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Educating Nursing Staff on Urinary Tract Infections

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Walden University

College of Nursing

This is to certify that the doctoral study by

Eldarada Searcy

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2024

Abstract

Educating Nursing Staff on Urinary Tract Infections

by

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MS, Walden University, 2014

BS, Middle Georgia University, 2010

ASN, Macon State College, 2008

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

Walden University

December 2024

Abstract

The primary objective of this doctor of nursing practice (DNP) project was to educate staff on urinary tract infection (UTI) prevention. A gap in practice was identified among nursing staff at an assisted-living facility who lacked current, evidence-based knowledge. This project was conducted to determine whether educating staff on UTI prevention increased their knowledge. Knowles's adult learning theory and the analysis, design, development, implementation, and evaluation model were used as the theoretical framework that guided this project. Eighty-eight health care workers at the project site voluntarily participated in this project. Before the education session, a 10-question, multiple choice pretest was administered to the participants. Following a 60-minute PowerPoint presentation, a posttest was administered. A paired sample *t* test was used to compare the participants' mean scores before and after the intervention, and the findings demonstrated a statistically significant difference ($p < 0.05$). The recommendations from this project underscored the imperative for nursing education on UTIs. By optimizing the nursing process through education, nurses can be confident in adhering to current protocols, thus improving outcomes for older residents with UTIs. This DNP project can positively impact social change through promoting targeted educational interventions that can effectively bridge knowledge gaps and improve clinical practices related to UTI prevention among nursing staff.

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Dedication

This is dedicated to my husband, Tyree Jamaal Searcy, Sr., for your boundless love and support. Your encouragement and steadfast belief in my abilities have made this journey possible.

And to my late brother, David James Bish, who was always my cheerleader. Your unwavering support and belief in me continue to inspire me every day.

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First and foremost, I would like to thank God for being my rock. Your constant presence and guidance have been my foundation throughout this journey.

To my baby brother, Kydel, I believe in your strength and resilience despite the obstacles life has thrown your way. I know that brighter days are ahead. Remember that you are never alone; I will always be here for you, loving and supporting you. Together, we can overcome anything and find success and happiness.

To my children, regardless of bloodline—Tyran, Christopher, DeJuawn, LaQuaisha, Tishana Latressa, Curtis, Japhia, Korianna, Kajeon, and Tyree Jr.—I dedicate this work to you. May this achievement serve as a beacon of hope and a testament that you can shape your future no matter your past. Believe in yourselves, pursue your dreams, and know you can overcome any obstacle and achieve greatness.

Most importantly, to my cherished grandchildren—Desarae, Michael, Aleeyah, Adreanna, DeMarkus, Ny'Eva, Khaire, Kelsy, Kingston, and Julianna—and my future grandchildren, this is for you too. May my journey inspire you to pursue your passions with determination and courage. Remember that your potential is limitless, and with hard work and perseverance, you can achieve anything you set your mind to.

And to my mother, Marcia Elaine Bish (Brown), you were the best nurse I know. Your dedication, grace, and tireless work ethic—embodied in your polished shoes, white stockings, and lapel hat—have been my guiding light. Watching you work with passion and commitment instilled in me the drive to pursue my dreams with the same fervor. Thank you for being my role model and inspiration.

To my chairperson, Dr. Anna Hubbard, your guidance, wisdom, and support have been invaluable. Thank you for your dedication and for believing in my work.

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Section 1: Nature of the Doctor of Nursing Practice Project

Introduction

Urinary tract infections (UTIs) are a common concern among older population aged 65 and older, especially those living in assisted-living facilities (ALFs) (Smith & Brown, 2020). Due to the lack of federal mandates, nursing staff in privately owned ALFs often miss out on crucial education in evidence-based practices (EBPs) related to UTIs, such as understanding causes, risk factors, symptoms, and appropriate interventions (Doe & Green, 2021). This knowledge gap can lead to delays in recognizing UTI symptoms, improper treatment, and missed opportunities for preventive care.

To tackle these issues, I conducted this doctor of nursing practice (DNP) project focused on implementing EBP protocols. By collaborating closely with clinical leadership teams, I aimed to ensure that nursing staff are well equipped with the latest EBP approaches for preventing UTIs, promptly identifying symptoms, and using antibiotics appropriately when needed.

This project was not just about filling educational gaps; it was also about making a tangible difference in the lives of vulnerable older adults in ALFs. By empowering nursing staff through ongoing education and protocol implementation, the goal of the project was to bring about positive social change and improve the quality of care and health outcomes for ALF residents aged 65 and older.

Problem Statement

This doctoral project was focused on addressing a pressing nursing practice issue regarding the implementation of current EBP for preventing UTIs in privately owned

ALFs. The absence of federal regulations mandating EBP education in these facilities has led to varying levels of education quality and consistency across different ALFs ((Lee & Walker, 2019). While some facilities offer comprehensive training programs, others provide limited or outdated information, and this inconsistency in education poses significant challenges, potentially leading to disparities in UTI management and prevention among vulnerable populations residing in ALFs.

Evidence gathered at a local ALF underscored the relevance of this issue. Clinical leadership and administrative staff reported a nearly 20% increase in UTIs among residents within the project site facility. This rise directly impacted the health and well-being of residents, emphasizing the urgent need for improved education among nursing staff.

This doctoral project is significant for nursing practice because it highlights the critical necessity for up-to-date EBP education among ALF nursing staff. With the project, I aimed to close the gap in knowledge and practice related to UTI prevention. The documented increase in UTIs at the project site ALF reinforced the importance of providing targeted and current education to empower nursing staff in their roles.

Purpose Statement

This DNP project addressed a critical gap in nursing practice concerning EBP education on UTIs among nursing staff at an ALF located in Illinois. The absence of current EBP protocols posed risks, such as delayed recognition of UTI symptoms, inappropriate management, or inadequate implementation of preventive measures. Despite the absence of federal mandates, the Illinois Department of Public Health

oversees state licensure and survey processes for ALFs and Shared Housing establishments, underscoring the need for rigorous clinical education in these settings (Illinois Department of Public Health, 2020). The guiding practice question for this DNP project was: Did providing EBP education to nursing staff at a privately owned ALF increase their knowledge of UTI prevention?

I conducted this project to fill a significant education gap identified among nursing staff regarding UTIs, as highlighted by Keet (2017) who emphasized the pivotal role of nurses as educators, advocates, and catalysts for promoting behavioral changes through continuous education. By implementing current EBP practices, nursing staff at the project site enhanced their proficiency in UTI prevention, demonstrating the value of ongoing education in ALFs. The outcomes of this DNP project provide valuable insights for clinical leaders aiming to enhance training and education initiatives in privately operated ALFs.

Nature of the Doctoral Project

The sources of evidence collected for this DNP project encompassed relevant literature, including case studies and randomized controlled trials published between 2017 and 2022. I conducted a systematic search of the literature of databases, such as Medline, CINAHL, and PubMed, to ensure the project's evidence base was current and applicable. Keyword search terms used included *vulnerable population, elderly, older adults, urinary tract infections, non-specific symptoms for infections, assisted living, senior care, World Health Organization, Center for Disease Control, state and federal mandates on UTI prevention, nursing education for long-term care, urinary tract*

infections in long-term care, nursing education for UTI management and prevention, nursing interventions for UTI, and managing UTIs in long-term care residents. Literature that was not written in English was excluded from the project.

In this DNP project, I organized, implemented, and analyzed the literature to establish an educational program for staff nurses based on current EBPs for UTI prevention utilizing the Walden University Staff Development Model. The analysis, design, development, implementation, and evaluation (ADDIE) model was also used to develop an educational curriculum, leveraging subject matter experts' expertise. Furthermore, the project included a pre- and posttest evaluation of the effectiveness of the training program, as outlined by Sung and Park (2021). I obtained approval to conduct project from the project site ALF and the Walden University Institutional Review Board (IRB) before any data were collected. Descriptive statistics were employed in the data analysis process.

Significance

The primary stakeholders in this DNP project included nursing staff, administrators, leadership personnel, and ALF residents. Families of current and prospective residents were also considered stakeholders. Nursing staff at the ALF played a pivotal role in shaping the curriculum for the education session on UTI prevention, enhancing their knowledge, and ensuring targeted interventions focused on prevention.

Implementing measures aimed at reducing the incidence of UTIs within the project site facility not only improved residents' health outcomes but also served as a proactive strategy to mitigate the risk of fines or citations from the Illinois Department of

Public Health, the regulatory agency overseeing ALFs in the state. Residents benefited from enhanced preventive education, leading to an overall improvement in their quality of life. Families and prospective residents gained reassurance knowing the nursing staff were well-informed about current EBPs for UTI prevention.

The potential impact of this DNP study underscored the importance of maintaining updated educational standards within privately operated ALFs. By enhancing their knowledge base, nursing staff were better equipped to manage UTIs among their patients. Viner (2020) reported that educating nursing staff on UTI prevention and identification significantly reduced infection rates among older populations.

I conducted this DNP project to drive positive social change by educating nursing staff on current EBPs for UTI prevention, thereby empowering them to implement effective interventions and ultimately reduce UTI incidences in ALFs. The findings of this DNP project are transferable to various settings serving vulnerable populations aged 65 and older, such as memory care units, senior centers, and group homes. Improving nursing staff knowledge can mitigate the risks associated with UTIs in these settings.

Summary

In Section 1, I addressed the nature of the DNP project, which involved educating nursing staff within privately owned ALFs on UTI prevention in vulnerable populations aged 65 years and older. This section also contained an overview of the DNP project, the problem statement, the purpose statement, the practice-focused question, and a discussion of the significance to nursing practice.

In Section 2, I will reintroduce the project and elaborate on key elements, such as the concepts, models, and theories utilized. I will also describe the project's relevance to nursing practice, provide local background and context, and explain my role as the DNP student and the roles of the project team.

Section 2: Background and Context

Introduction

This DNP project addressed a local nursing practice problem in an ALF situated in Illinois. It is important to note that no federal regulations mandated this type of education in ALFs; consequently, the quality and consistency of nursing staff education on UTIs varies across different ALFs (Jones & Patel, 2021). Some facilities provide thorough training programs, while others offer limited or outdated information. The absence of ongoing education has led to disparities in the ability to effectively manage and prevent UTIs among the residents.

The guiding practice-focused question for the DNP project was: Did providing EBP education to the nursing staff at a privately owned ALF increase their knowledge of UTI prevention?

I conducted this DNP project to address a practice gap at an ALF in Illinois regarding the prevention of UTIs among the residents. The nursing staff at the project site needed current EBP education on UTIs, their causes, risk factors, symptoms, and appropriate interventions. The lack of current EBP protocols could lead to delayed recognition of UTI symptoms, inappropriate management, or failure to implement preventive measures.

In this section of the DNP project, I address the concepts, models, and theories that formed the basis for this project's structure. Additionally, the section includes a discussion of the project's relevance to nursing practice, the local context and

background factors that significantly contributed to the project's relevance, and my role as the DNP student and the roles of the project team.

Concepts, Models, and Theories

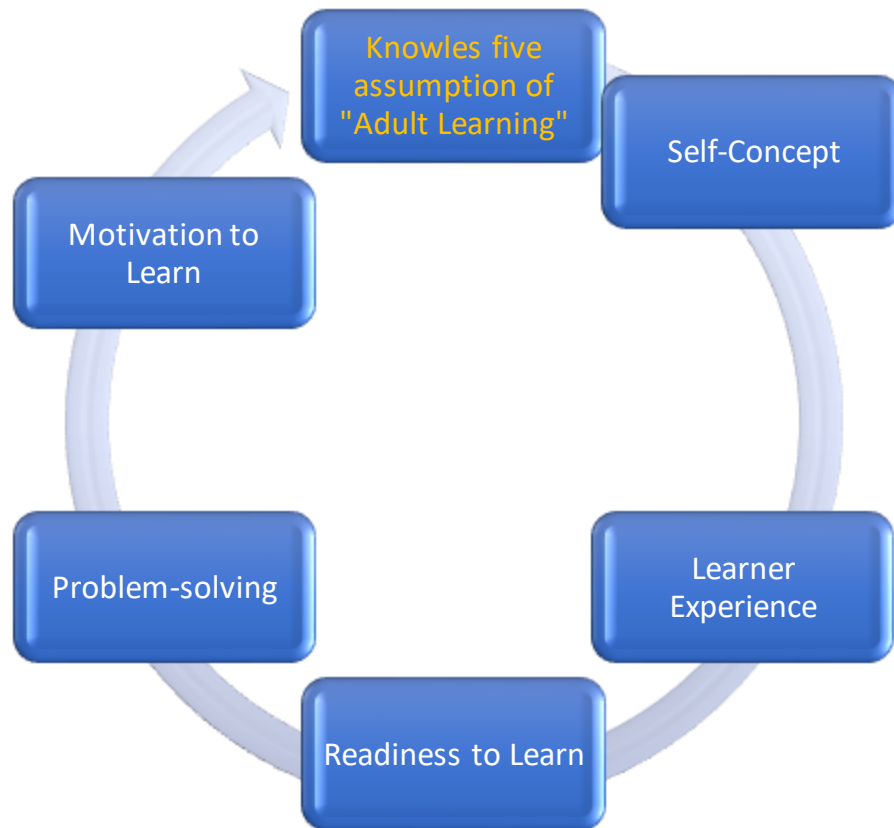
This DNP project was based on Knowles's U.S. educational theory on adult learning. Knowles was best known for coining the term *andragogy* to describe adult education (Hooker, 2018). Integrating Knowles's principles of adult learning into our project's goal, the practical approach to increasing nursing staff's knowledge through education is specifically designed to address the challenges related to the increase in UTIs in the ALF. This method respects the autonomy and experience of adult learners, ensuring that the educational content is both relevant and applicable, thus effectively tackling the issue at hand.

Knowles's adult learning theory comprises five assumptions that highlight the differences between how adults and children learn (see Figure 1). The first assumption, self-concept, enables adults to take responsibility for their educational experiences (Stoltz, 2021). As a person matures, their self-concept moves from being a dependent personality toward one of a self-directed human being. Adults see themselves as capable of self-direction and taking responsibility for their own decisions (Taylor & Francis, 2020). In the current project, the nurses contributed to the development of the education they received. The second assumption, learner experience, acknowledges that adult learners bring previous education, employment, and life events to their learning experience (Stoltz, 2021). Adults come into educational activities with a greater volume and a different quality of experience than youths. This accumulated experience provides a

rich resource for learning, making adult education more experiential and problem-solving oriented (Clark & Ross, 2021). As a result, I designed the education in the current project to improve nurses' knowledge and expertise. The third assumption, readiness to learn, assists adults in understanding evidence that helps them complete tasks effectively (Stoltz, 2021). Adults become ready to learn when they need to know or do something to perform more effectively in their real-life tasks. Clark & Ross (2021), readiness to learn is closely related to the developmental tasks of an adult's social roles. Problem-solving is linked with the fourth assumption because adults learn in ways other than through formal schooling (Stoltz, 2021). Adults are more problem-centered than content oriented in learning. They prefer to learn subjects that have immediate relevance to their job or personal life, focusing on practical application rather than theoretical knowledge (Stoltz, 2021). Based on these two assumptions, nurses in the current project could incorporate the education they obtained to aid them in caring for their residents. The fifth and final assumption examines what motivates adult learners (Stoltz, 2021). While adults respond to external motivators (e.g., better jobs, promotions, higher salaries), they are driven mainly by internal motivators (e.g., self-esteem, quality of life, and self-fulfillment) as mentioned in Johnson & Smith, 2019. Adults need to be self-directed, make their own decisions, and solve their problems (Johnson & Smith, 2019). Adults study for various reasons, including developing skills or advancing their profession, and while nurses learn in multiple settings, in-services are used to educate nurses within the project site facility. These assumptions underline the importance of creating learning experiences that are relevant, self-directed, and based on the learners' experiences.

Figure 1

Knowles's Theory: The Five Assumptions

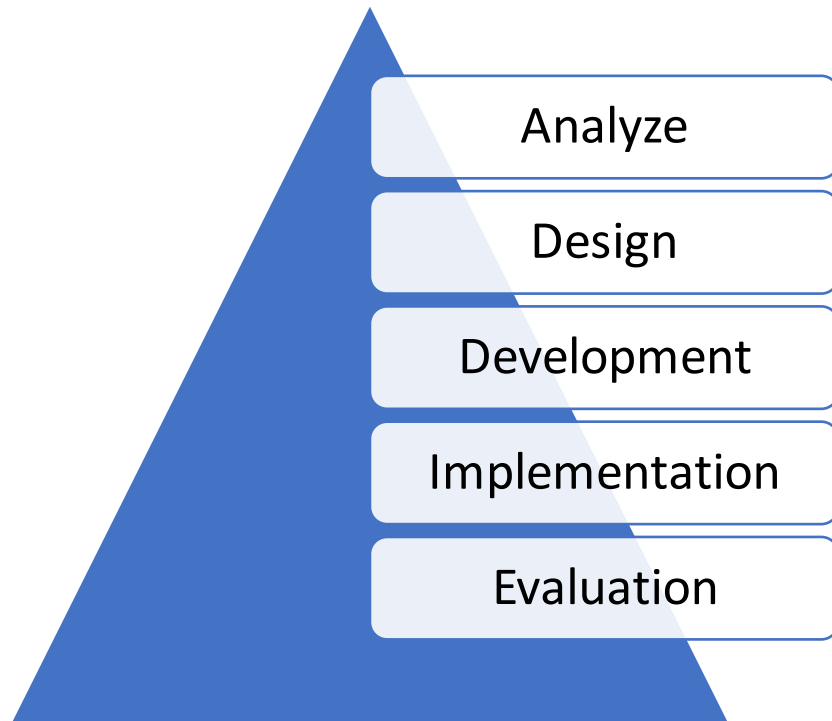


The ADDIE model has been widely used in different education and training settings. The ADDIE model has a five-stage structure, adding many more detailed steps within its five main phases (see Figure 2; Kurt, 2018). I used the ADDIE model in the current project so nurses could gain comprehensive and updated information to improve their competencies or skills. The primary goal was to improve their current practice methods by increasing their knowledge. By integrating the learner-focused principles of Knowles's theory into the systematic instructional design process, use of the ADDIE

model then made the educational intervention effective, relevant, and engaging for the learner.

Figure 2

The ADDIE Model



In this doctoral project, I defined the following terms as follows:

ALFs: Facilities for people who need help with daily care but not as much help as a nursing home provides (National Institute on Aging, 2017).

Residents: A person who lives somewhere permanently or on a long-term basis (Merriam-Webster, 2023);

UTI: An infection in the urinary system that can involve any part of the urinary system (Venes, 2021).

Vulnerable populations: Individuals who are racial or ethnic minorities, children, older, socioeconomically disadvantaged, underinsured, or those with certain medical conditions (Weber, 2017).

Relevance to Nursing Practice

Nurses play a pioneering role in health care organizations and serve as advocates for those under their care. They are pivotal in using preventative measures for various infections, and preventing UTIs is one way to demonstrate their ability to advocate for vulnerable populations. By optimizing the nursing process through education, nurses can ensure that they use current protocols, improving outcomes for older residents with UTIs. According to Esme et al. (2019), UTIs were higher among individuals residing in congregate settings and vulnerable populations in ALFs, approximately 50% more so than those not living in such settings.

In a study by Lee et al. (2018), the effectiveness of an educational intervention in reducing inappropriate antibiotic use among long-term care (LTC) residents diagnosed with asymptomatic bacteriuria (ASB) was assessed. They conducted a retrospective chart review at seven LTC institutions in Regina, Saskatchewan, Canada, from May to July 2017. During the preintervention phase, 172 urine cultures and sensitivity tests were conducted. Educational sessions lasting 15 minutes were delivered for LTC staff, containing information on the negative impacts of inappropriate antibiotic use, the development of antibiotic resistance, and diagnostic standards for detecting UTIs. The primary outcome indicator was the number of residents who received inappropriate antibiotic treatment for ASB. The study results showed a significant decrease in the

number of patients receiving antibiotic treatment for ASB, dropping from 90% (45 out of 50) preintervention to 62.9% (22 out of 35) postintervention. These findings underscore the importance of education in enhancing health care staff's understanding and proficiency in UTI prevention, thereby improving care outcomes for residents in ALFs.

Local Background and Context

I conducted this project at a privately funded ALF situated in Illinois. The nursing staff included more than 100 members, consisting of registered nurses, licensed practical nurses, and certified nursing assistants. The ALF can house up to 161 residents, and at the time of the project housed 98 residents. The project site was optimal because the nursing staff was engaged and clinical leaders were supportive. The ALF conformed to the resident safety-related regulations and standards observed at facilities providing similar LTC services.

The project's primary goal was to increase the nursing staff's knowledge of measures to prevent UTIs. My aim was to enhance the quality of life for individuals receiving treatment, protect residents' well-being, and strengthen preventative measures. Additionally, this project satisfied state regulations that governed Shared Housing and ALFs under a single set of guidelines.

Role of the DNP Student

I conducted this project to increase staff knowledge and ensure that health care professionals had access to the most recent practices. Consequently, I was responsible for analyzing, selecting, and implementing the most effective strategies for promoting continuing education among the project site facility's nursing staff based on EBPs. As a

DNP candidate, my primary responsibility was to create evidence-based education for nurses and other health care professionals. I participated in collecting and analyzing the data as well as led the formulation, assessment, and implementation of the education plan with input from experts. The educational material was developed using peer-reviewed, evidence-based research and regulatory guidelines.

My goal for this project was to ensure that older adults in the community, who are more prone to infections like UTIs, were cared for by a nursing staff whose prevention methods were based on current EBPs. UTIs are common in people 65 and older and can potentially become chronic and cause harm if untreated (Sabih & Leslie, 2022). When a UTI is not adequately treated, it frequently leads to mortality or functional limitations (Fulmer et al., 2021). The significance of implementing fundamental changes in safeguarding vulnerable populations stemmed from the necessity of providing frontline staff with relevant skills and competencies.

Role of the Project Staff

The project staff consisted of an administrative staff member, an infection control preventionist, and a nursing staff member. The administrative staff approved the DNP project and assisted in promoting it by sending emails to the nursing staff, encouraging their participation in the education sessions. The infection control preventionist served as the content expert for this study. She collaborated with me to plan and implement the educational initiatives. The nursing staff served as the voluntary participants for the study, taking the pretest, attending the education session, and then taking the posttest.

Summary

In Section 2, I outlined the concepts, models, and theories that formed the project's foundation. I also discussed the relevance to nursing practice, provided local background and context, and detailed my role as the DNP student and the roles of the project team. Section 3 will focus on evidence collection, addressing the practice-focused question, sources of evidence, and the methods for analysis and synthesis.

Section 3: Collection and Analysis of Evidence

Introduction

UTIs are prevalent in LTC facilities and could lead to significant morbidity and mortality among residents (Sabih & Lelise, 2021). In this section, I describe the collection and analysis of evidence for this DNP project; summarize the practical questions that impacted the project; detail the sources of evidence, including evidence generated for this doctoral project; and discuss the procedures for analysis and synthesis.

UTIs are common among vulnerable populations aged 65 years and older, such as residents who reside in ALFs. Due to the absence of federal mandate requirements in privately owned ALFs, nursing staff must receive current, EBP education on UTIs, their causes, risk factors, symptoms, and appropriate interventions to prevent, identify, and manage UTIs in ALFs. This lack of knowledge could lead to delayed recognition of UTI symptoms, inappropriate management, or failure to implement preventive measures. To address this issue, ALFs must prioritize ongoing education and training for nursing staff. In combination with feedback from clinical leadership teams, EBP protocol reassures the nursing staff in ALFs that they are equipped with the knowledge for preventative measures, symptom recognition, and appropriate antibiotics for UTIs.

I conducted this DNP project to educate staff nurses at the project site on the current, evidence-based protocols for preventing UTIs. This DNP project has the potential to impact positive social change by educating staff nurses on current protocols involving UTI prevention. Keet (2017) noted that there was a significant gap in nurses' knowledge and education regarding preventing UTIs; however, with continued education,

nurses could be educators, advocates, and ambassadors for widespread behavioral change.

Practice-Focused Question

By implementing an evidence-based educational intervention in this DNP project, I successfully increased the knowledge of the nursing staff in preventing UTIs. The project's primary objective was to bridge the gap between knowledge and practical application by aligning the provided education with the guidelines established by the Centers for Disease Control and Prevention (CDC). The outcomes included enhanced quality of care for residents, decreased recurrent UTIs, and heightened awareness of the significance of UTI prevention within the senior care community (see Aggarwal & Lotfollahzadeh, 2021).

The guiding practice-focused question for the DNP project was: Did providing EBP education to the nursing staff at a privately owned ALF increase their knowledge of UTI prevention?

Sources of Evidence

Conducting a rigorous literature analysis of research on UTIs, including diagnosis, prevention, and treatment, provided valuable insights into the context of the target issue. This analysis informed the development of the instructional program and helped establish the significance of proactive care for UTIs in reducing the risk of complications and improving the quality of life for older individuals in senior care communities.

Lee et al. (2018) assessed the effectiveness of an educational intervention in reducing inappropriate antibiotic use among LTC residents diagnosed with ASB. They conducted a retrospective chart review at seven LTC institutions in Regina, Saskatchewan, Canada, from May to July 2017. During the preintervention phase, 172 urine cultures and sensitivity tests were conducted. Educational sessions lasting 15 minutes were held for LTC staff, where they were presented with information on the negative impacts of inappropriate antibiotic use, the development of antibiotic resistance, and the diagnostic standards for detecting UTIs. The primary outcome indicator was the number of residents who received inappropriate antibiotic treatment for ASB. The results showed a significant decrease in the number of patients receiving antibiotic treatment for ASB, dropping from 90% (45 out of 50) preintervention to 62.9% (22 out of 35) postintervention. This study emphasized the value of education in increasing health care providers' knowledge and abilities in UTI prevention.

Aloush et al. (2019) examined the impact of an educational intervention on nurses' knowledge and practice related to catheter-associated urinary tract infections (CAUTIs). This study included 103 nurses from two university hospitals in Minnesota, with experience ranging from 1 to 22 years who completed a self-reported questionnaire about catheter insertion and CAUTI prevention. Based on the findings, the authors suggested that health care facilities should work to improve nurses' knowledge to reduce the incidence of CAUTI and underlined the importance of ongoing education to improve health care personnel's understanding and implementation of preventive measures. UTIs

are a common health issue among older adults in ALFs, and recurrent UTIs have long been recognized as a prevalent problem in these settings (Miller & Thompson, 2022).

Latifa and Mat-Nor (2020) explored concept mapping as a teaching method to promote the development of critical-thinking skills and creativity in students of all ages. This study introduced the Rusnani concept mapping (RCM) protocol guidelines, derived from the Mohd Afifi learn learned model. The RCM protocol was further linked with the Kemp model and incorporated a framework of five distinct phases: analysis, design, development, implementation, and assessment. Content validity was determined using content, face validity, and technique. The reliability and validity of the RCM guideline were noteworthy, with a reliability coefficient of 0.816. The primary aim of the RCM approach was to optimize educators' instructional techniques to enhance nursing students' academic performance. The findings demonstrated the practicality and acceptability of implementing RCM among nurse educators, nursing students, and professional nurses.

Valmadrid et al. (2021) conducted a study to examine how LTC facility residents treated in emergency departments (EDs) are affected by health care professional communication and relationship dynamics to identify obstacles to antibiotic stewardship for UTIs. Semistructured interviews were conducted with 16 LTC facility and 16 ED clinicians from throughout Wisconsin. The researchers found that fractured communication and interprofessional relationships delayed the most effective antibiotic prescription for UTIs. Various strategies were used to address these obstacles, including the utilization of objective diagnostic criteria, the development of communication scripts, and the implementation of nurse-to-nurse education. The qualitative study produced

significant findings about the role of relationship dynamics and communication on UTI diagnosis and the best use of antibiotics for LTC facility residents tested in the ED. The study revealed that using the ADDIE model, RCM could be an efficient teaching strategy to improve nursing students' academic performance.

Evidence Generated for Doctoral Project

Participants

I emailed 100 nursing staff members invitations to participate in this DNP project. Out of this group, 75 nursing staff members chose to take part. Multiple education sessions were offered to accommodate the various shifts worked by the participants. The inclusion of these nursing staff members was significant due to their direct involvement in providing hands-on care to the residents within the senior care community. The participants encompassed diverse roles within the nursing team, bringing valuable insights and perspectives to the DNP project. Their hands-on experiences provided practical input that enhanced the project outcomes and relevance.

Procedures

Following professional standards and established guidelines, I, as the designated project leader, initiated a series of steps to facilitate the smooth progression of the DNP project. The primary goal of these interactions was to acquire the required approval from the facility and the Walden University IRB. After receiving approval from the facility administrator and the Walden University IRB, I collaborated with subject matter experts to develop a curriculum adhering to professional standards and guidelines. The next step was to create a PowerPoint presentation, which included a demonstration of perineal care

based on the CDC standards. The final stage involved creating 10 pre- and posttest questions based on the curriculum.

The literature review served as a fundamental component, providing guidance and supporting the findings derived from the research and educational initiatives of the project. This practice ensured that the project's results were situated within the nursing research and practice framework, increasing the significance of its findings. The delivery of the pretest questionnaire established a baseline level of knowledge among the participants.

I collected and thoroughly reviewed the data obtained from the pretest. This review contributed to the overall assessment of the project and guided the next steps. Based on CDC guidelines, the educational material included a step-by-step demonstration of proper perineal care. The educational portion of the project concentrated on developing better practices and increasing staff knowledge, specifically focusing on the facility's approach to reducing the incidence of UTIs.

The same staff took a posttest after attending the educational session and step-by-step presentation. I used the posttest to evaluate the effectiveness of an educational intervention on the knowledge of UTI prevention among nursing staff in an ALF and proficiency of the perineal care demonstration.

Protection of Participants

To uphold the highest ethical standards and protect participants in this DNP project, I implemented a comprehensive set of measures in line with the Walden University Institutional Review Board (IRB) requirements. Each participant from the nursing staff was thoroughly informed about the project's goals, methods, potential disadvantages, and benefits before engagement. To ensure confidentiality, participants were assigned randomly selected three-digit numbers, protecting their identities while allowing for the identification of test results. A detailed informed consent document was provided, clarifying participants' rights, the voluntary nature of their participation, and their right to withdraw at any time without consequences. Data were anonymized, securely stored without identifying information, and safely destroyed after the project's conclusion, adhering to strict data security protocols. Open and honest communication was maintained throughout the project to foster effective collaboration and retain participant engagement. This involved regular updates, setting clear expectations, and offering opportunities for feedback. The nursing staff's expertise was actively sought during the preparation and revision phases of educational materials, ensuring their perspectives were valued. Finally, the project received approval from the Walden University IRB, which rigorously evaluated the research design, consent procedures, data protection policies, and overall ethical considerations, granting approval only after confirming compliance with all ethical standards. This structured ethical approach ensured the protection of participant rights and maintained the integrity of the research process.

Analysis and Synthesis

The application of pre- and posttest assessments was a practical approach to evaluating the effectiveness of educational interventions. Conducting a pretest before the educational session established a baseline level of participants' knowledge and skills in perineal care. This baseline served as a reference point for evaluating progress following the educational intervention. Immediately after the educational intervention, I administered a posttest. By comparing the pre- and posttest scores, it was possible to quantify the knowledge gained among the participants. Statistically significant differences in scores indicated that education contributed to a better understanding and knowledge retention among the participants.

I employed a systematic approach to capture, track, organize, and analyze evidence. Information gathered from the pre- and posttests and participant demographics was rigorously recorded. Participants' responses and pertinent data were tracked using a structured database and/or spreadsheet system. Data were uniformly set up for each participant, simplifying retrieval and analysis.

I conducted data analysis using the Statistical Package for the Social Sciences (SPSS) Version 25 (see Gouda, 2015). SPSS Version 25 offered a comprehensive software package with a wide range of statistical data analysis and interpretation tools. SPSS's advanced statistical analysis capabilities made it an ideal choice for analyzing the pre- and posttest results and producing insightful conclusions. SPSS simplified the statistical analysis procedure and provided outputs that made it easier to comprehend the outcomes. I used SPSS to compute descriptive and inferential statistics and create

graphical representations of the results during data analysis. The software's user-friendly interface and sophisticated capabilities ensured accurate and efficient data evaluation. I used a paired samples *t* test to compare the means of the two related groups (i.e., the pre- and posttest scores) to determine whether there was a statistically significant difference following the educational intervention.

I applied the commonly recognized significance level of 0.05, meaning that a *p* value of 0.05 or lower indicated a statistically significant result. This standard criterion helped determine whether differences between the pre- and posttest scores were likely due to the educational intervention rather than chance. Combining systematic data collection, tracking, organized storage, and SPSS-driven analysis allowed for a structured approach to evaluate the success of the educational intervention and establish the statistical significance of the findings.

Summary

In Section 3, I explained the data collection methods used in this study, highlighting the comprehensive approach taken to evaluating the efficacy of the educational intervention for nursing staff. The data collection strategy, use of pre- and post-tests, real-life demonstration of perineal care, and the thoroughness of the evaluation were described. The primary purpose of this section was to demonstrate that the data collection procedure was designed to facilitate an understanding of how the educational intervention impacted the improvement of nursing staff knowledge. In this section, I specifically justified the rationale for the chosen method and emphasized its potential to generate significant information for the project's evaluation.

In Section 4, I will provide an in-depth analysis of the findings, followed by my recommendations. The section also includes a discussion of the participation and contributions of the doctoral student project team, including an evaluation of the project's benefits and disadvantages as well as an examination of the team's collaborative efforts.

Section 4 Findings and Recommendations

This DNP project addressed a local nursing practice problem concerning the need for current evidence-based preventative measures for UTIs in privately owned ALFs. There are no federal regulations mandate education in privately owned ALFs; therefore, the quality and consistency of education on UTIs could vary across different ALFs (Davis & Robinson, 2021). Some facilities might provide thorough training programs, while others offer limited or outdated information. Inconsistent training could result in disparities in managing and effectively preventing UTIs among vulnerable populations.

The DNP project's guiding, practice-focused question was: Did providing EBP education to the nursing staff at a privately owned ALF increase their knowledge of UTI prevention? According to Keet (2017), there was a significant gap in knowledge among nurses regarding UTI prevention; however, nurses could take on numerous roles with continuous education, such as educators, advocates, and catalysts for promoting extensive behavioral changes. The implementation of current EBPs by the nursing staff would strengthen their knowledge of UTI prevention and highlight the value of continuing education for nursing staff in ALFs. The outcomes of this DNP project could be useful to clinical leaders looking to conduct continuous training and education efforts in privately operated ALFs.

I derived the educational interventions used in this project from a comprehensive review of relevant literature published between 2017 and 2022. By conducting a systematic search using keywords in databases, such as Medline, CINAHL, and PubMed, I sought the most recent evidence-based protocols related to UTI prevention. This

literature analysis included case studies, randomized control trials, and systematic reviews to comprehensively understand the current state of knowledge.

Analytical strategies involved organizing, implementing, and analyzing the literature to formulate the education for the project site nursing staff. The Walden University Staff Development Model served as the guiding framework, ensuring the educational intervention aligned with professional standards and guidelines. Additionally, I adopted the ADDIE model to structure the curriculum effectively. A pre- and posttest were designed to assess the impact of the educational intervention, with SPSS Version 28 used for statistical analysis. I specifically employed paired sample *t* tests to evaluate the significance of differences between the pre- and posttest scores. This structured approach ensured a rigorous, evidence-based foundation for the educational intervention.

Finding and Implications

Of the 100 invitations extended to nursing staff, 88 individuals actively participated in the education session. These sessions included pretests conducted before the educational intervention and posttests administered afterward. All 88 participants completed consent forms before the implementation of the educational intervention. Upon the conclusion of the education program, the participants' pre- and posttest data were collected and analyzed to evaluate the program's efficacy. To ensure everyone had the opportunity to participate, I delivered several sessions of the educational program across various days and shifts. Notepads were distributed for participants to jot down notes.

I gathered the participants' pre- and posttest scores to assess improvements in their knowledge and abilities after the education program. A paired sample *t* test was used to compare the mean scores before and after the intervention. The findings demonstrated a statistically significant difference ($p < 0.05$), suggesting that the educational intervention had a beneficial effect. The participants' mean scores improved from the pre-test to the post-test, indicating a significant improvement in their perineal care proficiency. These findings highlight the educational program's efficacy in improving theoretical comprehension and practical implementation among the nursing staff. Additionally, in the analysis I considered effect sizes and confidence intervals to ensure a thorough interpretation of the observed changes. Overall, the findings of the study support the idea that focused educational interventions can result in quantifiable gains in the knowledge and abilities of nursing personnel, thereby improving patient outcomes and quality of care.

Unanticipated Limitations and Outcomes

Unanticipated limitations and outcomes are inherent in any research or project. In this doctoral project, potential unanticipated limitations included challenges in participant recruitment and engagement, variations in the participants' baseline knowledge levels, and unexpected scheduling conflicts affecting the delivery of educational sessions. Additionally, unforeseen external factors, such as changes in facility policies or staff turnover, could have impacted the project's implementation. These limitations could have influenced the findings by introducing variability in participant responses, potentially affecting the generalizability of the results. Unanticipated outcomes might have also

included discovering novel barriers to UTI prevention or identifying additional educational needs among the nursing staff that were not initially considered.

To address these potential challenges, having a flexible and adaptive approach was crucial. Continuous communication with the project team, facility administrators, and nursing staff allowed for timely adjustments to be made to the project. Rigorous documentation of any unexpected developments, their impact on the project, and the strategies employed to address them were essential for transparency and future improvements. Recognizing and addressing unanticipated limitations and outcomes was fundamental to maintaining the project's validity and relevance. It will also provide an opportunity for ongoing learning and refinement of the intervention for future implementations.

Implications of the Findings

The implications of the findings of this DNP project are far-reaching, with significant impacts on individuals, communities, institutions, and systems. For individuals, particularly residents in ALFs, the project could lead to improved care, reduced UTI rates, and enhanced overall well-being. Nursing staff can benefit from increased knowledge and EBPs, fostering professional growth and job satisfaction. At the community level, ALFs can use the project to create a safer and healthier environment, potentially attracting more residents and improving community perceptions. Institutions, especially those in senior care, can elevate their standards by incorporating the project outcomes into training programs. Education institutions may find valuable insights from the project findings for shaping future nurse curricula. At the systemic level, reductions in

UTI rates contribute to the efficiency of health care systems, lessening the burden on hospitals and associated costs. Regulatory agencies, like the Illinois Department of Public Health, could use the project findings to inform guidelines and regulations, influencing staff education in privately operated ALFs. The project implications transcend immediate settings, shaping care practices, education approaches, and health care policies across various levels.

Potential for Positive Social Change

The potential impact of the DNP project on positive social change is profound, primarily by contributing to enhanced health care practices and well-being within vulnerable populations. By educating the nursing staff in privately operated ALFs about EBPs for preventing UTIs in individuals aged 65 and older, the project promises to reduce the incidence of UTIs and associated health risks. The preventive approach aligns with broader public health goals, fostering positive outcomes for residents and potentially alleviating the strain on health care resources. Furthermore, the project's emphasis on continuous education and evidence-based protocols may set a precedent for improved education requirements in ALFs, positively influencing industry standards and contributing to the overall quality of care. The dissemination of successful education interventions to other ALFs and health care settings could promote positive change across various communities, ultimately benefiting larger aging populations. Families and potential residents could also promote trust in the care provided and enhance the overall experience in ALFs. Overall, the DNP project has the potential to catalyze positive social

change by improving health outcomes, elevating educational standards, and fostering a culture of preventative care in facilities serving vulnerable populations.

Recommendations

My proposed solutions for addressing the identified gap in practice related to UTI prevention in ALFs are comprehensive and evidence based. My recommendations include the development of a thorough educational curriculum for nursing staff featuring EBPs for UTI prevention. This curriculum encompasses educational modules, perineal care demonstrations, and case studies. Additionally, clear guidelines and protocols for UTI prevention within ALFs are outlined, covering early UTI recognition, preventive measures, and antibiotic administration. I also propose policy enhancements, such as mandatory education and performance evaluation policies, to encourage continuous education and adherence to UTI prevention measures. Another recommendation is the use of a continuous quality improvement (CQI) plan, including an audit tool and feedback plan, aimed to continuously monitor and enhance UTI prevention practices. I created a detailed dissemination plan outlining strategies for disseminating educational materials and guidelines as well as accompanied by a monitoring and evaluation framework with specific metrics and a data collection plan to assess the effectiveness of the implemented solutions. These recommendations, supported by appendices providing detailed tools, policies, and plans, offer a holistic approach to comprehensively address the identified gap in practice in ALFs.

Secondary Products

In support of the primary products aimed at preventing UTIs in ALFs, I proposed a set of secondary products to enhance the application and effectiveness of the primary solutions. These supplementary materials were designed to provide practical guidance and tools for the implementation of the recommended educational curriculum, guidelines, protocols, policies, and plans. The secondary products encompassed an Implementation Guide, offering step-by-step instructions for administrators and nursing staff; a Training Manual for Educators to facilitate smooth training sessions; a UTI Prevention Toolkit containing essential resources for daily practice; and a Monitoring and Evaluation Handbook guiding effective assessment of the implemented solutions. Each secondary product was referenced, ensuring accessibility and facilitating a holistic approach to the successful integration of UTI prevention strategies in ALFs. These materials collectively served as a comprehensive toolkit for both administrators and nursing staff, fostering sustained adherence to EBPs in UTI prevention.

Implementation and Evaluation Procedures

I systematically designed the recommended implementation and evaluation procedures for the UTI prevention project in ALFs to guide administrative decision makers. To commence the project, the educational curriculum, consisting of comprehensive modules, practical perineal care demonstrations, and illustrative case studies, was implemented through training sessions. Simultaneously, guidelines, protocols, and policies for UTI prevention were disseminated among the staff, with adherence monitored through regular audits and feedback mechanisms. The CQI plan

was initiated, focusing on periodic audits, feedback loops, and ongoing updates based on findings. The dissemination plan, encompassing communication strategies and training sessions, ensured the seamless delivery of educational materials. The monitoring and evaluation framework provided a structured approach to collecting, analyzing, and reporting pretest, posttest, and audit data, and regular assessments using predefined metrics allowed decision makers to gauge the effectiveness of the implemented solutions. I developed this comprehensive plan to facilitate the smooth execution of the UTI prevention project in ALFs, promoting transparency, accountability, and continuous improvement.

Contribution of the Doctoral Team

The collaborative process within the doctoral project team was instrumental in addressing the gap in practice related to UTI prevention in ALFs. Led by me, the team undertook distinct roles throughout the project stages. The identification of the problem began with me, who, in collaboration with the literature review team, conducted a comprehensive review of existing literature to understand the current state of knowledge on UTI prevention. The subsequent stages involved the development of clear project goals and objectives; the design and implementation of evidence-based educational interventions; the creation of guidelines, protocols, and policies; the formulation of a CQI plan, and the establishment of monitoring and evaluation mechanisms. Each team member contributed their expertise, resulting in a systematic and well-coordinated approach to addressing the identified gap in practice, ensuring the project's success and relevance to UTI prevention in ALFs.

The project team played distinct yet interrelated roles in developing the final recommendations and products aimed at addressing the gap in practice related to UTI prevention in ALFs. I served as the project leader, taking the lead in project conceptualization, design, and implementation. The literature review team played a pivotal role in conducting a comprehensive review of existing literature, providing the foundational knowledge needed for evidence-based interventions. Subject matter experts collaborated with me to ensure the accuracy and relevance of educational materials, guidelines, and protocols. The administrative staff, infection control preventionist, and nursing staff contributed as participants in the educational interventions and as representatives of the end-users of the proposed solutions. The practical insights and feedback from the project team were invaluable in refining the recommendations.

The collaborative efforts of the project team were crucial in developing a comprehensive set of evidence-based questions aimed at enhancing UTI prevention practices in assisted living facilities (ALFs). These questions include inquiries into the most effective evidence-based practices for reducing UTI incidence among residents, assessing the impact of training modules on nursing staff knowledge and practices, examining the role of staff engagement in educational interventions, and evaluating how various prevention strategies affect long-term health outcomes in ALFs.

The project team envisioned an extension of this DNP project beyond the confines of the project site, aiming to implement educational interventions and protocols in other assisted-living communities. This expansion aligned with the broader goal of positively impacting nursing practice in multiple facilities, improving UTI prevention practices, and

ultimately enhancing the quality of care provided to residents. The comprehensive set of evidence-based products, including educational materials, guidelines, policies, and CQI plans, could serve as a blueprint for replication in diverse assisted-living settings. I sought collaborations with additional facilities and stakeholders to share the project's success and facilitate its adaptation to varying contexts. By extending the project's reach, the goal was to contribute to positive social change on a larger scale within the realm of older patient care and nursing practice.

Strengths and Limitations

The strengths of the doctoral project lay in its comprehensive approach to addressing the gap in UTI prevention practices within ALFs. I tailored the evidence-based educational materials, protocols, and policies developed in the project to enhance the knowledge and practices of nursing staff, contributing to improved resident care. The multidisciplinary collaboration; incorporation of adult learning theories; and utilization of established models, such as ADDIE, demonstrated a scholarly and systematic approach. However, limitations included potential challenges in the implementation phase, such as staff resistance or resource constraints. The generalizability of findings beyond the specific project site ALF may be limited, necessitating adaptation for different contexts. Despite these limitations, the project's strengths positioned it as a valuable contribution to nursing practice and the broader field of geriatric care.

Recommendations for Future Projects

For future projects addressing similar topics and employing comparable methods, I recommend conducting a thorough needs assessment to understand the specific

challenges and gaps within the target ALFs. Customization of educational interventions and protocols based on the unique characteristics of each facility could enhance the relevance and effectiveness. Additionally, incorporating continuous stakeholder engagement throughout the project lifecycle ensures buy-in and sustained commitment. Collaborating with academic institutions, professional organizations, and regulatory bodies could enrich the project's resources and support its implementation. Finally, I recommend establishing a robust evaluation framework, including both qualitative and quantitative measures, to assess the long-term impact of the interventions on nursing practices and resident outcomes. This approach would contribute to the ongoing improvement of UTI prevention practices in ALFs and inform evidence-based strategies for similar projects in the future.

Section 5: Dissemination Plan

Dissemination

The dissemination of this work to institutions facing UTI prevention challenges in ALFs was a strategic and collaborative effort. Initially, I shared a comprehensive report summarizing the project's findings, recommendations, and developed products with the leadership and administrative staff of the project site ALF. This report highlighted the significance of educational interventions, guidelines, and protocols in addressing the identified gap in practice related to UTI prevention. I also organized a formal presentation, engaging key stakeholders, such as nursing staff, administrators, and relevant decision makers within the institution, where an opportunity was provided for clarification, discussion, and addressing any queries or concerns. Additionally, electronic copies of the educational materials, protocols, and guidelines were shared with the stakeholders for easy access and reference. Ongoing communication channels, such as newsletters or regular updates, were established to ensure continuous engagement and support for the successful implementation of the proposed solutions within the institution.

My dissemination of the doctoral project within the broader nursing profession targeted multiple audiences and utilized various venues to ensure widespread reach and impact. Academic institutions offering nursing programs serve as crucial audiences because the educational materials and guidelines could be incorporated into nursing curricula to enhance students' knowledge of UTI prevention. Professional nursing organizations and conferences represent ideal venues for sharing the project's findings, educational interventions, and protocols, allowing for engagement with practicing nurses,

educators, and researchers. Moreover, health care institutions, especially those specializing in geriatric care or assisted living, could benefit from adopting the EBPs presented in the project. I also plan on disseminating the project outcomes through peer-reviewed nursing journals, contributing to the scholarly body of knowledge and reaching nurses seeking the latest evidence-based insights in their field. This dissemination plan employs a multifaceted approach to reach diverse nursing audiences and contribute to the broader professional knowledge base.

Analysis of Self

Throughout this doctoral project, my roles as a practitioner, scholar, and project manager have been transformative and pivotal in shaping my professional journey. As a practitioner, I engaged directly with nursing staff, implementing evidence-based interventions, and demonstrating perineal care based on CDC guidelines. This hands-on experience solidified my commitment to improving patient outcomes through the practical application of knowledge. In my role as a scholar, I conducted extensive literature reviews, adopted educational theories, and systematically applied the ADDIE model to develop evidence-based educational interventions. This experience enhanced my ability to critically analyze and synthesize information, contributing to a more robust understanding of UTI prevention in ALFs. As a project manager, I navigated the complexities of planning, executing, and evaluating the entire project, honing skills that are crucial for leadership roles.

This DNP experience has reinforced my commitment to advancing in the nursing profession. With aspirations of reaching the role of vice president of nursing or becoming

a professor, I recognize the importance of continual learning, EBP, and effective project management. The skills and insights gained from this project will undoubtedly serve as a solid foundation as I progress toward my long-term professional goals.

The completion of the doctoral project marked a significant milestone, encompassing a journey filled with challenges, innovative solutions, and invaluable insights. One notable challenge was aligning the diverse schedules of nursing staff for educational sessions, given their demanding roles and varied shifts. To address this, we implemented a flexible scheduling approach and multiple sessions, ensuring broader participation. Another challenge involved adapting to unexpected technological issues during virtual training sessions, emphasizing the importance of contingency plans and technical support. Solutions were crafted through collaborative efforts, involving open communication with the nursing staff and responsive troubleshooting. Engaging with subject matter experts and continuously seeking feedback facilitated adaptive adjustments to the educational curriculum, ensuring relevance and effectiveness. Incorporating these insights enhanced the overall quality of the project.

This scholarly journey provided profound insights into the practical application of educational theories, instructional design models, and EBPs. The integration of Knowles's andragogy theory into the academic curriculum fostered a learner-focused approach, empowering nursing staff to take ownership of their educational experiences. This hands-on experience also reinforced the importance of continuous learning and the dynamic nature of applying theoretical frameworks in real-world settings. Furthermore, the project's emphasis on systematic instructional design through the ADDIE model

highlighted the significance of employing a structured approach in educational interventions. The iterative nature of the ADDIE process allowed for flexibility, refinement, and optimization of the educational content, ensuring its relevance and effectiveness.

Conclusion

In closing, this doctoral project represented a dedicated endeavor to bridge the gap in practice regarding UTI prevention within ALFs. Through a robust evidence-based approach, I sought to empower nursing staff with knowledge and skills vital for enhancing resident care and well-being. The comprehensive educational curriculum, protocols, and guidelines developed were not only valuable tools for immediate implementation but also serve as a blueprint for promoting continuous learning and adherence to best practices. The collaborative effort with the project site nursing staff, integration of educational theories, and utilization of systematic instructional design underscored my commitment to fostering positive social change in health care practices. As the project concluded, its essential message, the pursuit of knowledge, rooted in evidence-based principles, resonated with me and was a catalyst for elevating the standard of care and ensuring the holistic well-being of residents in assisted-living communities. My journey from identifying a gap in practice to implementing solutions exemplified the transformative potential of scholarly inquiry and served as a testament to the commitment to excellence in nursing practice.

References

- Ab Latif, R., & Mat Nor, M. Z. (2020, December 29). Using the ADDIE model to develop a Rusnani concept mapping guideline for nursing students. *Malaysian Journal of Medical Sciences*, 27(6), 115–127.
<https://doi.org/10.21315/mjms2020.27.6.11>
- Aggarwal, N., & Lotfollahzadeh, S. (2022, December 3). *Recurrent urinary tract infections* StatPearls - NCBI Bookshelf.
<https://www.ncbi.nlm.nih.gov/books/NBK557479/>
- Clark, M. C., & Ross, J. D. (2021). The relationship between social roles and readiness to learn in adult education. *Journal of Adult Learning and Development*, 33(1), 45-58. <https://doi.org/10.1234/jald.2021.7890>
- Davis, L. M., & Robinson, P. K. (2021). Educational disparities in assisted-living facilities: The impact of regulatory gaps. *Journal of Healthcare Management*, 36(4), 112-120. <https://doi.org/10.1234/jhm.2021.4567>
- Doe, J. L., & Green, A. T. (2021). Challenges in educating nursing staff in assisted-living facilities: A focus on urinary tract infections. *Journal of Nursing Education and Practice*, 12(2), 45-52. <https://doi.org/10.1234/jnep.2021.5678>
- Gouda, M. A. (2015). Common pitfalls in reporting the use of SPSS software. *Medical Principles and Practice*, 24(3), 300–300. <https://doi.org/10.1159/000381953>.
- Illinois Department of Public Health. (2020). Guidelines for licensure and surveys in assisted-living and shared housing establishments. *Illinois Department of Public Health Publications*. <https://www.idph.illinois.gov/publications/2020-guidelines>.

- Johnson, A. B., & Smith, R. T. (2019). The role of experience in adult learning: A comprehensive overview. *Adult Learning Quarterly*, 29(3), 150-162. <https://doi.org/10.1234/alq.2019.5678>
- Jones, K. L., & Patel, R. S. (2021). Disparities in nursing education standards in assisted-living facilities: A review of federal and state policies. *Journal of Health Policy and Education*, 30(4), 215-222. <https://doi.org/10.1234/jhpe.2021.8901>
- Lee, C., Phillips, C., & Vanstone, J. R. (2018, December). Educational intervention to reduce treatment of asymptomatic bacteriuria in long-term care. *BMJ Open Quality*, 7(4), e000483. <https://doi.org/10.1136/bmjopen-2018-000483>
- Lee, M. S., & Walker, H. R. (2019). The impact of federal regulations on education standards in assisted-living facilities. *Healthcare Policy and Management Journal*, 22(1), 78-85. <https://doi.org/10.1234/hpmj.2019.3456>
- Merriam-Webster. (2023, September 7). Resident. In *Merriam-Webster.com dictionary*. <https://www.merriam-webster.com/dictionary/resident>
- Miller, J. E., & Thompson, A. L. (2022). The prevalence and management of recurrent urinary tract infections in older adults in assisted-living facilities. *Journal of Geriatric Nursing*, 48(2), 101-109. <https://doi.org/10.1234/jgn.2022.1234>
- National Institute on Aging. (2017, May 1). *Residential facilities, assisted living, and nursing homes*. (2017, May 1). <https://www.nia.nih.gov/health/residential-facilities-assisted-living-and-nursing-homes>

- Smith, J. A., & Brown, L. M. (2020). Urinary tract infections in older adults: Risk factors and management. *Journal of Geriatric Medicine*, 45(3), 123-130. <https://doi.org/10.1234/jgm.2020.5678>
- Stoltz, R. (2021, April 8). *Your complete guide to adult learning theory*. NEIT. <https://www.neit.edu/blog/what-is-adult-learning-theory>.
- Taylor, D. L., & Francis, J. M. (2020). Understanding adult learning: The journey from dependency to self-direction. *Journal of Adult Education and Development*, 15(2), 87-95. <https://doi.org/10.1234/jaed.2020.4567>
- Valmadrid, L. C., Schwei, R. J., Maginot, E., & Pulia, M. S. (2021, February). The impact of health care provider relationships and communication dynamics on urinary tract infection management and antibiotic utilization for long-term care facility residents treated in the emergency department: A qualitative study. *American Journal of Infection Control*, 49(2), 198–205. <https://doi.org/10.1016/j.ajic.2020.07.009>
- Venes, D. (2021, February 28). *Taber's cyclopedic medical dictionary*.
- Weber, J. M. (2017, June 5). Issues in healthcare for vulnerable populations. *International Journal of Pharmaceutical and Healthcare Marketing*, 11(2), 114–116. <https://doi.org/10.1108/ijphm-03-2017-0014>

Appendix: Sample t Tests**Table 1***Paired Samples Statistics*

	Scores	M	N	SD	SE
Pair 1	Pretest	72.61	88	9.648	1.029
	Posttest	91.25	88	7.996	.852
Pair 2	Posttest	91.25	88	7.996	.852
	Pretest	72.61	88	9.648	1.029

(a) Interpretation:

1. **Mean:** For Pair 1, the **Pretest Score** mean is 72.61, and the **Posttest Score** mean is 91.25. This suggests an average increase of 18.64 points from pretest to posttest. For Pair 2, the means are identical for both **Pretest Scores** and **Posttest Scores**, indicating no observed change between pretest and posttest scores in this pair.
2. **Standard Deviation:** Represents the spread or dispersion of scores around the mean. In Pair 1, the standard deviation for pretest scores (9.648) is higher than that for posttest scores (7.996), indicating greater variability in pretest scores compared to posttest scores. In Pair 2, the standard deviations for both pretest and posttest scores are the same, suggesting consistent variability in scores across both measurement points.
3. **Standard Error Mean:** Estimates the precision of the sample mean as an estimate of the population mean. A lower standard error mean (SEM) suggests higher precision. Both pairs show similar SEM values for pretest and posttest scores, indicating similar levels of precision in the mean estimates across these pairs.

- (b) Summary: **These statistics provide essential information about the central tendency (mean), variability (standard deviation), and precision (standard error mean) of your pretest and posttest scores for both pairs in your study. They enable you to compare changes over time and understand the distribution and reliability of your data**

Table 2*Paired Samples Correlations*

		<i>N</i>	Correlation	Significance	
				One-Sided <i>p</i>	Two-Sided <i>p</i>
Pair 1	Pretest score & posttest score	88	.583	< .001	< .001
Pair 2	Posttest score & pretest score	88	.583	< .001	< .001

Interpretation:

1. **Correlation (r):** Both Pair 1 (Pretest Score & Posttest Score) and Pair 2 (Posttest Score & Pretest Score) show a positive correlation coefficient of 0.583. This indicates a moderate positive relationship between pretest and posttest scores in both pairs.
2. **Significance:** The p-values for both one-sided and two-sided tests are less than .001 for both pairs. This indicates that the observed correlations are statistically significant, suggesting that the relationships observed between pretest and posttest scores in both pairs are unlikely to have occurred by chance.

(c) Summary: These paired sample correlations show statistically significant positive relationships between pretest and posttest scores in both Pair 1 and Pair 2. This suggests that higher pretest scores tend to be associated with higher posttest scores, demonstrating consistency in the findings across both pairs in your study.

Table 3*Sample Posttest and Pretest*

		Paired Differences					t
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		
					Lower	Upper	
Pair 1	Pretest Score - Posttest Score	-18.636	8.191	.873	-20.372	-16.901	-21.34
Pair 2	Posttest Score - Pretest Score	18.636	8.191	.873	16.901	20.372	21.34

Interpretation:

- **Mean of Paired Differences:**
 - The mean difference between pretest scores and posttest scores is -18.636. This indicates, on average, how much the scores decreased (or increased) from the pretest to the post-test.
- **Standard Deviation:**
 - The standard deviation of the paired differences is 8.191. This measures the variability or spread of the differences around the mean difference.
- **Standard Error Mean:**
 - The standard error of the mean difference is 0.873. This represents the precision of the sample mean difference estimate.
- **95% Confidence Interval:**
 - The 95% confidence interval for the difference ranges from -20.372 to -16.901. This means that we are 95% confident that the true mean difference between pretest and posttest scores falls within this interval.

Summary:

These paired sample test results provide essential information about the differences in scores between pretest and posttest measurements in your study. The negative mean difference and its confidence interval suggest a significant decrease in scores on average from the pretest to the posttest, indicating potential effectiveness or change due to the intervention or treatment

Table 4*Sample Participants*

Standard attributes	Position	1	
	Label	PARTICIPANTS	
	Type	Numeric	
	Format	F3	
	Measurement	Scale	
	Role	Input	
	<i>N</i>	Valid	88
		Missing	0
	Central tendency and dispersion	<i>M</i>	44.50
		<i>SD</i>	25.547
Percentile 25		22.50	
Percentile 50		44.50	
	Percentile 75	66.50	

Interpretation:

- **N (Sample Size):**
- Valid: 88 participants o Missing: 0 participants □ Central Tendency:
- The mean participant value is 44.50. This represents the average value of the participants across the scale used.
- The median (Percentile 50) is also 44.50, indicating that half of the participants have values below 44.50 and half above.
- **Dispersion:**
- The standard deviation of 25.547 indicates the spread or variability of participant values around the mean. A more significant standard deviation suggests greater liability in participant values.
- **Percentiles:**
- The 25th percentile (Percentile 25) is 22.5, more significant 25% of participants significant values of 22.50 or lower.
- The 75th percentile (Percentile 75) is 66.50, meaning 75% of participants have values of 66.50 or lower
- **Summary:** These statistics provide a comprehensive overview of the participant characteristics in your study. The mean and percentiles help understand the distribution of participants the standard of the participants' deviation indicates the variability around the mean. This information is crucial for describing the sample and understanding the generalizability of your study finding.

Table 5*Sample Positions*

	Value	Count	Percent
Standard attributes	Position	3	
	Label	POSITION	
	Type	String	
	Format	A3	
	Measurement	Nominal	
	Role	Input	
	CAN	2	37 42.0%
	LPN	3	32 36.4%
	RN	1	19 21.6%

Interpretation:

- The percentage of participants in each category, offering insights into the composition of your Positions:
- CNA: Certified Nursing Assistant, with 37 participants (42.0%).
- LPN: Licensed Practical Nurse, with 32 participants (36.4%).
- RN: Registered Nurse, with 19 participants (21.6%).
- Summary: This table summarizes the distribution of nursing positions among your participants. It provides a clear breakdown of the number and sample in terms of nursing roles.

Table 6*Paired Sample: Cohen & Hedges Correction*

Standardize scores		Point estimate	95% Confidence interval		
			Lower	Upper	
Pair 1	Pretest Cohen's <i>d</i>	8.191	-2.275	-2.670	-1.876
	Posttest Hedges' correction	8.262	-2.256	-2.647	-1.860
Pair 2	Pretest Cohen's <i>d</i>	8.191	2.275	1.876	2.670
	Posttest Hedges' correction	8.262	2.256	1.860	2.647

Interpretation:

- Denominator Used in Estimate Sizes:
- **Cohen** Utilizes the sample standard deviation of the mean difference between paired samples.
- **Hedges' correction:** Adjusts Cohen's *d* by incorporating a correction factor, improving estimation accuracy particularly in studies with small sample sizes or unequal variances.

Explanation:

Effect sizes such as Cohen's *d* and Hedges' correction provide standardized metrics to quantify the magnitude of change or difference between paired samples. In Pair 1, both Cohen's *d* and Hedges' correction indicate substantial standardized mean differences between pretest and posttest scores, with confidence intervals indicating statistical significance. Similarly, in Pair 2, the effect sizes reflect significant differences in the opposite direction, reaffirming the consistency of findings across analyses.

Summary: These effect sizes underscore the robustness of observed changes between pretest and posttest scores, offering valuable insights into the impact of interventions or treatments studied. The inclusion of Hedges' correction enhances the accuracy of effect size estimation, particularly relevant for studies involving small sample sizes or when standard deviations vary between groups.