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Enhancing Comfort Care Techniques in the Pediatric Inpatient Setting

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Walden University

College of Health Sciences

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Nicole Mansky

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Walden University

2019

Abstract

Enhancing Comfort Care Techniques in the Pediatric Inpatient Setting

by

Nicole Mansky

MS, Walden University, 2014

BS, Youngstown State University, 2009

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

May 2020

Abstract

The benefits of pharmacological and nonpharmacological interventions for children undergoing painful medical procedures are well documented in extant nursing literature; however, such techniques continue to be underused in practice. Improving comfort during medical procedures is necessary to enhance the patient and family experience. The purpose of this project was to provide education to nursing staff about pediatric pain theories and evidence-based practice recommendations that support the use of comfort interventions for pediatric patients of all ages. The practice-focused question addressed the development of an educational program designed to enhance staff knowledge of comfort intervention options and the benefits provided to patients. The Kirkpatrick model of evaluation was used to guide the educational design and evaluation process. Data analysis demonstrated statistically significant improvement in test scores following the educational intervention. A total of 32 staff members of a unit at the project site participated in the project. Participant pretest scores averaged 61.6% and posttest scores averaged 97.8%, with all but 6 participants having scored 100% on the posttest. The nonparametric test Wilcoxon signed-ranks test was used, and statistical significance was seen ($z = -4.969, p = .000$). Implications of this project to promote social change include opportunities to expand the use of the educational module to other departments within the organization to promote a culture of comfort through a fact-based understanding of the theories and evidence that support the consistent implementation of comfort techniques.

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Section 1: Nature of the Project

Introduction

Improving patient comfort during nursing procedures is essential to enhancing patient/family experience and promoting healing in a hospitalized child (Wensley, Botti, McKillop & Merry, 2017). Children admitted to the hospital are vulnerable and often fearful for various reasons. Because the concept of comfort is difficult to define, perception based, and multidimensional, it is imperative that health care professionals acknowledge these patient fears and adapt care to best meet the needs of the patients and their families (Wensley et al., 2017). Although the benefits of both pharmacological and nonpharmacological interventions during hospital-based procedures are well documented in extant literature, they continue to be underused in nursing practice (Cregin et al., 2008). Therefore, it is necessary to gain a better understanding of the learning needs, perceptions, and barriers that limit the use of comfort care options during nursing interventions for pediatric patients in the inpatient setting.

Problem Statement

In the unit selected for this project, there was an observed variation in the consistency with which staff offered and facilitated the use of comfort techniques in nursing practice. In addition, nurse leader rounding reports have revealed parent complaints related to lack of empathy displayed during procedures as well as frustrations that their child was offered a comfort option by one nurse or department, but not another. Further, in terms of patient satisfaction data, the unit targeted for this project had the

second lowest rating in the category of “staff eased discomfort,” scoring collectively below the benchmark in all quarters of 2018.

Although the unit is equipped with the tools and staff necessary to support comfort techniques during nursing procedures, there continued to be inconsistency and insufficient use of comfort methods. The child life specialist on the unit strives to facilitate comfort techniques, especially during the day shift, but often encountered resistance from the nursing staff. Efforts were necessary to uncover staff learning needs and effectively design an educational intervention to increase the staff members’ knowledge of comfort care options and build their confidence in using such techniques in practice.

This project is significant to nursing practice in a pediatric setting because the use of comfort techniques is primarily nurse driven. Enhancing comfort during procedures is fundamental to improving the overall patient experience (Wensley et al., 2017). Because patients and families desire active involvement in their care, providing them with choices is essential to improving patient satisfaction. When possible, giving children options about which techniques they feel most comfortable with gives children a sense of control over the situation and increases the child’s ability to cope during painful or intimidating medical procedures (Ellis, Sharp, Newhook, & Cohen, 2004).

Purpose

My purpose in this DNP project was to provide education and training to incumbent nursing staff members on the selected pediatric inpatient unit regarding comfort measures to be offered during painful procedures to improve knowledge of

comfort interventions and promote consistency among the nursing staff. I did this in concert with the Walden educational manual. Nursing research continues to support the benefits of using comfort interventions during nursing procedures; however, there continues to be a deficiency of consistent execution among health care professionals. Some barriers recognized for attributing to the insufficient use of comfort interventions include lack of self-confidence and inexperience implementing comfort methods (Stevens & Marvicsin, 2016). Nursing literature also attributes the underuse of evidence-based comfort interventions to the lack of effective training and staff skill in facilitating and implementing the full variety of techniques (Mcmurtry, 2013).

The guiding practice-focused question for this doctoral project was: Does interactive education with pediatric staff members about comfort care interventions during hospital procedures in the inpatient setting increase the staff members' knowledge of comfort options?

I designed the project to assess the learning needs and barriers to implementing comfort techniques in nursing practice in effort to educate to the knowledge gaps and enhance consistency among staff in offering and implementing such techniques in practice. The most widely recognized barrier associated with the limited use of procedure-based comfort interventions is a lack of caregiver confidence in explaining and executing such techniques (Cregin et al., 2008). Formal education and hands-on practice using comfort techniques had been requested by nursing leadership at the DNP project site to increase the team's knowledge and confidence performing comfort interventions in daily practice.

Nature of the Doctoral Project

An in-depth literature review of comfort care techniques for children undergoing medical procedures served as the guiding educational support for the project. I also completed collection and evaluation of all comfort care options available within the organization. In addition to observed learning needs, patient/family complaints, and analysis of patient satisfaction data on the topic of comfort during medical procedures, nursing staff participated in the completion of a formal pretest prior to engaging in the online education module. The pretest was composed of 10 quantitative knowledge acquisition questions. Because there was no published screening tool available, the pretest was created based up the anticipated learning needs.

The pretest data were obtained and stored through an online learning platform. The online learning system supported easy analysis of data and comparison between pretest and posttest scores. I designed the education to highlight the nursing literature that demonstrates a substantial decrease in procedural pain in the pediatric population through the use and sometimes combination of both pharmacological and nonpharmacological approaches such as distraction, positioning, and other relaxation techniques (McCarthy et al., 2013). Following the educational learning module, the formal posttest was administered to all participating staff members using the interactive learning platform. The unit educator assisted in providing the data in a de-identified form to protect participant confidentiality. The online educational platform was valuable in making both group and individual comparisons in scores.

The long-term goals and evaluation of success, although applicable my aim for the project and relevant to influencing knowledge, attitude, and practice, are outside the scope of the DNP project. Long-term goals include improvement in patient satisfaction scores in the category of staff ease discomfort, a documented decrease in patient/family complaints about care during medical procedures, and a sustained culture change in support of comfort enhancement techniques. Following the educational initiative and posttest, ongoing efforts will be necessary to sustain compliance and maintain competency in comfort skills. The nurse manager, child life specialist, and clinical coordinators will complete audits for a minimum of 12 months following the project to promote compliance, evaluate effectiveness, and reinforce practices. An additional measure, also out of scope of the DNP project, was the request to build an electronic health record report to capture staff compliance in offering and documenting the use of comfort interventions during nursing procedures. This report will allow capture compliance before the education is launched, and at predetermined intervals after the education, to determine change in practice. Further, careful evaluation of practice change is necessary, because positive results of the pilot education will likely prompt dissemination of the education across the acute care service line.

Significance

The implementation of this project required collaboration and support from the unit leadership (clinical coordinators, education coordinator, child life specialist, and nurse manager), because the objective was to support a culture of comfort during all nursing procedures. This project was designed to serve as a stepping stone to a practice

change and enhancement of the patient/family experience. The interactive education module was developed to serve as a pilot for the acute care units. Throughout this project, I had the opportunity to work closely with the unit educator, pain committee, and child life specialist team to ensure that the education was reflective of the mission and vision of the organization.

Effectively preparing children for an upcoming procedure and including their primary caregivers in the intervention plan is shown to reduce distress in children (“Holistic Comfort,” 2017). Further, pain management during medical procedures is recognized as a patient right (Hogan, Smart, Shah, & Taddio, 2014). In time, comfort choices will likely become an expectation in all pediatric settings, with emphasis on improving the options offered to patients and their families. This project was designed to serve as the foundation for setting the expectation within the unit that all patients and families should be given comfort care options.

As a pilot study, this project has been shared among the leadership team and professional practice department within the organization. Because enhancing comfort care techniques and improving patient/family experience is applicable to all pediatric practice settings, findings from this project are also relevant to other practice settings within the organization. In addition, educational content and strategies have been shared among departments with encouragement to include comfort care techniques as part of the onboarding training and annual nurse competencies.

This project supports Walden University’s mission to promote positive social change through the enhancement of the patient/family experience with attention to

changing the culture of pediatric nursing to support the reduction of pain and distress experienced by children undergoing medical procedures in a pediatric hospital setting. Poorly managed pain associated with medical procedures is shown to have short- and long-term effects on children, which can result in high anxiety and increased distress during future medical procedures (McCarthy et al., 2013). Promoting comfort during hospitalization is essential to improving the patient/family experience. Providing children with comfort choices during medical procedures is shown to promote a sense of control and facilitate effective coping (Ellis et al., 2004).

Summary

Nursing literature continues to support a variety of comfort interventions to reduce procedural pain in the pediatric population. The gap in practice is identified as the lack of staff confidence in explaining and implementing the wide variety of comfort interventions available to patients/families in the hospital setting (Cregin et al., 2008). The nature of this project was to enhance staff understanding of techniques shown to reduce pain and distress in children undergoing painful medical procedures and to increase the use of comfort interventions in practice. In Section 2, I will explore, in greater detail, the guiding models, nursing relevance, project context, and my role as the DNP student.

Section 2: Background and Context

Introduction

The use of comfort techniques for children undergoing painful medical procedures is well supported in extant nursing literature (“Holistic Comfort,” 2017). There continues, however, to be inconsistency in implementation among health care providers. On the unit selected for this project, there was an observed variation in comfort practices among the nursing staff including registered nurses (RNs), licensed practical nurses (LPNs), and other support staff including nurse technicians (NTs). Further, 2018 patient satisfaction ratings and patient/family feedback supported the need to improve the consistency and quality of comfort interventions. The practice-focused question for this doctoral project was: Does interactive education with pediatric staff members about comfort care interventions during hospital procedures in the inpatient setting increase the staff members’ knowledge of comfort options? My purpose in this DNP project was to provide education pediatric nursing staff to enhance understanding and self-confidence in offering and executing comfort interventions.

Emerging from the project development, it is essential to discuss the concepts, models, and theories that guided the educational approach. Further, exploring the project’s relevance to nursing practice along with a thorough understanding of the project’s background and clinical context will demonstrate the project focus. Last, it is essential to define my role as the DNP student in executing the doctoral project.

Concepts, Models, and Theories

The Kirkpatrick model served as the primary framework for the educational and evaluation components of the project. In addition to reviewing the best practices for reducing pain and distress in children undergoing painful medical procedures, a better understanding of the factors associated with pain management in children undergoing painful medical interventions is necessary (Page & Blanchette, 2009). The well-publicized story of Josie King also supports the encouragement of parental presence as a key component of patient safety care improvement (The Patient Safety Group, 2018).

Kirkpatrick's Model

The Kirkpatrick model was used to support the overall structure of the educational project. The Kirkpatrick model is a useful guide that integrates evaluation into the planning process to assist in determining the steps necessary to meet the educational goal (DeSilets, 2018). Kirkpatrick introduced the model in the 1960s, and it has been successfully and expansively used to evaluate a plethora of training and educational initiatives since that time (Dorri, Akbari, & Dorri Sedeh, 2016). The Kirkpatrick model is based on four levels of evaluation: reaction, learning, behavior, and results. Key principles of the Kirkpatrick model that were embedded in the development of the staff education project include strategic planning, understanding of stakeholder expectations, collaboration with leaders within the organization, and planned reinforcement strategies (DeSilets, 2018). In a literature review conducted by Smidt, Balandin, Sigafos, and Reed (2009), the authors examined a total of 12 research studies (six of which used the Kirkpatrick model and six that did not), in effort to compare the training effectiveness

and evaluation process. Results demonstrated the Kirkpatrick model serves as an effective technique to assess evidence and evaluate the likeliness of a training session to meet the needs of both the participating staff and host organization (Smidt et al., 2009). Thus, the Kirkpatrick model will be used throughout the development and implementation of the educational project to increase the probability that the training will be effective at both a unit and organizational level (Smidt et al., 2009). Also embedded into the project design was the use of a collaborative team approach. Interdisciplinary teamwork and discussion among nursing leaders, nurse educators, child life specialists, and the medical team was essential to developing educational objects that aligned with the organization's vision for comfort care. Educational design can be effectively enhanced through the development of cohesive, collaborative teams (Dyer, 2003).

Social Learning Theory and Procedural Discomfort

Needle-based nursing procedures are associated with anxiety, fear, and discomfort for both children and their caregivers (Stevens & Marvicsin, 2016). Previous painful experiences are also shown to impair coping during subsequent medical procedures (Stevens & Marvicsin, 2016). Social learning theory serves as a viewpoint from which procedural pain in the pediatric population can be better understood and managed (Page & Blanchette, 2009). Self-efficacy is a key component of the social learning theory and reflects the child's perception of their ability to cope with pain (Page & Blanchette, 2009). Social learning theory supports the full scope of comfort interventions including the benefits of procedure preparation.

Stevens and Marvicsin (2016) compiled a systematic literature review of comfort techniques used for children of various age groups in addition to an explanation of handouts designed to promote the presented evidence-based practice recommendations. The literature review demonstrates that children who report a previously negative experience during a needle stick react more intensely than those who have undergone the same procedures with a medical team trained to implement age specific comfort interventions (Stevens & Marvicsin, 2016). Further, the combination of procedural preparation, support during the procedure, and care after the administration are all shown to enhance the experience and positively reduce distress during subsequent procedures (Stevens & Marvicsin, 2016).

Page and Blanch (2009) provided an overview of the research evidence on the social learning theory as a framework to understand and enhance strategies to improve procedural pain in children. Page and Blanch (2009) described the use of the social learning theory as an approach to better understand the development, clinical manifestations, and management of procedural pain in the pediatric population. Pain is described as a social experience that can be influenced from a variety of sources (Page & Blanchette, 2009). The evidenced-based overview recognizes that the social learning perspective is appropriate when evaluating pediatric response to pediatric pain especially in handling anticipatory anxiety and avoidance behaviors (Page & Blanchette, 2009). Further, Page and Blanchette explore evidence-based practice recommendations for reducing pain and distress in children undergoing painful medical procedures with the

social learning theory as a guide to better understand the social and contextual factors that influence pain.

Comfort Measures

Assessing patient comfort is essential to measuring the effectiveness of procedure technique (Kolcaba & DiMarco, 2005). In pediatric nursing, the comfort theory can be used to support awareness of the influence of physical, spiritual, cultural, and environmental components of comfort (Kolcaba & DiMarco, 2005). Kolcaba and DiMarco (2005) applied comfort theory to pediatric nursing care as a technique to promote holistic nursing care that recognizes the importance of distinguishing the difference between comfort and pain management. Although most organizational protocols are directed toward pain management, evidence-based practice recommendations surrounding comfort interventions should also be included (Kolcaba & DiMarco, 2005). Key evidence-based comfort techniques promoted by the organization selected for this study included encouraging family presence, facilitating comfort holding, distraction, guided imagery, meditation, deep breathing, vibration/cold application, topical numbing medications, vapocoolant aerosol spray, extremity elevation, ice/heat, oral sucrose solution, and child life specialist presence during procedures.

Comfort holds and patient positioning are shown to provide a feeling of security and protection for the child (Stevens & Marvicsin, 2016). Comfort holds are particularly beneficial in the toddler age group as snug holding comforts the child and protects and helps to immobilize the extremity (Stevens & Marvicsin, 2016). Stevens and Mavicsin

(2016) provided an overview of the research evidence supporting parental assistance in holding if the parent is willing; however, staff assistance is also shown to be effective.

The combination of vibration and cold is a relatively new, fast-acting nonpharmacological intervention that is shown to provide effective pain control, especially when used for needle procedures (Canbulat, Ayhan, & Inal, 2015). Canbulat et al. (2015) conducted a randomized control trial with a total of 176 children 7 to 12 years of age who were undergoing peripheral intravenous (IV) insertion. The participants were divided into two groups: the control group who did not receive any comfort interventions and the experimental group who had external cold and vibration applied to their extremity one minute prior to IV insertion (Canbulat et al., 2015). Following comparison in pain and anxiety levels between the independent sample *t* test and the simulation group, significantly lower pain levels in the control group were reported with in both pain assessment scales with *p* value < .001 (Canbulat et al., 2015). The experimental group also showed significantly lower fear and anxiety levels as reported through parental/observer reports (Canbulat et al., 2015).

Vapocoolant aerosol spray is intended to reduce pain perception by instantaneously reducing the temperature of the skin (Hogan et al., 2014). A literature review of 12 research studies conducted on a total of 1,266 patients (of which 509 were children) concluded little to no significant pain reduction in children receiving vapocoolants when compared with the control group who received either a placebo or no intervention (Hogan et al., 2014). Conversely, several qualitative studies have

demonstrated significant perception of pain reduction with the use of a vapocoolant (Hogan et al., 2014).

Topical numbing medications are shown to decrease both pain and distress associated with venipuncture in children (Tak & Van Bon, 2006). The numbing sensation is used to diminish the pain response in children, although proper explanation of the cream is also presented to reduce anticipatory anxiety and distress during the procedure (Tak & Van Bon, 2006). In a research study conducted by Tak and Van Bon (2006), 136 children between 3 and 12 years old were divided into experimental groups and evaluated based on their pain response when undergoing venipuncture with topical numbing cream. The researchers concluded that the use of numbing medication exceeds the effect of the placebo in reducing pain and distress in children (Tak & Van Bon, 2006). Through coaching and the use of other comfort measures, nurses are integral in reducing the pain and anxiety that most children experience during medical procedures (Stevens & Marvicsin, 2016).

Parental Role During Pediatric Procedures

Parental presence during painful procedures is shown to reduce distress during nursing procedures (Page & Blanchette, 2009). Positive encouragement and modeling of pain behaviors is shown to influence pain expression and distress in children undergoing clinical procedures (Page & Blanchette, 2009). In a research study by Chambers, Craig, and Bennett (2002), the effects of maternal behavior and support to children during painful experiences was explored using a total of 120 healthy children (60 females and 60 males) between 8 and 12 years old and their mothers. Mothers were randomly selected to

interact with their children either in a pain promoting or pain reducing manner or naturally with no training as their child was exposed to a lab-induced cold pressor pain (Chambers et al., 2002). Study results concluded that female children whose parents interacted with them in a pain reducing manner demonstrated the lowest levels of pain response, followed by the control group, with the highest levels of reported pain response among the group of female children with mothers interacting in a pain promoting manner (Chambers et al., 2002). Data results for the male group followed the same trend with less significant results (Chambers et al., 2002). Further, the research data supports the influence of social learning factors and parental presence as key influencers of a child's pain experience (Chambers et al., 2002).

Family-centered care models are used to promote the development of collaborative relationships between families and the health care team in effort to improve patient outcomes and experiences (MacKean, Thurston, & Scott, 2005). Effective preparation and including the patient and their family in the intervention plan prior to implementing painful medical procedures is shown to reduce the discomfort and anxiety that most children experience ("Holistic Comfort," 2017). The story of Josie King also influences the role of the family presence during patient care with emphasis on promoting patient safety and the recognition of subtle changes in a child's condition (The Patient Safety Group, 2018). The Josie King Foundation continues to promote patient safety through focus efforts to prevent errors and improve care quality (The Patient Safety Group, 2018).

Relevance to Nursing Practice

Nurses are integral to influencing a child's pain experience during medical procedures because they are the patient's primary contact and assist in most, if not all, patient procedures (Katende & Mugabi, 2015). Stevens and Marvicsin (2016) described the benefits of comfort techniques in reducing pain and distress in the pediatric population during initial and future painful procedures. Nursing staff and caregivers are also challenged in their supportive interactions with one another during nursing procedures but demonstrate positive improvement in response to educational training and modeling behaviors (Page & Blanchette, 2009). Therefore, there was opportunity to enhance staff knowledge of comfort techniques as a strategy to increase the consistency and effective implementation of supported comfort interventions.

As emphasis on the patient/family experience continues to gain attention, the support for comfort intervention options is also gaining support. Comfort theory supplements pain relief strategies through a holistic and patient-centered care approach (Kolcaba & DiMarco, 2005). Extant nursing literature also recognizes pain as a complex social experience in which a variety of comfort strategies are shown to reduce pain and distress in children undergoing painful medical procedures (Page & Blanchette, 2009). Nursing research on comfort intervention supports the use of a variety of comfort techniques to reduce pain and distress in children during hospitalization and enhance the overall patient experience. Health care providers recognize some of the primary barriers to implementing comfort interventions in practice as lack of time, urgent procedure needs, workload, and unfamiliarity with comfort intervention options (Katende &

Mugabi, 2015). Thus, there is an identified need for ongoing professional growth surrounding comfort techniques (Katende & Mugabi, 2015).

Nursing research on the topic of comfort strategies in the pediatric population offers much support for the use of comfort interventions. Despite the availability of research and resources to support comfort techniques, the majority of hospital and health care providers do not use comfort strategies routinely (Eull, Postier, Hermes, Weidner, & Friedrichsdorf, 2016). Appreciation of practice challenges was necessary to better understand the factors that negatively influence compliance in initiating comfort interventions within the unit.

Integration of comfort techniques is necessary for health care professionals to successfully implement practice change (Katende & Mugabi, 2015). Further, current recommendations encourage the use of pediatric pain management education as an integral part of training for all members of the pediatric health care team (Katende & Mugabi, 2015). Leadership support and staff engagement is necessary to address potential barriers and influence practice change (Eull et al., 2016).

Local Background and Context

Within the unit selected for this doctoral project, there was irregularity in the implementation of comfort interventions during nursing procedures. Variation in execution and inexperience in offering comfort technique options were possible factors observed within the unit that may have influenced the inconsistency. Unit specific data revealed parents' complaints related to lack of compassion displayed during procedures. Inconsistency among the health care teams and departments within the organization was

also noted in the unit complaints. In addition, patient satisfaction results concluded that the unit selected for the DNP project scored collectively below the benchmark in the category of “staff eased discomfort” in all quarters of 2018. In addition to scoring below the benchmark, it was important to acknowledge that the category of “staff eased discomfort” was the second lowest scoring category for 2018.

The educational improvement project was developed for an acute care general pediatric unit within a free-standing pediatric hospital. Patient populations served on the unit include infants, children, and adolescents who require general medical and surgical postoperative care. Average daily census in 2017 was slightly more than eight patients per day. The unit is designed to accommodate a total of 25 patients, with 23 in private rooms and two in semiprivate patient rooms. The unit is staffed with a hospitalist, respiratory therapist, and a minimum of two RNs at all times. There were a total of 32 nurses hired for the selected unit at the time of the project implementation. Ancillary staff includes three unit secretaries, a child life specialist, and a nurse tech. Nursing leadership team for the unit consists of four clinical coordinators, an education coordinator/case manager, and a nurse manager. The majority of the patients are admitted in observation status for acute illnesses that frequently include, but are not limited to, asthma, bronchiolitis, gastroenteritis, dehydration, failure to thrive, and cellulitis.

Role of the DNP Student

As the manager of the pediatric unit selected for the doctoral project, I have a comprehensive awareness of the unit dynamics and patient care needs of the population served. My understanding of the unit flow and comfort resources available assisted me in

developing the educational content. I was also fortunate to have professional relationships with leaders throughout the organization with whom I had the opportunity to collaborate with during the planning and implementation stages of the project.

My role in the DNP project was to assess the learning needs and baseline knowledge of comfort interventions of the staff on the selected unit for this project. It was important to better understand compliance within the unit and the factors that influenced the inconsistent execution of comfort techniques. The literature that I reviewed supported the educational content and project design. Collaboration with experts within my organization was necessary to ensure pretest and posttest validity as well as to ensure the alignment of the project with the organization's vision of pediatric comfort and pain management during painful procedures. Following the education module offering, I focused my efforts on data analysis and evaluation.

As the nurse manager of the unit selected for this project, I had identified the need to enhance the consistency and quality in which patients and their families perceive nursing support during medical procedures. Having experienced the variability among nursing staff in their approach during nursing procedures as well as successful outcomes when comfort interventions are effectively used, I had seen first-hand the missed opportunities and the value of comfort interventions for both patients and their families. As a nursing leader, I am passionate about changing the culture of the unit to enhance patient satisfaction through gaining trust and facilitating comfort.

A potential bias that I can anticipate with the implementation of this project was that I knew my staff from working with them through the years and that I could relate to

their feelings about comfort care techniques. In my experience, I also believed that the day shift nursing staff had more experience in using comfort interventions as well as had additional support from the child life specialist. Through reflection and interpretive thinking, I sought to reduce any potential biases (Clark & Vealé, 2018). As the nurse manager of the unit, I was aware of the need to separate my roles of the DNP student from my role as the nurse manager. Because of this, completion of the online learning module was mandatory for all nursing staff, which eliminated the possibility for staff to have felt pressured to participate. Information about the project was provided to all participants explaining how the data would be de-identified before results were provided for use in the project.

Summary

Improving comfort during medical procedures is a necessary focus for nursing staff. Understanding the concepts, theories, and models of comfort was essential to developing a strong educational content. Thorough description of the unit background and context was beneficial to developing a strong framework for the project. Clearly delineating my role as a DNP student from that of the unit manager was also imperative to the success and protection of my DNP project.

Section 3: Collection and Analysis of Evidence

Introduction

Despite evidence-based practice recommendations on comfort interventions, insufficient pain management strategies during pediatric procedures remains an area for improvement for health care providers and health care organizations (Michel, 2016). Implementation of patient comfort techniques during nursing procedures is necessary to enhance patient/family experience and promote healing in children (Wensley et al., 2017). On the acute care nursing unit selected for this project, there was an observed inconsistency among nursing staff in offering and initiating comfort interventions during nursing procedures. In addition, nurse leader rounding surveys and patient satisfaction data had prompted leadership to request additional education for nursing staff with regard to promoting the consistent use of comfort techniques. The pediatric acute care unit nursing team performs procedures such as IV starts, blood draws, lumbar punctures, injections, and heel sticks on a daily basis.

In the following sections, I will expand on the practice-focused question to clarify the purpose, approach, and key design elements. I will reveal research that guided the educational foundation for the development of the learning component. Further, I will explore data generated from the project in relation to the participants, procedures, and protections used to facilitate this educational project. I will also discuss strategies that I used to analyze the data collected and to ensure integrity of the project.

Practice-Focused Question

Nursing literature supports the value of comfort techniques in reducing pain and distress in children undergoing painful medical procedures (“Holistic Comfort,” 2017). With the benefits of comfort intervention well recognized, the gap in practice is the inconsistent execution and offering of comfort intervention by the health care team. Training and ongoing professional development for health care professionals is recommended to improve the quality and consistency of incorporating comfort strategies into daily practice routines (Katende & Mugabi, 2015). Although the pediatric acute care unit that I selected for this project has been well equipped with the tools and staff necessary to support comfort techniques during nursing procedures, there continued to be insufficient use of comfort methods. The practice-focused question for this doctoral project was: Does interactive education with pediatric staff members about comfort care interventions during hospital procedures in the inpatient setting increase the staff members’ knowledge of comfort options?

My purpose in this DNP project was to provide nursing staff with the knowledge and skills necessary enhance their use of comfort techniques and improve their self-confidence in executing comfort interventions in their daily practice. Efforts within the unit selected for the project were necessary to uncover individual staff learning needs and effectively design a professional development learning opportunity to increase the nursing staff’s knowledge of comfort care options and to build their confidence in performing such techniques in practice.

Pain relief is recognized as a fundamental right of all patients admitted to the hospital (Katende & Mugabi, 2015). Notwithstanding, the notion of comfort is recognized for being (a) challenging to define, (b) perception-based, and (c) multidimensional (Wensley et al., 2017). Throughout this project, comfort interventions demonstrated in nursing literature as beneficial in reducing pain and distress in children undergoing medical procedures were applied to support the educational content.

Sources of Evidence

A thorough overview of the nursing literature served as the primary source of evidence for this DNP project. In addition to evidence-based practice findings, the comfort interventions promoted through the educational project design supported the comfort strategies promoted by the organization in which the educational training took place. Recommendations from the organization's leadership and child life specialist team significantly influenced the development and execution of the training content.

The evidence collected from nursing literature on comfort interventions supported the educational training on comfort theories and best practices. Further, current literature-based recommendations to provide training to health care professionals were integrated throughout the education. Barriers such as time constraints, work load, and lack of experience, which are recognized to reduce the consistent implementation of comfort intervention, were also acknowledged and addressed (Katende & Mugabi, 2015).

The collection of nursing literature was used to anticipate learning needs and promote the development of the educational content. Studies demonstrating the benefits of comfort interventions and best practice approaches to introducing comfort techniques

to patients and families were included. Evidence-based practice recommendations were integrated to further support strategies to overcome the proposed barriers and enhance staff confidence in offering and implementing comfort techniques in practice.

Published Outcomes and Research

I collected the research for this project through the Walden Library. The primary databases that I used during the literature search included CINAHL, Medline, ProQuest, and Science-Direct. Search terms included *pediatric comfort, comfort interventions, comfort techniques, comfort strategies, pediatric pain, pediatric procedures, pain management children, pediatric procedural pain, family-centered care, Kirkpatrick, pediatric distress, and vapocoolant*. Supporting literature was primarily composed of research collected within the last 5 years with some quality work extending beyond the past decade.

Evidence Generated for the Doctoral Project

Participants. The participants for the project included all nursing staff employed on the acute care pediatric unit. The unit consists of a total of 30 RNs, two LPNs, and one NT. There are 16 nurses who work on the night shift and there are 16 nurses and one nurse technician who work on the day shift. All nursing staff were required to complete the comfort intervention educational learning module, because medical procedures occur on all shifts. Nursing staff in particular were targeted for this educational offering as procedures and comfort interventions on the unit are primarily nurse driven.

Procedures. Nursing leadership had requested staff education on the topic of comfort techniques. To gain a better understanding of the staff's current knowledge, a

pretest was conducted. The 10 question pretest was used to assess the staff's knowledge of options available to them, comfort technique recommendations/best practices, and proper implementation of manufacturer guidelines (see Appendix A). The challenge in developing the knowledge questions was designing questions that effectively captured the learning needs and baseline staff knowledge of comfort theories/recommendations. Immediately following the interactive educational module, staff were required to complete the posttest to evaluate the effectiveness of the educational training in meeting the objectives and demonstrating knowledge acquisition.

Educational sessions. Online educational training sessions were interactive and included lecture, interactive learning, and knowledge checks. Adult learning principles and a blended learning technique were used throughout the educational module to promote engagement and effective learning for participants with varying learning preferences. I provide an overview of the curriculum in Appendix A.

Evaluation mechanisms. Educational training was evaluated by comparing the participants' scores on the pretest and posttest. Statistical significance was desired to demonstrate that the educational training was effective in improving comprehension and enhancing confidence in executing comfort interventions in practice. Determining significance level was necessary to measure how plausible it was that the proposed hypothesis was true (Mowery, 2011). Each quantitative knowledge acquisition question was worth 1 point for a total of 10 possible points. The pretest and posttest questions are located in Appendix B. To ensure validity, an expert panel was selected from the organization to review the quantitative knowledge acquisition questions. Content and

face validity were established using feedback from content experts within the organization. Reliability for internal consistency was also established during the data collection phase of the project.

Following the training session, clinical coordinators will begin auditing the staff's technique and documentation of comfort interventions using an online performance improvement survey system. The clinical coordinator audits will continue for 12 months following the training to reinforce the education, provide ongoing and real-time feedback, and promote a culture of comfort. Competency evaluation with patients is out of the scope of this DNP project but will likely be a recommendation.

Protections. Limited ethical concerns were anticipated with the completion of this project. The project complied with the Walden University Institutional Review Board (IRB), the guidelines set forth in the educational manual, and the IRB at the DNP project site. The Walden IRB approval number for this project is 01-16-19-0358652. To protect participant anonymity and confidentiality the names of the staff participating in the project were not disclosed. The unit educator was responsible for deidentifying all participant information. Further, as the manager of the unit selected for this project, I communicated with the staff that the feedback provided would remain anonymous and will not be subject to any level of corrective action. All participating staff was informed that their anonymous data were provided in a confidential manner for use in the DNP project. To effectively learn about all of the comfort options, staff was asked to set aside their own personal beliefs about the interventions used to comfort patients during procedures, encouraging the patients/families to make their own informed decisions of

the most appropriate intervention.

Analysis and Synthesis

The pretest and posttest were administered in an online education platform. Staff was required to complete the posttest after completing the education training module. Per organizational standards, all staff completing the online education was required to take the posttest until they answer all of the questions correctly. Because of this, the data collected was taken from the staff member's first attempt. To protect participant anonymity, only the unit educator accessed the education module in the online learning management system. If pretest scores were higher than expected in the knowledge acquisition section, it was anticipated that there was an even greater need to understand the inconsistency in practice, and to identify the barriers and obstacles that are present in the setting. To evaluate the quantitative data, a paired *t* test was used. It was projected that if a knowledge deficit was validated or if the education appropriately addressed the anticipated knowledge deficit, there would be a statistically significant improvement in mean posttest scores after the training, indicating knowledge acquisition.

Summary

Nursing literature supports the need to enhance training for nursing staff implementing comfort techniques for pediatric patients undergoing painful medical procedures (Katende & Mugabi, 2015). Research supports the benefits of comfort interventions and acknowledges some of the primary barriers to implementation. Although participants, procedures, and protections for this project have been planned, the project was adapted to reflect organizational influences as well. Evaluation of outcomes

following the project was achieved through a thorough analysis and synthesis of the data collected.

Section 4: Findings and Recommendations

Introduction

Promoting comfort and pain reduction for children undergoing medical procedures is beneficial for many reasons. Acknowledgement of barriers that impede the consistent implementation of comfort interventions is necessary to make improvements (Cregin et al., 2008). The practice-focused question explored through this educational project was: Does interactive education with pediatric staff members about comfort care interventions during hospital procedures in the inpatient setting increase the staff members' knowledge of comfort options? My purpose in this DNP project was to enhance staff knowledge of pediatric pain management and comfort theories that support the use of comfort interventions in the pediatric inpatient setting.

The evidence for this project was obtained through a collection of pretest and posttest data compiled into an online data base collected through an interactive learning management system. The data were reorganized in an Excel file by the unit educator to deidentify all of the participant results. The data were entered into the Excel file using a row to represent each staff member, with columns depicting their pretest, posttest (first attempt), role, and years of service in the organization.

Findings and Implications

The results demonstrated consistent improvement in the participant scores from the pretest to the posttest. No participant scored 100% on the pretest. Although not all participants scored a 100% after the interactive educational module, the majority of participants did. A total of 32 staff members participated in the project. Participant pretest

scores averaged a 61.6%. Statistically significant improvement was shown in the first attempt posttest scores at 97.8%, with all but six participants having scored 100% on the posttest. The data were not normally distributed (Shapiro-Wilk .932, 32 *df*, $p = .043$ pretest; Shapiro-Wilk .501, 32 *df*, $p = .000$); therefore, the nonparametric test Wilcoxon signed-ranks test was used, and statistical significance was seen ($z = -4.969$, $p = .000$). See Table 1 for a summary of demographics. There were no statistically significant differences in LPN scores pretest to posttest, and none for unit secretaries (USs), likely due to the small sample size. However, the RNs scored a statistically significant improvement when their scores were compared alone ($\chi^2 = 27$, 1 *df*, $p = .000$).

Table 1

Demographics of Comfort Care Interactive Module Completion

	Total	Average pretest score	Average posttest score
RNs	27	62.59	98.15
LPNs	2	55	100
USs	3	56.67	93.33

Note. RN, registered nurse; LPN, licensed practical nurse; US, unit secretary.

Two staff members failed to complete the mandatory education by the deadline. One staff member completed the educational module (including the pre and posttest) but declined the participant agreement and, therefore, their results were discarded prior to data analysis. Additional mandatory education was assigned to all staff at the same time that the educational module was released, which may have hindered staff focus and/or time to complete the assigned module.

Pretest results confirmed learning needs for additional education and training on comfort techniques and pediatric pain theories. Further, posttest results were effective in demonstrating knowledge acquisition and enhanced understanding and application of principles discussed during the interactive educational module. Additional implications resulting from the project outcomes include opportunity to share the education across all patient service departments in the organization.

Enhancing patient comfort and reducing painful experiences is a key driver of positive social change (Wensley et al., 2017). This educational project was developed to set the expectation for staff that patients' and their families should be offered comfort techniques prior to any potentially painful or distressing experience. Empowering children to make decisions about their care is shown to reduce resistance and promote a sense of control and effective procedural coping (Ellis et al., 2004).

Recommendations

In collaborating with the team during the planning and development of the educational content, an organizational need to improve knowledge and the consistent implementation of comfort techniques was revealed. While working on the project, I became a member of the pain committee and I will continue to share my work for potential use in an organizational effort to educate staff and update policies related to clinical interventions and pain management. Opportunities exist to extend the use of this education to other departments including the ambulatory setting, which have been slower to adopt the use of such techniques.

Strengths and Limitations of the Project

Medical interventions occur on all patient care units throughout the organization in both inpatient and outpatient settings with variations in practice and inconsistencies in execution of comfort techniques. A major strength of this project is that it can be used as a pilot for use in other patient service departments across the organization. A limitation of the project is the need for additional observation to facilitate the hands-on practice of comfort intervention techniques and for staff members to demonstrate competency with the techniques. Although out of scope of this project, the interactive educational module sets a strong foundation for improving comfort practices and the addition of supplemental training opportunities. Though statistical significance was seen in the change of scores from pretest to posttest, the sample size was small, indicating another limitation and the need to replicate the training throughout the organization with larger sample.

Dissemination of this module among the professional practice team and other units in the organization has been recommended. Inclusion of comfort intervention training is suggested to occur during all new hire orientations as well as during annual competency training. Continuous assessment by the leadership team is necessary to promote consistency and provide staff with ongoing feedback related to technique.

Section 5: Dissemination Plan

Throughout the development of the project, collaboration among the leadership team has highlighted organizational opportunity and interest in improving patient experience through the enhanced use of comfort interventions. The educational content designed for this project serves as a strong foundation for the promotion of a culture of comfort reinforced by a strong emphasis on patient and family experience as well as the theories and principles that support the use of comfort interventions in pediatric health care settings. The educational module will likely be extended to all of the acute care pediatric units with the potential for expansion to other patient service areas as well.

Benefits of pharmacological and non-pharmacological comfort interventions are well recognized in extant nursing literature; however, they continue to be underused in clinical practice (Cregin et al., 2008). Although this project targeted staff working in an inpatient setting, the principles apply to children undergoing procedures in outpatient settings as well. Opportunity to improve the management of procedural pain in children expands much beyond the local pediatric facility. The theories and strategies discussed are applicable in all community settings that perform medical interventions involving children. Additional dissemination of this educational content may also supplement efforts to improve patient and family experience in health care delivery beyond this organization. I will look for opportunities to share my published work on a professional platform.

Analysis of Self

Throughout this project, I have challenged my professional abilities and gained many valuable insights. I have grown confidence in my role as a practitioner and worked to strengthen my knowledge of evidence-based practice. As a scholar, I have learned how to reach out to and collaborate with other professionals to seek solutions feedback necessary to effectively influence change. In my role as the project manager, I have embraced the challenges in working through all stages of project development with individuals with unique personalities and competing priorities. I have become more precise in my communication skills within the team setting and have development my confidence in taking the project lead and setting clear expectations for what needs to be done. I am excited about the unit level progress that has been made and inspired to share the expertise I have gained with others. I am eager to share my results with the organization and discuss the potential for expanding the educational content to other units in the organization.

One of the major challenges experienced throughout this project was engaging all of the appropriate stakeholders within the organization. Due to competing timelines and other organizational priorities, it was challenging to start the project with a clear focus and possibility for organizational usage. Leadership interest in expanding the educational content beyond the intended unit influenced the educational design changing it from an instructor facilitated approach, to an interactive online educational module. Further, working with the organization's team to design and launch the education in the online learning system presented with some timeline delays.

Summary

The consistent implementation of comfort interventions is necessary to promote a culture of comfort (Katende & Mugabi, 2015). Staff understanding of patient perception and satisfaction is necessary to demonstrate the need for practice change. Educating staff on the evidence and theories that support comfort interventions serves as an essential step to achieving increased compliance and sustained culture change.

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Appendix A: Comfort Measures Curriculum

Problem: On the unit selected for this project, there is an observed variation in consistency among nursing staff in offering and facilitating the use of comfort techniques.

Purpose: To provide education to nursing staff members on a pediatric inpatient unit regarding comfort measures to be offered during painful procedures to improve knowledge and consistency among the nursing staff.

Practice Focused Question: Does interactive education with pediatric staff members about comfort care interventions during hospital procedures in the inpatient setting increase the staff members' knowledge of comfort options and improve the consistency in which comfort techniques are offered to patients/families?

Objectives At the conclusion of this educational experience the learner will be able to -	Content Outline	Evidence	Method of Presenting	Method of Evaluati on P/P Item	Evidence Grade
1. Explain the evidence-based practice recommendations supporting the use of comfort interventions in children undergoing painful medical procedures	<p>A. Introduction</p> <p>1. Project significance</p> <p>a. Variation among nursing staff and departments</p> <p>2. Differentiating between pain and distress in child</p> <p>b. Pain</p> <p>1. Challenging to gauge in children</p> <p>2. Results from physical stimuli</p> <p>c. Distress</p> <p>1. Can occur with or without pain</p> <p>2. Often</p>	<p>a. ("Holistic Comfort," 2017).</p> <p>b. (Tak & Van Bon, 2006).</p> <p>c. (Page & Blanchette, 2009).</p>	<p>PowerPoint visual</p> <p>PowerPoint visual</p> <p>PowerPoint visual, Q&A, and activities</p>	<p>2</p> <p>9</p>	<p>A.</p> <p>a. Level I</p> <p>b. Level II</p> <p>c. Level II</p> <p>d. Level I</p>

	<p>accompanies pain</p> <p>3. Overview of evidence-based practices recommendations</p> <p>d. Benefits</p> <ol style="list-style-type: none"> 1. Reduced anticipatory anxiety 2. Pain control 3. Patient/family experience 	<p>A3. (Stevens & Marvicsin, 2016).</p> <p>(Hogan et al., 2014).</p>		<p>8</p> <p>4</p>	<p>d. Level I</p>
<p>2. Describe the impact of comfort interventions on patient/family satisfaction</p>	<p>B. Patient/Family Satisfaction</p> <ol style="list-style-type: none"> 1. Observed variation in practice <ol style="list-style-type: none"> a. within the unit b. among nursing departments 2. Complaints during nurse leader rounding 3. Patient satisfaction scores in the category of “staff eased discomfort” 	<p>B. (Hogan et al., 2014).</p>	<p>PowerPoint visual, Q&A, and activities</p>	<p>7</p>	<p>B. Level 1</p>
<p>3. Describe comfort interventions supported by nursing literature and promoted through the organization</p>	<p>C. Comfort Interventions/techniques</p> <ol style="list-style-type: none"> 1. Comfort Positioning 2. Numbing cream 3. Vapocoolant spray 4. External cold/vibration 5. Distraction 	<p>C1. (Stevens & Marvicsin, 2016).</p> <p>C2. (Tak & Van Bon, 2006).</p> <p>C3. (Hogan et al., 2014).</p>	<p>PowerPoint visual, Q&A, and activities</p>	<p>5</p> <p>6</p> <p>10</p>	<p>C1. Level I</p> <p>C2. Level II</p> <p>C3. Level I</p>

		C4. (Canbulat, Ayhan, & Inal, 2015). C5. (Stevens & Marvicsin, 2016).		3	C4. Level II C5. Level I
5. Discuss the barriers to the successful and consistent implementation of comfort interventions and strategies/solutions to overcome the barriers	D. Barriers/Solutions 1. Staff identified barriers 2. Barrier identified in nursing literature 3. Strategies to overcome implementation barriers	Stevens & Marvicsin, 2016).	PowerPoint Visual and activities	1	E. Level I

Appendix B: Pretest Posttest Questionnaire

Pretest/ Posttest: Comfort Interventions for Pediatric Patients in the Inpatient Setting

1. Which one of the following perceived barriers to implementing comfort strategies during IV insertion is most consistently reported by health care professionals?

- A. Lack of time*
 - B. Urgent situation
 - C. Not knowing the right method to use
 - D. Lack of comfort tools/distractive materials
-

2. Select the two most common sources of pain experienced by children in a hospital setting:

- A. IV insertion*
 - B. Lumbar puncture
 - C. Vaccination administration
 - D. Venipuncture blood draws*
 - E. Capillary blood draws
-

3. Benefits of comfort interventions include all of the following **except?**

- A. Enhanced patient/family experience
 - B. Less frequent hospitalizations*
 - C. Decreased pain response
 - D. Reduced anticipatory anxiety
-
-

4. Which of the following should be considered when selecting an appropriate comfort intervention? (**Select all that apply**)

- A. Urgency of the procedure
 - B. Patient preference
 - C. Provider/nurse preference*
 - D. Available resources
-

5. Which theory recognizes pain as a social experience that can be influenced by a variety of external sources?

- A. Comfort theory
 - B. Parental presence theory
 - C. Social learning theory*
 - D. Consequence-based theory
-

6. Currently, EPIC supports the documentation of comfort interventions in which of the following locations?

- A. IV Assessment and Vital Sign flowsheets
 - B. Vital Sign and Daily Care flowsheets
 - C. Vital Sign and IV Assessment flowsheets
 - D. IV Assessment and Daily Care flowsheets*
-

7. Patient satisfaction data in 2018 rates the category of “staff eased discomfort” on the MV Pediatric Unit:

- A. Only slightly above the benchmark
 - B. Slightly below the benchmark as the second lowest category*
 - C. Significantly below the benchmark as the lowest scoring category
-

D. Above the benchmark as one of the 3 top performance markers

8. True or False: When children experience insufficient pain management, they remember the experience for up to 1 year following the event.

A. True

B. False*

9. True or False: Distress in children can occur with or without pain?

A. True*

B. False

10. True or False: Honesty and setting clear pain expectations are necessary to promote trust during nursing procedures?

A. True*

B. False

Total of 10 points possible- 1 point for each correctly answered question