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Effectiveness of Substance Use Disorder Education on Knowledge and Attitudes Among Entry-Level Obstetric Nurses

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Effectiveness of Substance Use Disorder Education on Knowledge and Attitudes Among Entry-

Level Obstetric Nurses

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By

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Abstract

Background: Substance use disorder (SUD) among pregnant women is a significant public health concern in the United States, particularly in Kentucky. Nursing curriculum has not kept pace with the escalating public health crisis regarding SUD. Graduating nurses joining the obstetric field are often not prepared to meet the unique care needs of this vulnerable population.

Purpose: The purpose of this DNP project was to pilot an educational intervention embedded with content regarding SUD with entry-level obstetric nurses that were enrolled in the nurse residency program at UK HealthCare.

Methods: This project used a quasi-experimental pretest – posttest design. Participants completed a pretest, an educational intervention, and a posttest. The identical pretest and posttest included knowledge questions developed by the principal investigator (PI) and attitude questions derived from a validated tool, the Drug and Drug Problems Perceptions Questionnaire (DDPPQ). The tests comprised of multiple choice, true/false, and 7-point Likert scale questions to analyze participants' knowledge and attitudes toward SUD. Wilcoxon signed rank tests were used to compare participants' responses before and after the intervention.

Results: The knowledge results showed clinical significance and improvement in the median score from pretest (Median = 50.0%) to posttest (Median = 60.0%), albeit not a statistically significant improvement ($Z = -1.63$, $p = 0.102$). The DDPPQ contains five subscales and all subscales showed clinical significance and improvement. Additionally, there was statistical improvement in the role adequacy ($Z = -2.12$, $p = 0.034$) and role support ($Z = -2.07$, $p = 0.038$) subscales.

Conclusion: An educational intervention is an effective tool to improve entry-level obstetric nurses' knowledge and attitudes toward patients with SUD. The results of the pretest and posttest

could be used to implement similar educational interventions across services lines in the health care system. Further studies with more diverse participants are warranted to generalize conclusions.

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Dedication

This project is dedicated to my husband and children, who have been constant sources of support during the challenges of graduate school. You are my inspiration! Your encouragement always made a difference and pushed me to keep putting one foot in front of the other. May the next chapter in our lives involve fewer late nights in front of my computer!

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Introduction to Problem

In 2016, 24.3 per 1,000 women giving birth in a hospital had a substance use disorder (SUD) diagnosis (Agency for Healthcare Research and Quality [AHRQ], 2019). Since 2010, prescription opioid misuse, heroin, and synthetic opioid use have skyrocketed and correlated with an increase in overdose deaths (Centers for Disease Control and Prevention [CDC], 2021). From 2002 to 2013, the largest surge in heroin use was specifically among women (CDC, 2016). As it stands, nursing curriculum has not kept pace with the escalating public health crisis regarding SUD and corresponding evidence-based treatments (Finnell et al., 2018). Furthermore, the lack of consistency of educational preparation for SUD can perpetuate poor care and negative attitudes toward persons with SUD (Bartlett et al., 2013). It is crucial for nurse researchers to address the increasing prevalence of SUDs among women of childbearing age, and to develop culturally sensitive evidence-based approaches to care for this vulnerable population.

Context, Scope, and Consequences

According to the National Institute of Drug Abuse, SUD is a "chronic, relapsing brain disease that is characterized by compulsive drug seeking, continued use despite harmful consequences, and long-lasting changes on the brain" (National Institute on Drug Abuse [NIDA], 2018, para. 1). Addiction is the most severe form of SUD and is caused by repeated misuse of a substance (NIDA, 2018). Many people hear the word "addiction" and assume that if individuals do not have the willpower to change the behavior, then they must be weak; however, SUD is a multifaceted condition that can be caused by genetics, environmental factors, experiences, and trauma (NIDA, 2018). Nurses are often not well-trained in SUD and their lack of understanding

regarding the pathophysiology and etiology of SUD can lead to stigmatization of patients and poor nurse-patient relationships.

Pregnancy can provide eligibility for health benefits women did not have before, and during their pregnancy may be the first time some women receive routine healthcare. Therefore, nurses should cease the opportunity and see this as a chance to identify patients that may need treatment for a SUD. A trusting nurse-patient relationship can mean a patient is four times more likely to receive adequate prevention and ongoing healthcare which may encourage the mother with SUD to engage in recovery (Savin, 2015). Without proper education, nurses may find themselves unprepared to care for pregnant women with SUD.

Current Evidence-Based Interventions

The predominant findings in the literature suggest that inadequate SUD education in nursing school curriculum causes new nurses to enter the workforce unprepared to care for patients with SUD (Farrell, 2020). Williams et al. (2020) reported that nursing students demonstrated improved knowledge of SUD after an educational intervention utilizing video-based case scenarios of potential encounters with patients with SUD. Furthermore, the educational intervention reduced stigma toward patients with SUD. Reducing stigma can improve care and patient outcomes (Williams et al., 2020).

No prior research was found that examined educational interventions in a nurse residency program. The current literature revealed several evidence-based educational intervention methods that could be utilized to address the specific nursing care required for women of childbearing age with SUD. Implementation of an educational intervention that includes testimony from a person with a lived recovery experience has been effective at familiarizing nurses with the idea that recovery is possible (Dion, 2019). By hearing their stories, nurses better

understand the numerous pathways to recovery and learn the specific needs of the SUD patient (Dion, 2019). Nurses learn that individuals in recovery working as peer support specialists are instrumental in connecting patients with SUD to community resources, including treatment and harm reduction (Dion, 2019). When testimonials are integrated in SUD educational content, nurses are more likely to support and advocate for patients with SUD (Dion, 2019). These tools allow nurses to replace ineptitude and negative attitudes with best practices for treating patients with SUD, which is key in supporting these patients to achieve recovery and well-being (Bartlett et al., 2013).

Screening, brief intervention, and referral to treatment (SBIRT) is a comprehensive approach, promoted by the Substance Abuse and Mental Health Services Administration (SAMHSA), that health care providers can use to identify patients with risky alcohol and drug use (SAMHSA, 2017). Kalu et al. (2016) reported an increase in SBIRT knowledge during a clinical assessment demonstration for randomized groups of medical residents including those that consisted of a combination of lectures, role-play, and online learning versus those residents that only participated in online learning. Russell et al. (2017) developed a live class with the goal of improving nurse competency when caring for individuals with SUD at a health system in the United States. Among nurses that opted to participate, there was a significant increase in perceived competency related to self-confidence, attitudes, communication, and knowledge (Russell et al., 2017).

Purpose/Objectives

The purpose of this DNP project was to pilot an educational intervention embedded with content regarding SUD with entry-level obstetric nurses that were enrolled in the nurse residency program at UK HealthCare. The specific aims of this project included:

1. To provide a virtual SUD educational intervention for entry-level obstetric nurses

enrolled in the nurse residency program including the following content: pathophysiology

of addiction, approaches to reducing stigma, SBIRT components, peer support role, and

strategies to support pregnant women affected by SUD.

2. To evaluate the entry-level obstetric nurses' knowledge and attitudes in caring for

patients with SUD prior to and following the educational intervention.

Theoretical Framework

The framework that guided this DNP project was the self-determination theory. When

essential human needs such as autonomy, competence, and relatedness are satisfied, then

behavioral regulation takes place (Ng et al., 2012). The self-determination theory focuses on the

quality and not the quantity of a motivating behavior and this realization occurs when an

individual is not controlled by extrinsic motivators (Ng et al., 2012). The concepts of the self-

determination theory can be extended to the relationships between nurses and patients, other

nurses, and themselves (Ng et al., 2012). When autonomy, competence, and relatedness are

achieved, humans are intrinsically driven to succeed and will participate in tasks that promote

health and well-being.

The self-determination theory was chosen to guide this project to motivate individuals to

initiate change that could be fostered or inhibited in certain settings. Therefore, achieving

acceptance of the components of the educational intervention from individual nurses can

facilitate a modification in the care of women of childbearing age with SUD, encouraging a long-

term change. The goal was for nurses to align their care with evidence-based practices that will

promote patients' autonomy in making decisions related to the management of their SUD. When

nurses communicate with patients through the tenets of this theory, then patients have capacity to

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become engaged and pro-active instead of frustrated and defensive. The self-determination theory constructs (autonomy, competence, and relatedness) were used to guide development of the educational intervention content. The focus of the educational intervention was based on enhancing the autonomy of nurses in engaging pregnant women in conversations about SUD, competence in understanding SUD, and enhancing the connection between pregnant women and healthcare providers to support recovery.

Review of Literature

Synthesis of Evidence

The purpose of the literature review was twofold: first, to understand the importance of SUD educational interventions in healthcare provider and health science student populations; and second, to synthesize the results to determine if the interventions have the desired impact on provider and student knowledge and attitudes about patients with SUD. The PICOT question guiding the review was: In entry-level obstetric nurses enrolled with the nurse residency program, how does an educational intervention, which includes SBIRT components, affect knowledge and attitudes in caring for patients with SUD? A systematic search of published articles involving educational interventions and SUD was conducted using CINAHL, MEDLINE, PsychINFO, Cochrane database for systematic reviews (CDSR), and PubMed. The literature search was limited to full-text articles about adult human subjects written in English. The following search terms were entered in the databases in various combinations: *substance use disorder*, *pregnancy*, *nursing*, *nurse residency*, *SBIRT*, *education*, *intervention*, *knowledge*, *curriculum*, and *attitude*. References in the studies were evaluated for any relevant articles. Articles were excluded if the setting was outside the United States and the population was not

health care providers. The combined search strategies yielded 28 articles, 10 of which were found relevant to the project question.

The review of literature revealed no risk in implementing SUD education with nursing students, new nurses, and experienced nurses. The articles reviewed utilized varying strategies for SUD educational interventions, including live training varying in length from 1 to 4 hours, SBIRT with different instructional methods like asynchronous modules (Quaye et al., 2020), online interactive sessions (Knopf-Amelung et al., 2018), live sessions (Dion & Griggs, 2020; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2019; Russell et al., 2017; Seney et al., 2020), SBIRT with clinical exposure (Mahmoud et al., 2018; Mahmoud et al., 2019), and educational videos (Dion, 2019; Williams et al., 2020). None of the articles involved obstetric nurses specifically but included the following specialties: pediatrics (Seney et al., 2020), medical-surgical (Russell et al., 2017), surgical/postoperative (Russell et al., 2017), and nursing students (Dion, 2019; Dion & Griggs, 2020; Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2019; Quaye et al., 2020; Williams at al., 2020).

All studies reported positive outcomes after the SUD educational interventions, including increased competency (Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Quaye et al., 2020; Russell et al., 2017; Williams et al., 2020), knowledge (Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Quaye et al., 2020; Russell et al., 2017; Williams et al., 2020), and confidence (Dion, 2019; Dion & Griggs, 2020; Mahmoud et al., 2018; Mahmoud et al., 2019; Russell et al., 2017). All studies implemented SUD educational interventions with nurses and nursing students and included similar content as follows: SBIRT components, harm reduction concepts, patient-first language, and destigmitization strategies (Dion, 2019; Dion &

Griggs, 2020; Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2018; Quaye et al., 2020; Russell et al., 2017; Seney et al., 2020; Williams et al., 2020).

Gap in Practice

SUD educational interventions have been well established in various settings and have contributed to improved knowledge and attitudes toward patients with SUD, but numerous settings do not have standardized SUD education for entry-level nurses. The literature review revealed several gaps contributing to the lack of nurses' knowledge when caring for patients with SUD. There were multiple studies that suggested nursing students do not receive adequate SUD education resulting in commencement of their programs with inadequate knowledge regarding care for persons with SUD (Dion, 2019; Dion & Griggs, 2020; Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2019; Quaye et al., 2020; Williams at al., 2020). This knowledge deficit can perpetuate negative feelings toward this vulnerable population (Dion, 2019; Dion & Griggs, 2020; Mahmoud et al., 2018; Mahmoud et al., 2019; Russell et al., 2017). This project addressed a knowledge gap among entry-level obstetric nurses who often care for women of childbearing age with SUD; the goal was to enable them to deliver the best care possible for this population.

Proposed Strategy to Address the Gap

Based on the literature review, there are a variety of recommendations for improving nurses' knowledge and attitudes toward patients with substance use disorder. Four articles focused on SBIRT, which is a SAMHSA endorsed evidence-based approach to care for patients with SUD (Knopf-Amelung et al., 2018; Mahmoud et al., 2018; Mahmoud et al., 2019; Quaye et al., 2020). One of the SBIRT components instructs the provider to identify patients with risky

behaviors at an early stage, which promotes early intervention. Another core component of SBIRT is motivational interviewing, which is the preferred style of communication between provider and patient to reinforce motivating factors to initiate and sustain positive change (Quaye et al., 2020). All SBIRT components equip providers with appropriate skills in caring for patients with SUD (Quaye et al., 2020). The information from the literature review and the four articles that focused on SBIRT were used to develop the virtual SUD educational intervention.

Methods

Design

This DNP project was a quasi-experimental, one group pretest – posttest design to pilot an educational intervention embedded with content regarding SUD among entry-level obstetric nurses that were enrolled in the nurse residency program at UK HealthCare. The project aimed to provide a virtual SUD educational intervention including the pathophysiology of addiction, approaches to reducing stigma, SBIRT components, peer support role, and strategies to support pregnant women affected by SUD. The project also aimed to evaluate the nurses' knowledge and attitudes in caring for patients with SUD prior to and following the educational intervention.

Setting

Agency Description

The setting for the implementation of the DNP project was the UK Birthing Center, a part of UK HealthCare. The UK Birthing Center has 12 labor and delivery beds, four triage beds, four PACU beds, three operating rooms, 17 mother-baby rooms that can convert to 26 beds, and ten high-risk antepartum beds that can flex up to 12 beds. The UK Birthing Center is associated with a Level IV neonatal intensive care unit (NICU) to care for complex and critically ill neonates and a Level I trauma center that handles the most severe traumas. The UK Birthing Center averages

1,900 births per year. The workforce at the UK Birthing Center comprises approximately 100 nurses, five certified nurse midwives, 14 attending physicians, and 20 OB/GYN resident physicians.

Congruence to Agency's Mission and Vision

UK HealthCare has a strategic goal to "foster and support a diverse, inclusive community of care providers who continually strive for equity-mindedness to ensure quality care to patients from all backgrounds, and who actively engage team members from all backgrounds to achieve patient outcomes, enterprise goals, and optimal personal achievement" (UK HealthCare, 2021, p. 4). The purpose of this DNP project was to pilot an educational intervention embedded with content regarding SUD with entry-level obstetric nurses that were enrolled in the nurse residency program at UK HealthCare. This project contributed to UK HealthCare's strategic goal by educating entry-level nurses which will provide more equitable care and improve patient outcomes. The vision of UK HealthCare is "dedicated to the health and people of Kentucky and setting a high standard for quality and caring" through a commitment to "provide the most advanced patient care and serve as an information resource" (UK HealthCare, 2022, para. 11). The purpose of this DNP project aligns with the vision of UK HealthCare and provided resources to nurses that are evidence-based practices. The educational intervention provided tools for entry-level nurses to provide the best care for their patients.

Stakeholders

There are several stakeholders within this DNP project setting. Hospital administrators and nursing management are important stakeholders because they have an interest in the outcomes of the educational intervention and its effect on the organization. Entry-level obstetric nurse residents are important stakeholders because they are potentially eligible to participate in

the study and are ultimately the ones responsible for caring for patients with SUD. Nurse residency facilitators must allow the time and space in their nurse residency program seminars. The patients are critical stakeholders because they would be the benefactor of the intervention which could ultimately lead to early detection of risky substance use or referral to treatment and ultimately recovery.

Facilitators and Barriers

A strong facilitator for this educational intervention was that the study aligned with the mission and values of the health care system. Additionally, the nursing administrators and nurse residency facilitators acknowledged a need and supported the implementation of this DNP project. The virtual format aligned with the asynchronous learning modules that were being offered to the nurse residents at the time of the project implementation; therefore, enabled readiness to complete the educational intervention.

The primary barrier to the implementation of this DNP project was the ongoing COVID-19 pandemic. The DNP project proposal was to implement the educational intervention during a live residency seminar, but the project was being implemented during a surge in COVID-19 cases. As a result, UK HealthCare canceled the nurse residency seminars indefinitely, and transitioned to asynchronous learning modules. Modifications were made by the PI to offer the intervention in a virtual format. Another barrier may have been the time commitment related to participating in the study.

Sample

The target population included a convenience sample of entry-level (in their first year of nursing practice) obstetric nurses with either an associate or baccalaureate degree in nursing that were participating in the nurse residency program at UK HealthCare. The sample excluded

obstetric nurses not enrolled in the nurse residency program and obstetric nurses with 12 months

or greater experience. A total of 15 entry-level obstetric nurses were invited to participate in this

DNP project based on inclusion criteria; however, only nine entry-level obstetric nurses

participated.

Procedure

IRB Approval

The application for approval of this DNP project was submitted to the University of

Kentucky Institutional Review Board (IRB). It was submitted through the University's e-IRB

process under IRB #70030. Approval was granted in October 8, 2021. Additionally, this DNP

project was approved by the UK HealthCare Nursing Research Council on July 14, 2021.

Description of Intervention

Names and email addresses of eligible participants were provided to the primary

investigator (PI) by the nurse residency facilitator. The PI sent an email to invite all eligible

participants. The email included a cover letter that informed the participant that their completion

and submission of the questionnaires implied informed consent (see Appendix D). Participants

were not randomized in this project. Participants were given instructions in the email to click the

pretest link and complete the pretest. They were asked to complete the pretest before viewing the

educational intervention to determine their knowledge and attitudes toward patients with SUD

prior to the educational intervention. The participants were given the link in the email for a 30-

minute pre-recorded educational intervention PowerPoint that included information on the

background, significance, and practice recommendations for SUD. The educational intervention

was based on best practices that were noted in the literature review, as well as evidenced-based

guidelines endorsed by SAMHSA. One month following the initial invitation, participants were

sent a posttest link in an email that included the same questions as the pretest.. The data collected was stored in REDCap and analyzed with SPSS.

Measures and Instruments

The email sent to eligible participants included Research Electronic Data Capture (REDCap) links that were used to access both the pretest and posttest. The pretest and posttest were identical and differed only in the time they were administered. The pretest and posttest included a combination of the following response options: 7-point Likert scale, multiple-choice, and True/False questions. Demographic questions were used to collect characteristics of the participants including age, gender, highest year of school completed, shift primarily worked, and whether the participant or a close family member or friend had ever been diagnosed with SUD (see Appendix A). The knowledge-based questionnaire included nine multiple choice questions, one True/False question, and were scored as either correct or incorrect (see Appendix B). The knowledge-based questionnaire was based on evidence from the literature and developed by the PI. Face validity of the knowledge-based questionnaire was established by having expert psychiatric mental health nurse practitioners review and edit the assessment tool. The Drug and Drug Problems Perceptions Questionnaire (DDPPQ) is a 22-question tool that was used to measure provider attitudes about patients with SUD (Watson et al., 2006). Items from the DDPPQ were scored on a Likert scale ranging from one to seven and lower scores indicated fewer perceived problems (Watson et al., 2006). The DDPPQ was developed by Dr. Hazel Watson, who granted the PI permission to adapt the tool to use patient-first language (see Appendix C, Appendix E, and Appendix F). The internal consistency of the DDPPQ instrument was achieved with Cronbach's Alpha ($\alpha = .880$).

Data Collection

A cover letter was attached to the email and participants were informed that by clicking the link they implied consent and willingness to participate in this DNP project. At initiation, participants were asked to create a unique identifier to match participants from pretest to posttest. The pretest link and educational intervention were distributed through email in October 2021 with weekly email reminders from the PI and clinical mentor. The posttest link was distributed through email in November 2021 with weekly email reminders from the PI and clinical mentor until the implementation phase concluded in December 2021. Data was collected anonymously through REDCap to ensure that participants were protected.

Data Analysis

The collected data were exported to SPSS version 27.0 for statistical analysis. The PI omitted responses with missing data and analyzed responses with a completed pretest and posttest. The demographic data that was collected included only categorical variables. Data was analyzed using descriptive statistics for demographic data including frequency distributions with percentages. The difference between pretest and posttest knowledge and attitudes were compared using Wilcoxon signed rank test due to the small sample size of the project and non-normality of variables. The Wilcoxon signed rank test is a non-parametric test that is analogous to the paired *t*-test and was the best option to analyze this project data that included outliers. The level of significance was set to $p < 0.05$.

Results

A total of 15 entry-level obstetric nurses were invited to participate in this DNP project based on inclusion criteria. The number of eligible participants decreased to 13 because two nurses left the healthcare system during the implementation of the project. There were nine

participants that completed the pretest in its entirety and three participants partially completed

the pretest. Of the nine participants that completed the pretest in its entirety, five participants

completed the posttest. Results from the partial responses on the pretest and from the four

participants that only completed the pretest were disregarded. Therefore, the data analysis

included a sample of $N = 5$. Demographics (n, %) for the participants are presented in Table 1.

The majority were ages 26 to 35 ($n = 3$, 60.0%) and two were 18 to 25 years old (40.0%). All

participants were female ($n = 5$, 100.0%). Three (60.0%) had a bachelor's degree, and two

(40.0%) had an associate's degree. Four (80.0%) worked the day shift and one reported working

the night shift (20.0%). When asked if they or a close friend or family member had ever been

diagnosed with a SUD, three (60.0%) reported "Yes."

Knowledge was examined using a 10-item questionnaire. The percentage of correct

responses out of ten were computed at pretest and posttest and compared using Wilcoxon signed

rank test. The results showed clinical significance and improvement in the median knowledge

score from pretest (Median = 50.0%) to posttest (Median = 60.0%), albeit not a statistically

significant improvement ($Z = -1.63$, $p = 0.102$). Figure 1 displays the knowledge scores for

pretest and posttest on a scale from 0.0% to 100.0%. The median score at pretest was a 50.0%

(IQR = 30.0%, 80.0%) and the median score at posttest was a 60.0% (IQR = 40.0%, 80.0%).

Table 2 presents the percentage of correct responses for each knowledge item at pretest and

posttest.

Attitudes were examined using the 22-item DDPPQ (Watson et al., 2006) that consists of

five subscales: role adequacy, role legitimacy, role-related self-esteem, role support, and work

satisfaction. Median scores (possible range 1 to 7) for each subscale were compared between

pretest and posttest using Wilcoxon signed rank tests. Table 3 displays the descriptive statistics

(Median, IQR) for each subscale at pretest and posttest and the statistical analysis results. All items showed improvement and clinical significance as indicated by lower median scores at posttest. There was significant improvement and statistical significance in role adequacy ($Z = -2.12$, $p = 0.034$) and role support ($Z = -2.07$, $p = 0.038$). Figure 2 presents the median DDPPQ subscale scores at pretest and posttest, with lower scores indicating fewer perceived problems.

Discussion

The purpose of this DNP project was to pilot an educational intervention embedded with content regarding SUD with entry-level obstetric nurses that were enrolled in the nurse residency program. The results demonstrated that the educational intervention caused a clinically significant difference in knowledge and attitudes. Additionally, there were two subscales, role adequacy and role support, in the attitude measurement that showed statistically significant improvement. These findings indicate that the intervention was effective in educating entry-level obstetric nurses on the best practices when caring for pregnant and postpartum women with SUD, as well as an evidence-based model to screen, identify, and reduce risky substance use. Evidence suggests that the topic of SUD is inadequately addressed in nursing education and there isn't one solution to develop the knowledge necessary to care for this vulnerable population (Farrell, 2020). Research supports the implementation of learning modules into transition to practice programs using various combinations of lectures, case studies, videos, and personal stories (Dion, 2019; Dion & Griggs, 2020; Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2018; Quaye et al., 2020; Russell et al., 2017; Seney et al., 2020; Williams et al., 2020). The focus of this intervention was delivering education to improve nurses' knowledge and attitudes when caring for patients with SUD, filling gaps represented in the literature.

There was clinically significant improvement or consistency between pretest and posttest for each individual item on the knowledge questionnaire (Table 2). One surprising finding was the low percentage scores regarding the primary goal of SBIRT, which is defining the motivational interviewing approach, safe alcohol consumption, and alcohol consumption limits for women of childbearing age. These questions were coded either correct or incorrect and 40.0% or less of the participants answered the items correctly. On all other items of the knowledge questionnaire, the score improved and 60.0% or more of the participants answered the items correctly. It is helpful to know where the knowledge gaps remain because it allows for further targeted intervention related to those specific topics. A repeat analysis with a larger sample size may reveal a statistically significant improvement in knowledge after the intervention.

Evaluating nurses' attitudes helps assess barriers when caring for patients with SUD. Evaluated in this project were role adequacy (having adequate knowledge and skills in working with patients with SUD), role legitimacy (having the right to work with patients with SUD), role support (the extent to which one feels supported in their work with patients with SUD), work satisfaction (expectations of feeling satisfied while working with patients with SUD), and role-related self-esteem (self-esteem while performing specific tasks with patients with SUD). The intervention improved participants' attitudes across all subscales with the greatest change and statistical significance in role adequacy and role support. This DNP project highlights the importance of SUD nursing education and highlights specific areas to target for future education.

Implications

The results of this project demonstrated a significant change in entry-level obstetric nurses' knowledge and attitudes when caring for patients with SUD. This implies that future

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practice could be impacted through more education on SUD with varying modalities. This project may be used to support further research that aims to evaluate entry-level nurses' knowledge and attitudes in other practice areas. Specific gaps in knowledge would help the investigator target the intervention for other populations. Comprehensive evaluation of education modalities would support nursing administrators' choice in providing transition to practice training on caring for patients with SUD. This project could be expanded with further training modules to address identified gaps and later continue throughout other areas of the health care system. Education could be expanded to include other areas of the health care system to ensure best practices are being utilized with all patients admitted with SUD. The literature found that entry-level nurses receive inadequate SUD education and showed improvement in knowledge and attitudes after educational preparation in SUD (Dion, 2019; Dion & Griggs, 2020; Knopf-Amelung et al., 2018; Lanzillotta-Rangeley et al., 2020; Mahmoud et al., 2018; Mahmoud et al., 2018; Quaye et al., 2020; Russell et al., 2017; Seney et al., 2020; Williams et al., 2020). This project recognizes the significance of an SUD education intervention, and the continuation would likely improve the care for this vulnerable population.

Limitations

This project was implemented during the COVID-19 pandemic, which may have resulted in the small sample size ($N = 5$). The participants were exclusively Caucasian and female. A larger sample size with greater diversity would make findings more generalizable. There were only 15 eligible participants at the start of the project and two left the health care system, leaving 13 eligible participants for the posttest. The eligible participants were asked to complete all parts of the questionnaires; however, there were some participants that either completed partial sections of the pretest or completed only the pretest and not the posttest. This could be explained

by email fatigue, education fatigue, or overall fatigue given the timing of the intervention. Additionally, with the time commitment to watch the educational intervention it might be that some participants never found time to watch or finish watching the educational intervention so they never completed the posttest.

Conclusion

In conclusion, an extensive literature review supports SUD education for nurses caring for this vulnerable population. Knowledge and attitudes were improved through the educational intervention with entry-level obstetric nurses. Future research could involve participants in other service lines to develop a standardized education module for all nurses employed in the health care system. The educational intervention could be developed in collaboration with nursing administrators and educators to improve confidence and competence in caring for patients with SUD. Using this approach could remove barriers to care, as well as improve overall patient outcomes and nurse satisfaction.

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Table 1.

Participant Demographics

Variable	*n*	%
Age		
18 to 25	2	40.0
26 to 35	3	60.0
Gender, female	5	100.0
Education Level		
Associate's	2	40.0
Bachelor's	3	60.0
Work Shift		
Day	4	80.0
Night	1	20.0
Have been or has a friend or family member that has been diagnosed with a substance use disorder	3	60.0

Table 2.

Knowledge Item Summary Statistics

	Pretest		Posttest	
Question	*n*	%	*n*	%
What counts as one drink?	2	40.0	2	40.0
How many drinks are considered low risk for women of childbearing age that are not pregnant, breastfeeding, or trying to conceive?	4	80.0	4	80.0
Women who are trying to conceive within the next 6 months can follow the drinking limits of women of childbearing age.	0	0.0	1	20.0
What does the acronym SBIRT stand for?	3	60.0	3	60.0
The primary goal of SBIRT is?	1	20.0	1	20.0
SBIRT is an evidence-based model of screening to identify, reduce, and prevent the following:	4	80.0	5	100.0
Research shows SBIRT is most effective for?	3	60.0	4	80.0
The Motivational Interviewing approach is?	0	0.0	1	20.0
Which of the following is the preferred screening tool for pregnant women?	2	40.0	3	60.0
Which of the following is the preferred screening tool for pregnant women?	5	100.0	5	100.0

Table 3.

Wilcoxon Signed Rank Test Results for DDPPQ Subscales at Pretest and Posttest

	Pretest		*Posttest*			
DDPPQ Subscale	*Median*	*IQR* *(25th to 75th percentile)*	*Median*	*IQR* *(25th to 75th percentile)*	*Z-score*	*P-value*
Role Adequacy	*5*	*(3-5)*	*4*	*(3-5)*	*-2.12*	*.034*
Role Legitimacy	*5*	*(4-5)*	*3*	*(2.5-4)*	*-1.73*	*.083*
Role-Related Self-Esteem	*4*	*(2.5-4.5)*	*4*	*(2-4)*	*-1.63*	*.102*
Role Support	*6*	*(4-7)*	*4*	*(2-6)*	*-2.07*	*.038*
Work Satisfaction	*3*	*(2.5-3.5)*	*2.5*	*(2-3.5)*	*-1.86*	*.063*

Note: Lower scores indicate lesser perceived problems. *Statistical Significance. Clinical Significance*

Figure 1.

Knowledge Scores at Pretest and Posttest
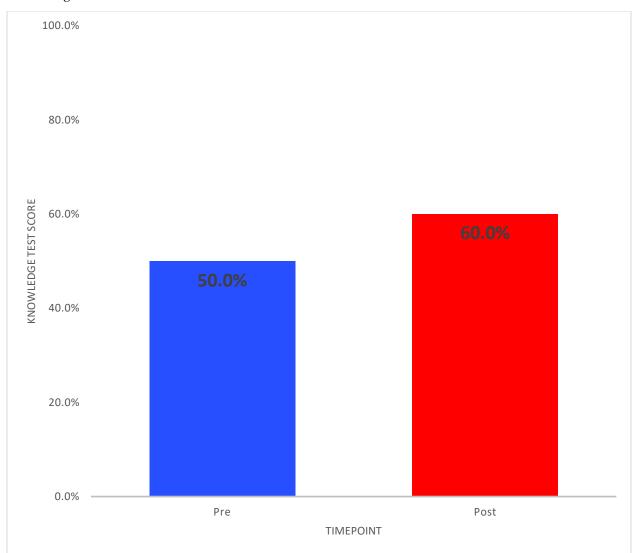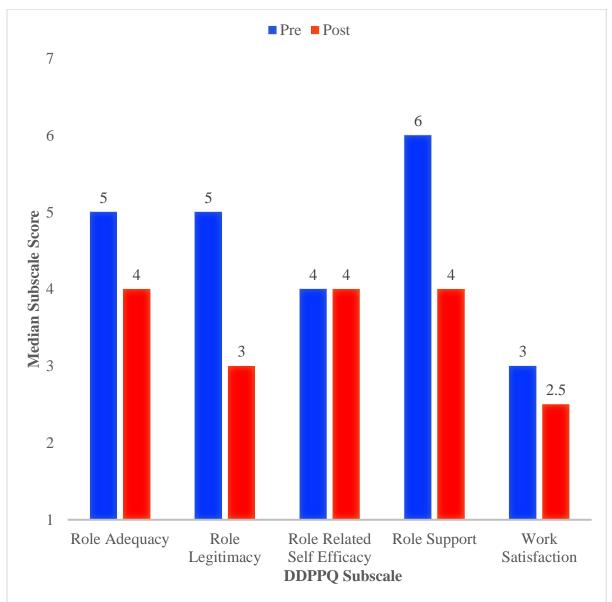
Figure 2.

Median DDPPQ Subscale Scores Pretest and Posttest

Appendix A: Demographic Questions

The following questions are about you.

What is your age?

○ 18 to 25
○ 26 to 35
○ 36 to 50
○ 51 to 65
○ 65 or older

What is your gender?

○ Male
○ Female
○ Non-binary/third gender

What is the highest year of school you have completed?

○ Associate degree
○ Bachelor's degree
○ Post graduate degree

Which shift do you primarily work?

○ Days
○ Nights

Have you, a family member, or close friend ever been diagnosed with a substance use disorder?

○ Yes
○ No
○ Prefer not to say

What counts as one drink?

a. 6-ounce glass of wine

b. 16-ounce can of beer

c. A shot of hard liquor (1 ½ ounces)

How many drinks are considered low risk for women of childbearing age that are not pregnant, breastfeeding, or trying to conceive?

a. No more than 4 drinks per day and 7 drinks per week

b. No more than 3 drinks per day and 7 drinks per week

c. No more than 4 drinks per day and 8 drinks per week

d. No more than 3 drinks per day and 8 drinks per week

Women who are trying to conceive within the next 6 months can follow the drinking limits of women of childbearing age.

a. True

b. False

What does the acronym SBIRT stand for?

a. Screening, brief intervention, referral to treatment

b. Substance use, binging, referral to treatment

c. Screening, brief intervention, recovery treatment

d. Substance use, behavioral intervention, recovery treatment

The primary goal of SBIRT is?

a. Identify the severity of a patient's substance use disorder diagnosis

b. Identify women who are at risk of having a child with fetal alcohol spectrum disorders

c. Identify and effectively intervene for individuals who are moderate or high risk for

psychosocial or health problems related to their substance use

d. All of the above

SBIRT is an evidence-based model of screening to identify, reduce, and prevent the following:

a. Risky alcohol and illicit drug use

b. Adult human trafficking

c. Nicotine dependence

d. None of the above

Research shows SBIRT is most effective for?

a. Pregnant patients

b. Patients with a psychiatric diagnosis

c. Veterans

d. All of the above

The Motivational Interviewing approach is?

a. Authoritative

b. Educational

c. Patient-centered

d. All of the above

Which of the following is the preferred screening tool for pregnant women?

a. NIDA

b. ASSIST

c. 4 P's

d. AUDIT

Which of the following is an example of Motivational Interviewing dialogue?

a. "What worries you about substance use?"

b. "How would you like your life to look like five years from now?"

c. "How confident are you that you can make this change?"

d. All of the above

Appendix C: Drug and Drug Problems Perceptions Questionnaire (DDPPQ)

The following questions use a 7-point agreement scale with Strongly disagree the FIRST option and Strongly agree the LAST option. Please rate your level of agreement with the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I feel I have a working knowledge of individuals with substance use disorder	○	○	○	○	○	○	○
I feel I know enough about the causes of substance use disorder to carry out my role when working with individuals with substance use disorder	○	○	○	○	○	○	○
I feel I know enough about the physical effects of substance use disorder to carry out my role when working with individuals with substance use disorder	○	○	○	○	○	○	○
I feel I know enough about the psychological effects of substance use disorder to carry out my role when working with individuals with substance use disorder	○	○	○	○	○	○	○
I feel I know enough about the factors which put individuals at risk of developing substance use disorder to carry out my role when working with individuals with substance use disorder	○	○	○	○	○	○	○
I feel I know how to counsel individuals with substance use disorder over the long-term	○	○	○	○	○	○	○
I feel I can appropriately advise my patients about substances and their effects	○	○	○	○	○	○	○
I feel I have a clear idea of my responsibilities in helping individuals with substance use disorder	○	○	○	○	○	○	○
I feel I have the right to ask patients questions about their substance use	○	○	○	○	○	○	○

The following questions use a 7-point agreement scale with Strongly disagree the FIRST option and Strongly agree the LAST option. Please rate your level of agreement with the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I feel that my patients believe I have the right to ask them questions about substance use	○	○	○	○	○	○	○
I feel I have the right to ask a patient for any information that is relevant to their substance use	○	○	○	○	○	○	○
If I felt the need when working with individuals with substance use disorder I could easily find someone with whom I could discuss any personal difficulties that I might encounter	○	○	○	○	○	○	○
If I felt the need when working with individuals with substance use disorder I could easily find someone to help me clarify my professional responsibilities	○	○	○	○	○	○	○
If I felt the need when working with individuals with substance use disorder I could easily find someone who would be able to help me formulate the best approach to the individual	○	○	○	○	○	○	○
I am interested in the nature of substance-related problems and the responses that can be made to them	○	○	○	○	○	○	○
I feel that the best I can personally offer individuals with substance use disorder is referral to someone else	○	○	○	○	○	○	○
I feel that there is little I can do to help individuals with substance use disorder	○	○	○	○	○	○	○
I feel I am able to work with individuals with substance use disorder as well as other patient groups	○	○	○	○	○	○	○

The following questions use a 7-point agreement scale with Strongly disagree the FIRST option and Strongly agree the LAST option. Please rate your level of agreement with the following statements:

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
All in all I am inclined to feel I am a failure with individuals with substance use disorder	○	○	○	○	○	○	○
Pessimism is the most realistic attitude to take towards individuals with substance use disorder	○	○	○	○	○	○	○
In general, I have less respect for individuals with substance use disorder than for most other patients I work with	○	○	○	○	○	○	○
I want to work with individuals with substance use disorder	○	○	○	○	○	○	○

Appendix D: IRB Stamped Consent Form/Cover Letter

To obstetric nurse residents:

I am contacting you from the University of Kentucky. Janine Lindgreen, the Nurse Residency Coordinator, has allowed me to contact you because of your engagement with the Nurse Residency Program.

The principal investigator (PI), a DNP student at the University of Kentucky, is inviting you to take part in an educational intervention and questionnaire research study about substance use disorder. The educational intervention will include a 30-minute pre-recorded PowerPoint presentation describing substance use disorder, the neuroscience of addiction, the Screening, Brief Intervention, and Referral to Treatment (SBIRT) method, and the roles of peer support specialists. The pre-recorded educational intervention link is included at the bottom of this email.

You will be asked to complete two questionnaires, one before listening to the educational intervention and one administered one month after the educational intervention. The questionnaires will be administered electronically and accessed through REDCap survey links to be included in the two emails you will receive from me. Each questionnaire will take approximately 10 minutes to complete.

The completion and submission of the questionnaires indicates your willingness to participate. Your responses to the surveys are anonymous, which means that no names, IP addresses, email addresses, or any other identifiable information will be collected with the survey responses. If you choose to participate, we will not know which responses are yours. You will be asked to create a unique identifier that is known only to you and will be used to compare pre- and post-test data.

The PI hopes to receive completed questionnaires from about 20 participants, so your answers are important. Of course, completion of the questionnaires are optional, and you will not be penalized in any way for skipping or discontinuing the questionnaire(s). If you do participate, you are free to skip any questions or discontinue at any time.

There are no known risks to participating in this study. Although you may not get personal benefit from taking part in this research study, your responses may help the PI understand more about knowledge and attitudes toward patients with substance use disorder. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future. Please be aware that—while the PI will make every effort to safeguard your data once received on the server via REDCap—given the nature of online surveys, as with anything involving the Internet, the PI can never guarantee the confidentiality of the data while still en route to the PI.

If you have questions about the study, please feel free to ask; my contact information is given below.

Thank you in advance for your assistance with this important project.

Sincerely,

Kathryn Hughes, BSN, RN, DNP student
College of Nursing, University of Kentucky

PHONE: 859-333-7875
EMAIL: kamcpe2@uky.edu

If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Pre-test survey link: https://redcap.uky.edu/redcap/surveys/?s=9KCJNRLCYDJ9FCNH
Educational intervention link (HTML): file://Users/kathrynhughes/Dropbox/Kathryn%20Hughes%20Files/SUD_Intervention_September.html
Post-test survey link: https://redcap.uky.edu/redcap/surveys/?s=R4JPFJF8PDEJPYCP

Appendix E: Permission to Use DDPPQ

Permission to use the DDPPQ

HW **Hazel Watson** <hazelwatson33@gmail.com>
Fri 4/2/2021 9:06 AM
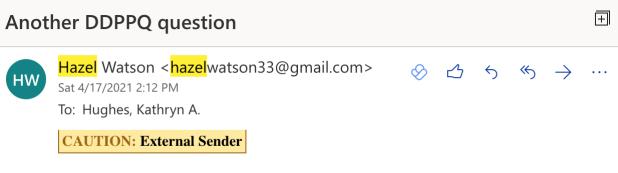To: Hughes, Kathryn A.

CAUTION: External Sender

To whom it may concern:

I have received a request from Ms Kathryn Hughes to use the DDPPQ in a research project.

As principal author of this instrument I have pleasure in granting permission.

Kind regards.

Hazel Watson MN PhD RN
Formerly Professor of Nursing
Glasgow Caledonian University

Appendix F: Permission to Change Language in DDPPQ

Another DDPPQ question

Hazel Watson <**hazel**watson33@gmail.com>
Sat 4/17/2021 2:12 PM
To: Hughes, Kathryn A.

CAUTION: External Sender

Dear Kathryn,

I have no problem with your suggested change in the wording. It is important that research tools develop to reflect their use in different times and cultural settings. You should, however, make explicit in your dissertation andcany publications, the fact that you have made changes and explain your reasons.

Best wishes to you in taking this forward.

Hazel

. . .