and 2.2 times more likely to discontinue pain medicine by their three months follow up (Lemay et al., 2017 & Syed et al., 2018). Additionally, Aleksandra et al. (2008) reported in a double-blind study that patients returned to normal

activities of daily living significantly sooner when receiving pre-operative education compared to those with no education ($p<0.002$). This Scholarly Project was too limited on time to measure these functional improvements but does show overwhelming support that participants feel more confident in controlling their recovery process.

Limitations

While the results of this study were positive there were limitations that should be considered when evaluating the results for clinical relevance. Many provisions were considered to avoid bias and limits to this study, but certain factors couldn't be avoided due to foreseen and unforeseen circumstances.

Covid-19 Pandemic. The largest unforeseen circumstance this study faced was the start of Covid-19 pandemic. This pandemic caused many shutdowns of businesses and mandatory quarantines starting in March 2020. This caused a delay in the approval of the conduction of this study by the office, which further limited time constraints. The IRB was also delayed due to meeting times being reconstructed. Given the unknown nature of the Covid-19 virus students had limited access to patients and doctors' offices. This affected this study as the office only allowed required employees in the office for an extended period of time. The pandemic also caused a reduced number of patients as many didn't want to be exposed unnecessarily. Additionally, for a period of time, any "elective" surgery was put on hold so that hospitals could prepare for an influx of sick patients and allocate staff to different areas of the hospital. The term "elective" was debated by surgeons and hospital management, making the scheduling of surgery unknown and causing patients even further reluctance to attempt to schedule surgery. Since the researcher was not allowed in the office to recruit potential study participants, the surgeons agreed to do so during their discussion of surgery with the patient. It was reported by the surgeons that there

were not any patients that denied being part of the study, however, it is impossible to personally determine if there was any selection bias. It is possible that patients that agreed to come to the office to schedule surgery during a pandemic may have less anxiety than patients that did not feel comfortable scheduling a surgery during a pandemic. On the contrary, it is also possible that patients were under additional stress by the pandemic causing higher anxiety scores, however, this has not been studied and is unknown.

Participant Selection. The selection of study participants ultimately became a limitation to the study. In early discussions of the study details it was discussed to only include patients that have not had a previous spine surgery. However, given the reduction in patients and the time limitations it was concluded that the majority of patients have had a previous spine surgery and excluding these patients would make it challenging to impossible to get meaningful results. The surgeons that recruited participants reported that patients that had previous spine surgery commonly said that this education would have been paramount for their first surgery but did not make much difference at this time because they had already learned these educational topics through their previous surgical experience. This certainly could have affected how the participants scored their understanding, anxiety, and perception of control because these patients have experienced knowledge of the surgical and recovery process that new surgical patients would not have.

Time Constraints. As discussed with the Covid-19 pandemic, there were unforeseen time constraints along with the foreseen time constraints of the Scholarly Project timeline. If time had not been a factor in this study, the pre-operative education material could have been studied for significance along with functional improvements (such as reduced opioids, returning to normal activities sooner, and reduced infection rates) after surgery. From the time patients

schedule their surgery to the time they reach their three-month follow up can take anywhere from eight months to four months with an average of about five months, according to the surgeons in this practice. This timeline would need to be taken into consideration for future research to measure functional improvements of pre-operative education.

Personal Observations

This Scholarly Project provided many notable results in furthering research on pre-operative education for spine patients. One benefit the construct of this study provided was zero participant drop out. The participants were able to complete the study in one sitting without follow up. This prevented a bias of only motivated participants and was beneficial in obtaining accurate results.

The results of this study provided insight that current pre-operative patient education is lacking and can be improved to provide better understanding, less anxiety, and better feeling of control. Most interesting, is the improvements on the pain management topic across all three elements of understanding, anxiety, and perception of control. The results suggested that there is a gap in education especially as it pertains to pain management and that education is beneficial to patients having spine surgery and interestingly, these were the largest improvements seen in this Scholarly Project. As cited throughout this paper, current research agreed that patients have wavering expectations in regard to pain management due to lack of education. When patients understand that there is no “pain free” spine surgery, there is a certain amount of pain expected in the recovery process, and this pain signifies healing the patients are able to match their level of expectation. In the past, there wasn’t a large focus on informing patients the risks and benefits of using opioids, how long they should expect to be on opioids, and how to wean off of them appropriately. This type of education is crucial in the fight against the opioid epidemic.

Finally, the observations of the surgeons and staff were compelling. The staff expressed on many occasions that they would like to keep these educational videos for patients because it reduced their workload. First, it made it easier on them in the surgical conference period because prior to implementing the videos they would have to go through these topics individually with patients and at times not having time to cover all of these topics. With the videos, the staff is able to start the videos and attend to other patients while they are watching. Second, the videos reduced their workload by reducing the amount of phone calls patients would think of after leaving the office. Additionally, the input from the surgeons was all positive including many statements that the videos did not interfere with patient flow and they didn't lose any time waiting on patients to watch the videos. Ultimately this was a positive practice improvement for this office.

Implications for Future Research

This Scholarly Project aimed to add to the knowledge of pre-operative education to empower the patient to take part in their recovery process. Some studies have suggested that complications after surgery can be avoided if proper education is instilled to the patient. There has been some research on pre-operative education in orthopedic surgery, however, very little exists in spine surgery. Additionally, research suggests that chronic back pain patients take more opioids than other types of pain. Accordingly, continued research could help solve this problem and lessen the intake of opioids in back pain patients. This study suggested that patients felt more understanding and more control over their care, additionally felt less anxiety about their post-operative care. It would be beneficial to have this study reproduced to solidify its validity. It would also add to the research knowledge to study patients that have never had spine surgery before, as the patients learn through experience and may have more knowledge of the recovery

process than others. Additionally, if time allowed it would be helpful to determine functional improvements such as decreased opioid use, decreased time to normal activities of daily living, and decreased post-op infections, as some other studies have shown. These results are more likely to speak to larger corporations that want to find ways of addressing fiscal and economic costs. Feedback from staff at this office also expressed that this pre-operative education helped them be more efficient, freeing up time to workup other patients faster. This is an area that could also provide beneficial knowledge in future research. Finally, comparing different types of education, such as in person vs. video vs. website vs. paper handouts would help build the most efficient pre-operative education program for patients from different educational and socioeconomic backgrounds. The current research tends to resolve that people have unique learning capabilities and it is possible that offering multiple learning avenues would provide the most benefit.

Implications for Practice

This Scholarly Project suggested that pre-operative education can provide additional benefits to patients but also benefits the practice by producing more effective staff and was reported by the surgeons to not interfere with the normal work flow. Practices that are looking into investing in a pre-operative education program could provide improved satisfaction of their patients by decreasing their anxiety and improving their understanding and perception of control over their recovery process. Another potential benefit of pre-operative education is gaining a competitive bonus amongst areas that are saturated with multiple surgeon options. As alluded to in the prior statement, this could provide more efficient workflow for staff as they might spend less time answering phone calls with questions of information that wasn't received in the office prior to surgery. The goal of post-surgical care is to empower patients to be more independent in

their care and lowering their anxiety which can provide a better environment for the patients. Receiving contradictory or inconsistent information will ultimately raise patient anxiety and producing more stress before and after surgery. Having a dedicated pre-operative education program, patients are guaranteed to receive the appropriate and quality information without affecting the flow of the day for staff and surgeons. Finally, having this education in the office allows for more patients to participate and reduces inconvenient travel for education programs at the hospital.

Conclusion

Little research has been done specifically for spine surgery patients and pre-operative education. This Scholarly Project suggested that this pre-operative education with animated videos improved understanding, reduced anxiety, and improved perception of control of the recovery process in this population that included patients with prior spine surgery and patients with no prior spine surgery experience. Additional research would add to this knowledge and aid in the validity of this study. Finally, implementing a pre-operative education in a surgical practice has shown to provide many benefits with little to no risk and can empower the patient to be more independent in their care.

Appendix A

CITI PROGRAM

Completion Date 31-Oct-2018
Expiration Date N/A
Record ID 29274354

This is to certify that:

Sandra Aaron

Has completed the following CITI Program course:

Responsible Conduct of Research (Curriculum Group)
Responsible Conduct of Research (Course Learner Group)
1 - RCR (Stage)

Under requirements set by:

Southern Adventist University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w35ca9c2f-d224-4ef0-9844-c3cb1741d7fa-29274354

Appendix B

SOUTHERN ADVENTIST UNIVERSITY
Power for Mind & Soul

IRB
Institutional Review Board

September 29, 2020

Principal Investigator: Sandra Aaron
Research Project: Pre-Operative Education for Elective Spine Patients
IRB Tracking Number: 2020-2021-004

Dear Sandra,

It is a delight to inform you that your research protocol titled "Pre-Operative Education for Elective Spine Patients" has been approved by the Southern Adventist University Institutional Research Board according to the proposal. You are now authorized to proceed with the project as outlined. This approval expires May 31, 2021.

As a principal researcher, you have the ultimate responsibility for the conduct of the study, adherence to ethical standards, and protection of the rights and welfare of human participants. As you proceed with your research, you are expected to:

1) Conduct the study according to the approved protocol.
2) Make no changes to the approved study. If changes are necessary, proceed with one of the following:
   a) For minor changes to this protocol, please notify IRB by submitting an IRB Form B and proceed after its approval.
   b) For substantial changes, submit a new IRB Form A and proceed after its approval.
3) Use the approved procedure and forms for obtaining informed consent and data.
4) Promptly report any significant adverse events to the IRB within five working days of occurrence using an Adverse Report Form.

All forms must be submitted to irb@southern.edu.

We wish you many blessings as you move forward with this study and look forward to reading your findings when they are ready. If there is anything else we can do to assist you with this research study, please contact us.

Always in His service,

Cynthia M. Gettys, PhD

Director, Center for Teaching Excellence and Biblical Foundations of Faith and Learning
Chair, Institutional Review Board
Southern Adventist University

office. 423.236.2285
cell. 423.227.2352
address. PO Box 370, Collegedale, TN 37315

"I will instruct you and teach you in the way you should go; I will counsel and watch over you." Psalm 32:8

Responsibility – Input – Strategic – Learner – Achiever

"I applied my mind to **study** and to explore by wisdom all that is done under the heavens..." - Ecclesiastes 2:13
"Research is to see what everyone else has seen and to think what nobody else has thought." - Albert Szent-Gyorgyi

Appendix C

Informed Consent Form

Introduction:

My name is Sandra Aaron. I am a doctoral student at Southern Adventist University. I am conducting a research study on patient education for spine surgery patients. I am completing this research as part of my doctoral degree. Your participation is completely voluntary. I am seeking your consent to involve you and your information in this study. Reasons you might ***not*** want to participate in the study include you are not considering surgery as a treatment option or you are unable to commit to approximately 25 minutes of time. Reasons you might want to participate in the study include adding to the knowledge on patient education to improve health promotion after spine surgery. An alternative to this study is simply not participating. I am here to address your questions or concerns during the informed consent process.

PRIVATE INFORMATION

Certain private information may be collected about you in this study. I will make the following effort to protect your private information, including only asking for your initials on surveys as part of personal identifiers and keeping your consent and surveys separate, both being under lock and key. I will not ask for other personal identifiers, such as your date of birth or social security number. Even with this effort, there is a chance that your private information may be accidentally released. The chance is small but does exist. You should consider this when deciding whether to participate.

Activities:

If you participate in this research, you will be asked to:

1. Fill out a short survey on your understanding, anxiety level, and feeling of control as it pertains to your care at home after your future surgery. This survey will include a small amount of demographic data. (approx. 5 minutes of your time)

2. Watch short educational videos on specific topics about your care after your future surgery (approx. 15 minutes of your time)

3. Fill out a survey after you watch short videos to determine any improvement in your understanding, anxiety level, and/or feeling of control as it pertains to your care at home after your future surgery. (approx. 5 minutes of your time)

Eligibility:

You are eligible to participate in this research if you:

1. Are over the age of 18 years old.

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2. You are considering spine surgery as a treatment option. Such as, Lumbar discectomy/decompression, spine fusion, or disc replacement.

3. You are able to speak and understand English proficiently

4. Have no severe mental or physical handicap

5. You agree to participate voluntarily

You are not eligible to participate in this research if you:

1. Are under the age of 18

2. You are not considering spine surgery as a treatment option

3. You are employed by the spine surgery office, or direct family member of any employees or the researcher

I hope to include 50 people in this research.

Risks:

There are minimal risks in this study. The goal of this study is to decrease anxiety by providing education on successful recovery from surgery. However, it is possible that education could increase anxiety. This study may also be an inconvenience to you as it involves short educational videos and surveys that will require your time.

To decrease the impact of these risks, you can: skip any question on your survey and/or leave the study at any time without consequence to you.

Benefits:

The potential benefits are increased knowledge and preparation for surgery and postoperative recovery

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps I will take to keep your identity confidential are: Only use initials on surveys, not ask for any other identifying information, keep consents and surveys separate under lock and key.

The people who will have access to your information are: myself, and/or my scholarly project advisor, and/or your healthcare team assisting you in the office today.

The Institutional Review Board may also review my research and view your information.

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I will secure your information with these steps: locking all papers in a box (keeping surveys and consents separate), transporting answers to a computer without any identifiers, and keeping information on the computer under password lock

I will keep your data for 7 years. Then, I will delete electronic data and destroy paper data.

Contact Information:

If you have questions for me, you can contact me at: sandraaaron@southern.edu or (865) 385-5974

My dissertation chair's name is Dr. Beth Scott. She works at Southern Adventist University and is supervising me on the research. You can contact her at: bethscott@southern.edu or (423) 236-2948

If you contact us you will be giving us information like your phone number or email address. This information will not be linked to your responses if the study is anonymous.

If you have questions about your rights in the research, or if a problem has occurred, or if you are injured during your participation, please contact the Institutional Review Board at: irb@southern.edu or 423-236-2285.

Voluntary Participation:

Your participation is voluntary. If you decide not to participate, or if you stop participation after you start, there will be no penalty to you. You will not lose any benefit to which you are otherwise entitled.

Future Research

Any information or specimens collected from you during this research may **not** be used for other research in the future, even if identifying information is removed.

Appendix D

Pre-Education

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Rate Understanding of Wound Care	53	1	4	3.47	.106	.775
Physical Activity Post Surgery	53	1	4	3.55	.088	.637
Howwouldyourateyourunderstandingonthemanagementofyour	53	1	4	3.45	.095	.695
Usingthefacesbelowwhichbestdescribesyouranxietylevela_E	53	1	5	2.21	.158	1.150
Usingthefacesbelowwhichbestdescribesyouranxietylevela_D	53	1	5	2.23	.167	1.219
Usingthefacesbelowwhichbestdescribesyouranxietylevela_C	53	1	5	2.43	.169	1.233
Howwouldyourateyourpersonalfeelingofcontroloverprevent_A	53	2	4	3.43	.083	.605
Howwouldyourateyourpersonalfeelingofcontroloverincreas_A	53	2	4	3.42	.083	.602
Howwouldyourateyourpersonalfeelingofcontroloveryourpa_A	53	2	4	3.26	.086	.625
Valid N (listwise)	53					

Post-Education

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Howwouldyourateyourunderstandingonyourwoundcareathome	53	3	4	3.77	.423
Howwouldyourateyourunderstandingofphysicalactivityyous	53	3	4	3.75	.434
Howwouldyourateyourunderstandingonmanagementofyourpain	53	3	4	3.77	.423
Usingthefacesbelowwhichbestdescribesyouranxietylevela_B	53	1	5	1.91	1.097
Usingthefacesbelowwhichbestdescribesyouranxietylevela_A	53	1	5	1.94	1.117
Usingthefacesbelowwhichbestdescribesyouranxietylevela	53	1	5	1.94	1.082
Howwouldyourateyourpersonalfeelingofcontroloverprevent	52	2	4	3.65	.520
Howwouldyourateyourpersonalfeelingofcontroloverincreas	53	3	4	3.66	.478
Howwouldyourateyourpersonalfeelingofcontroloveryourpa	53	2	4	3.62	.527
Valid N (listwise)	52				

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