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The AJSW is a peer-reviewed journal that recognizes the academic scholarship of the faculty and students at Aspen University, United States University, and the external community of researchers.

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Implementation of a Fall Management Program in a Skilled Nursing Facility

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Abstract

Older adults living in a skilled nursing facility (SNF) are at higher risk of falling due to multiple risk factors, including chronic medical conditions, cognitive impairment, a decline in functional status, and medication side effects. Multiple studies reported that multifactorial interventions effectively could prevent falls and decrease the incidence of falls in older adults with a history of falls. Frith et al. (2019) declared that older adults who had a history of falls were at risk for future falls resulting in injury or death. An evidence-based fall prevention program that focused on multifocal assessment, treatment, and follow-up could improve gait and balance and reduce the number of falls. A quantitative, quasi-experimental quality improvement project was done to determine if the implementation of the Agency for Research and Quality's (AHRQ) The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities would impact fall rates when compared to current practice among adults aged 60 years and older living in a SNF. The theoretical foundations of the project employed Orem's self-care deficit nursing theory and Lewin's change theory. Data on patient falls were extracted from the facility's electronic medical record, and descriptive analysis and a chi-square test were used for statistical data analysis.

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Keywords: older adults, falls, skilled nursing facility, falls management program

Introduction

For older adults living in SNFs, falls are a significant health concern that posed an overwhelming burden on the facility administrator, the health care providers, the director of nursing, the nursing staff, and family members. About 30% to 50% of older adults in nursing homes experienced at least one fall per year, and 40% of them experienced more than one fall in a year (Liu et al., 2018; World Health Organization, 2017). Botwinick et al. (2016) reported that falls were the leading cause of fatal injury in older adult residents. According to the Centers for Disease Control and Prevention (CDC), in 2015, about 1800 nursing home (NH) older adult residents died each year from falls. Approximately 10% to 20% of the falls resulted in severe injuries, while 2% to 6% of the falls resulted in fractures (CDC, 2015). In the 183-bed capacity SNF at the project site, falls presented a significant safety concern; the yearly fall rate range per bed in this facility was 4.4-5.5 with a mean of 4.95. Paintsil et al. (2017) reported that Falls are prevalent among nursing home (NH) residents, with approximately 1.5 falls per NH bed-years.

The application of evidence-based practice in the clinical area is essential, particularly in the SNF setting. Rask et al. (2007) stated that successful translation of research into clinical practice guidelines that improve nursing home care is complex and requires a multifaceted strategy. Lee and Yu (2020) reported from their systematic review and meta-analysis results that those multifactorial interventions significantly reduced fall rates in both the high-risk and healthy groups compared to usual care. Falls in older adults living in an NH could be decreased by determining the risk factors and implementing a fall management program. Recent research demonstrated that multifactorial fall management programs that were targeted and individualized could reduce the fall rate and were more effective in these facilities. Vlaeyen et al. (2015)

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reported that multifactorial interventions tailored to each resident's fall risk profile could significantly reduce the number of falls in the long-term care settings. Jackson (2016) declared a collaborative care multi-interventional protocol focused on fall prevention improved health outcomes in the older adult population. Any quality improvement project aimed to improve the life quality of the intended subjects.

Literature Review

Many studies conducted about falls, fall risk factors, and falls prevention program; nevertheless, falls in older adults continued to be a significant health problem in the long-term care setting. Dhargave and Sendhilkumar (2016) evaluated the prevalence of various risk factors for falls among older adults living in skilled nursing facilities. The following risk factors were significantly associated with falls; history of falls, poor vision, use of multiple medications, chronic diseases, walking aids, vertigo, and balance problems. Sharif et al. (2018) recorded in their study the most common group of medications that increased the risk of falls in the elderly were psychotropic drugs, such as hypnotics, sedatives, antipsychotics, and antidepressants. On gender differences for fall risk factors in older adults, women were identified as at greater risk of falls than males (Johansson et al., 2016); however, men were more likely than women to fall from loss of support with an external object, less likely to fall from tripping, more likely to fall while seated or while rising and less likely to fall while walking (Yang et al., 2018).

Several studies reported that older adults living in care facilities such as SNF, residential aged care, and assisted living facilities have high fall incidence rates. Quach et al. (2021) examined the relationship between safety climate and adverse events. They measured pressure ulcers, falls, significant injuries from falls, and catheter use. They concluded that residents' experiencing adverse events such as pressure ulcers or significant injuries from falls often

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represents a failure of care. Nursing homes may benefit from providing supportive clinical supervision of frontline staff and making environmental modifications to improve the likelihood of safe outcomes for the residents in their care (Quach et al., 2021). Simmons et al. (2016) conducted a systematic review based on four safety areas common in skilled nursing facilities, falls with injury, pressure ulcers, medication errors, and infections; they declared that many studies discussed staffing in association with safety, and played a significant role in the quality of care in skilled nursing facilities. A retrospective chart review directed by Paintsil et al. (2017) to understand factors contributing to falls among residents in Ohio and to implement a fall prevention protocol to decrease fall rates in the facility. They reported that most of the falls occurred among frequent fallers, and most falls occurred during the evening shift in the residents' rooms during transfers.

A multifactorial fall prevention program consists of specific individualized fall prevention strategies that target fall risk factors to decrease fall rate and fall-related injuries. Stevens and Lee (2018) conducted a peer-reviewed review to analyze the effectiveness of seven evidence-based fall interventions program and the benefits of a fall management program. The authors reported that addressing multiple risk factors has been shown to reduce falls by up to 24%, and preventing falls can benefit older adults substantially by improving their health, independence, and quality of life. Gulka et al. (2020) directed a systematic review and meta-analysis to analyze the effectiveness of fall intervention programs in skilled nursing facilities and the generalizability of these interventions. They reported fall interventions reduced the number of falls by 27%, fallers by 20%, and recurrent fallers by 30%. Rask et al. (2007) reported implementing AHRQ falls management program in 19 nursing homes in Georgia. Fall rates remained stable in the intervention NHs (17.3 falls/100 residents per month at the start and 16.4

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falls/100 residents per month in the end), whereas fall rates increased 26% in the NHs not implementing the falls management program (from 15.0 falls/100 residents/per month to 18.9 falls/100 residents per month). Also noted, restraint use decreased substantially during the project period, from 7.9% to 4.4% in the intervention NHs (a relative reduction of 44%).

Orem's self-care deficit nursing theory was one of the most practical nursing theories that could be applied to a quality improvement project. A decline in self-care increased the risk of falls in older adults, and it was everyone's responsibility to prevent the incident from occurring. Dolan and Taylor-Piliae (2019) stated that Orem's self-care deficit could apply to inpatient falls since being at risk for falling was a self-care demand, and the inability to manage one's own fall risk was a self-care deficit. In the project site's SNF where the project occurred, all stakeholders, including the facility's administrator, the director of nursing (DON), nursing staff, and support staff, needed to concede that falls were a significant problem in the facility and previous interventions in place were not working. Hussain et al. (2018) conducted a study to examine the three stages of Lewin's model and assessed the role of leadership and employee in the process of change and analyzed the association of knowledge sharing in the process. Hussain et al. (2018) concluded that organizations had no choice but to elevate the awareness of change and phases. Furthermore, employees' collaboration was significant for shifting the organization from one phase to another, so all factors were connected to the change process.

Methodology

Research Question

To what degree did the implementation of the AHRQ's *The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities* impact fall rates when compared to

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current practice among adults aged 60 years and older living in a SNF in urban New York over a period of 30 days?

Sample Studied

The population for the study was selected from a183-bed SNF in an urban area in New York, one unit with a 56-bed capacity; populated by mostly African American residents, with a few Caucasian and Hispanic residents. Convenience sampling was used for the residents' selection. Convenience sampling was a method of collecting samples by taking samples that were conveniently located around a location (Edgar et al., 2017). The residents' ages ranged from 60 to 96 years old, 45% female and 55% male. Among the residents, 45% were ambulatory, and 55% used some devices such as manual wheelchairs, rolling walkers, and canes for mobility assistance. The ambulatory residents were independent and required minimal assistance with their daily activities. A power analysis was done with the daily census of 50 residents, using a sample size calculator with a 95% confidence level, with a confidence interval of five. The sample size needed for the project was 44.

Design of Study

A quasi-experimental design was used for this project since the aim was to demonstrate the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities effectiveness compared to the current fall prevention strategies that the project site had in place. Miller et al. (2020), reported that quasi-experimental designs could be used to answer implementation science questions in the absence of randomization. Descriptive statistics summarized the data, and a chi-square test was used for the data analysis between the comparative and intervention groups was done to determine the impact of the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities.

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Dependent/Independent Variables

The independent variable for this project was the implemented AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities. The fall rate was the dependent variable, for which data were retrieved from the project site's EMR four weeks pre-implementation for the comparative group and four weeks post-implementation for the intervention group. This project aimed to examine the impact of the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities on the number of falls at the SNF after implementing the evidence-based AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities program.

Instruments Used

The AHRQ falls management program for nursing facilities developed a fall assessment tool based on five common fall risk factors: medications, orthostatic hypotension, vision, mobility, and unsafe behavior. The tool's purpose is to assist the staff in identifying risk areas in the older adults that contribute to their fall risk. By identifying the risk areas, specific individualized multifactorial fall prevention should be implemented to reduce the fall risk. During the four weeks of the project, the falls team nurses assessed the residents using the falls assessment tool to identify the five common target risk factors: medications, orthostatic hypotension, vision, mobility, and unsafe behavior. For any fall incident during this project, the tracking record for improving patient safety (TRIPS) was filled out by a fall team nurse with fall prevention recommendations. The TRIPS form data was then discussed with the falls team during the post-fall huddle, and the residents' healthcare provider received a copy of the TRIPS with all the recommendations from the falls team. The TRIPS required a comprehensive

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investigation at the time of the fall, including descriptive data such as shift, time, location, cause, and day of the week of the fall, as well as resident outcomes (Rask et al., 2007).

Datasets Collected

The data for the project were collected from the facility EMR for the comparative and implementation groups and deidentified for input in the database. To organize the data for each variable, the raw data collected (falls, age, gender, functional status) were input into a spreadsheet in Microsoft Excel using column headers as the variables and numeric codes for each patient. A variable for the group was created and coded as 0 = comparative group and 1 = implementation group. The type of data for this project was continuous (age) and categorical (gender, functional status, patient fall). For demographic data collected (age, gender, functional status), summary statistics including mean and SD for continuous variables and n, % for categorical variables were computed and presented in table format.

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Table 1

Descriptive Data

Variable	Descriptive Statistics *M*	*SD*
Age	72.25	9.74
Gender	n	%
Male	36	64.3
Female	20	35.7
Functional Status		
Independent	17	30.4
Independent/Assistance	3	5.4
Independent/Wheelchair	1	1.8
Rolling Walker	4	7.1
Wheelchair	31	55.4
Psychiatric Disorder	42	75.0

Note. *M* = mean; *SD* = standard deviation.

Raw data on patient falls for this project were retrieved from the facility EMR at the project site by the designated fall nursing team leader from the selected unit, who had full access to the EMR. The independent variable was timepoint and was coded as 0 = pre-implementation (comparative group) and 1= implementation (intervention group). The dependent variable was patient falls and was coded as 1= Yes, fall occurred or 0 = No, fall did not occur. After data entry was complete, data were exported to IBM SPSS version 27 for statistical analysis

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Results

The statistical test used for this project was an inferential, nonparametric chi-square test. The chi-square test was chosen to address the clinical question because it determined if a categorical independent variable was associated with a categorical dependent variable (Schober & Vetter, 2019). A non-parametric chi-square test was conducted to answer the following clinical question: To what degree did the implementation of the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities impact fall rates when compared to current practice among adults aged 60 years and older living in a SNF in urban New York. Table 2 displays the results comparing fall rates for 56 residents four weeks pre-implementation (comparative group) and four weeks post-implementation (intervention group). There was a decrease in fall rates from the comparative (n = 8, 14.3%) to the intervention group (n = 6, 10.7%), X2 (1, N = 112) = .327, p = .568. The fall rate decreased 3.6% from the comparative to the intervention group. The p-value was greater than .05, which indicated that the decrease was not statistically significant. The AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities intervention did have a clinical significance in the project, however, as demonstrated by a decline in fall rates.

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Table 2

Fall Rates for Comparative and Implementation Participants (N = 112)

Variable	Pre-Implementation (n = 56)		Post-Implementation (n = 56)		X^2	df	p-value
	n	%	n	%			
Fall Rate	8	14.3	6	10.7	.327	1	.568

For the eight falls that occurred in the comparative group, six were females, and two were males. The falls occurred in the hallway (n =2), room (n = 4), and bathroom (n =2). Five residents were in a wheelchair, two used a rolling walker, and one was independent. There was one patient with an injury. For the six falls that occurred in the intervention group, four were females, and two were males. The falls occurred in the hallway (n =2) and the room (n = 4). Two residents were independent, three were in a wheelchair, and one used a rolling walker. There were no injuries with any of the falls in the intervention group.

Summary statistics were computed for the intervention group's residents based on the AHRQ falls assessment tool. There were 43 residents (76.8%) on medications, two (3.6%) with orthostatic hypotension, three (5.4%) with vision problems, 15 (26.8%) with mobility problems, and six (10.7%) that exhibited unsafe behavior. Based on these assessments, several individualized multifactorial fall prevention interventions were initiated for the intervention group of residents.

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Table 3

AHRQ Fall Assessment Tool Summary

Risk Factor	n	%
Medications	43	76.8%
Orthostatic Hypotension	2	3.6%
Vision	3	5.4%
Mobility	15	26.8%
Unsafe Behavior	6	10.7%

This quantitative quasi-experimental project was conducted to answer the clinical question for the project. A chi-square test showed a decrease in fall rates from the four-week comparative group (n = 8, 14.3%) to the four-week intervention group (n = 6, 10.7%), X2 (1, N = 112) = .327, p = .568. Although the p-value was greater than .05, which indicated that the decrease was not statistically significant, the results supported the use of the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities intervention as the fall rates were lower for the intervention group in comparison to the comparative group.

Conclusions

This quantitative quasi-experimental project was conducted to answer the following clinical question: To what degree did the implementation of the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities impact fall rates when compared to current practice among adults aged 60 years and older living in a SNF in urban New York? The independent variable was the implementation of AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities. The dependent variable was the patient fall rates. The project sample size was N = 112 (n = 56 in the comparative and n = 56 in the implementation group). The fall rates were compared between the comparative group four

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weeks pre-implementation and the intervention group four weeks post-implementation to determine if the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities decreased fall rates. A chi-square test showed a decrease in fall rates from the comparative (n = 8, 14.3%) to the implementation group (n = 6, 10.7%), X2 (1, N = 112) = .327, p = .568. This project's results addressed the problem statement and helped mitigate the challenge posed by the risks of falls among the older adults living at the project site. The AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities demonstrated that multifactorial fall preventions were effective in SNF settings. Multifactorial fall preventions that targeted specific risk factors decreased fall rates, prevented falls, and decreased the fall rate in repeated fallers. Titler et al. (2016) stated that fall prevention interventions targeted to patient-specific fall risk factors decreased fall rates and falls with injuries.

Recommendations for future projects with the AHRQ's The Falls Management Program: A Quality Improvement Initiative for Nursing Facilities could be derived from this project despite the time limitation and the selection of the sample size. The time frame for this project was only four weeks. Although this project's clinical significance probably was reasonable, if the time frame were longer, more significant results could be identified. Although statistical significance played a significant role in a project, indicating the probability that something significant had occurred, clinical significance demonstrated that something had occurred and its effects. Future implementations would further evaluate the effectiveness of a multifactorial fall management program in that setting and its sustainability. Furthermore, a project with an extended time frame would provide better documentation of the statistical significance of a fall management program in practice.

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Nurse Educators and Implicit Bias: Does Critical Self-Reflection Change Practice?

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Abstract

The globalization of health care has increased the need for nurse educators to prepare nurses to care for a culturally diverse patient population. Implicit bias affects nurse educators' teaching practices. The researcher sought to discover whether nurse educators' awareness of their implicit biases would motivate them to change their educational practices. A phenomenological research approach was used for the study that collected qualitative data from nurse educators in a private nursing college. The research was designed to encourage nurse educators to examine their implicit biases by taking the Implicit Assessment Test (IAT) (Gatewood et al., 2019), critically self-reflect on the results and share their reactions and whether they are considering changing in their educational practice. The data revealed that after nurse educators performed critical self-reflection regarding their implicit biases, they were motivated to change their educational practice. Individual interviews were conducted to gather the data for the study. The participants all shared that becoming aware of and reflecting on their implicit biases after taking the IAT had prompted them to consider changing their educational practices. Mitigating implicit bias in

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health care and nursing education is an urgent issue in our country and the world. The results of this study indicate that making nurse educators aware of their implicit biases can serve as a motivator to reflect critically on their current educational practices.

Keywords: Implicit bias, culturally diverse, nurse educator, Implicit Assessment Test

Introduction

The study was conducted at a small, private health sciences college in a midwestern city. The college offers undergraduate and graduate degrees in nursing, undergraduate degrees in radiology and ultrasonography, and a graduate degree in physical therapy. There are 30 full-time nursing faculty. The researcher was a member of the faculty and conducted the interviews. The nursing faculty had expressed discomfort in addressing cultural diversity in the classroom and clinical settings. The administration of the organization wanted to improve the college's approach toward cultural diversity. Thus, study focused on nursing faculty's discomfort in teaching nursing students how to care for culturally diverse patients.

The purpose of the study was to address the problem by implementing critical reflective practice among nurse educators to improve cultural diversity education at the nursing college. Critical self-reflection by nurse educators enhances their teaching practice (Kirpalani, 2017; Koshy et al., 2017; Maksimović & Osmanović, 2019). The data collected provided insight regarding the participants' experience with critical self-reflection and their intention to change their practices regarding cultural diversity in the classroom and clinical setting.

Research Questions/Hypothesis

The research in this study was inspired by the following questions: a) How will critical self-reflection bring about change in cultural diversity education at the organization? b) In what way will self-assessment with the IAT encourage nursing faculty to use reflective practice? and

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c) Will critical self-reflective practice prompt nursing faculty to change their educational practice?

Expected Outcomes

- The participants will become familiar with the information to help them examine their implicit biases that relate to cultural diversity.
- The participants will use reflective practice to examine their implicit bias.
- The participants will express a desire to change their behavior regarding approaching the topic of cultural diversity in the classroom and clinical setting.

The intervention used for the research involved having nurse educators examine their implicit bias regarding Race using the Implicit Assessment Test (IAT) (Gatewood et al., 2019). After completing the IAT they were encouraged to perform critical self-reflection to determine whether they need to make changes to their practice in the classroom or clinical setting. Critical self-reflective practice enhances the nurse educator's ability to be an effective educator and is useful in adult education practice. Critical self-reflection helps nurse educators improve practice (Kirpalani, 2017; Koshy et al., 2017; Maksimović & Osmanović, 2019; Marion et al., 2017; Naicker & van Rensburg, 2018). The stakeholders for the research study were the dean of nursing, the college president, the college board of directors, the program director for the undergraduate nursing program, the nursing faculty, nursing students, and the patients cared for by nursing students. The research goal was to improve the nursing faculty's ability to use critical self-reflection regarding implicit bias to improve their practice.

Literature Review

The theory related to the topic for the action research project was Leininger's theory of cultural care diversity and universality (Leininger, 1988). Nurses who possess the ability to

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acknowledge cultural diversity as a component of their patients' individuality and integrate this into their patients' care plans will provide the most effective patient care possible (Leininger, 1988). According to Lin et al., (2016), caring is a core value in nursing. According to McFarland and Wehbe-Alamah (2019), "the theory was designed to help guide the nurse researcher in discovering new meanings, patterns, expressions, and practice related to culture care" (p. 542). Campinha-Bacote (2011) expanded on Leininger's theory by challenging nurse educators to promote nursing students' cultural competence.

Respect for a patient's culture in health care improves patient outcomes. According to Hall et al. (2015), the level of healthcare provider implicit bias affects patient outcomes. A negative bias towards patients leads to poor patient outcomes (Hall et al., 2015; Hostetter & Klein, 2018; Jeffreys & Zoucha, 2018). Clinical instructors are role models for their students regarding cultural caring behaviors. According to Shin et al. (2016), nursing students model their educators' cultural caring behavior. If educators do not model culturally congruent interactions for students when they become nurses, the culturally diverse patients they care for may suffer.

The globalization in healthcare has increased the need to incorporate cultural caring in nursing education. Nurses care for patients from diverse cultures in growing numbers (Hemberg & Vilander, 2017; Jeffreys & Zoucha, 2018; Leininger & McFarland, 2002; Strong & Folse, 2015; Yakar & Alpar, 2018). Globalization has increased the need for including cultural diversity education in nursing programs (American Association of Colleges of Nursing, 2008; American Association of Colleges of Nursing, 2017; Collins, 2015; Gillson & Cherian, 2019; Kuntarti et al., 2018; Leininger & McFarland, 2002; Marion et al., 2017; Yakar& Alpar, 2018). Halter et al. (2015) cited the American Association of Colleges of Nursing (2008) assertion that "organizational commitment to enhancing the cultural competence of faculty and students is

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vital" (p. 334). However, most nurse educators have not had preparation in their educational backgrounds to provide cultural diversity training to their students and are uncomfortable addressing cultural diversity (Lim et al., 2015; Markey et al., 2018).

According to Chen et al. (2018), nurse educators must understand how to teach students from diverse cultures. Implicit bias may play a role in how nurse educators relate to culturally diverse students. Nurse educators may not be aware that they demonstrate bias toward culturally diverse students (Gatewood et al., 2019; Sukhera et al., 2018; Sukhera & Watling, 2018; Zajac, 2015). Fitzgerald and Hurst (2017) concluded that there is "the need for the healthcare profession to address the role of implicit biases in disparities in healthcare" (p. 15). Nurse educators can use critical self-reflective practice to examine their implicit bias.

Methodology

Sample Studied

All 30 full-time nursing faculty were sent an email inviting them to participate in the study. The anticipated number of participants was 15. Data collection was planned beyond, if necessary, to achieve data saturation. According to Polit and Beck (2021), data saturation means that sampling continues until "no new information is obtained, and redundancy is achieved" (p. 507). Assuring that data saturation has been achieved will enhance the transferability of the data obtained (Polit & Beck, 2021). If a greater than expected number of faculty volunteered, the participants would have been chosen using purposive maximum variation sampling (Polit & Beck, 2021), but that did not occur. According to Polit and Beck (2021), maximum variation sampling is a purposive sampling strategy that "entails purposely selecting cases with a range of variation" (p. 507). A total of ten faculty members volunteered for the study, but two volunteers were unable to participate in the interview; thus, their data was not used in the study. The

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population sample size was congruent with the organization's size because the entire full-time faculty number is 30; thus, the sample size represented approximately 25% of the full-time nursing faculty.

Design of Study

The research approach for the study was the phenomenological research approach. According to Spaulding and Falco (2013), phenomenological research involves collecting qualitative data to determine how participants with a shared experience viewed it. Their perceptions are gathered through the interviews, which are recorded and transcribed. Since implicit bias is different for each person, an independent variable, qualitative data collection is the best way to collect the data. Another independent variable in the study is each participant's prior experience with persons from various races. Dependent variables in the study are the participants' reaction to the IAT, how critical self-reflection affects their approach to cultural diversity, and whether they decide they will change their educational practices based on awareness of their implicit biases.

The intervention for the study involved four steps illustrated in the intervention flow chart (Figure 1). The first step was to have nursing faculty participants take the Implicit Assessment Test (IAT) (Gatewood et al., 2019). After completing the IAT, an online survey was conducted to gather qualitative data regarding whether participants felt their results were what they expected. Participants were then encouraged to self-reflect on their results. Critical self-reflective practice provides insight into improving practice (Kirpalani, 2017; Koshy et al., 2017; Maksimović & Osmanović, 2019). Finally, individual interviews were held to collect data regarding changes they may see themselves making in the classroom due to the intervention. The participants reviewed and were invited to edit transcripts of the interviews to ensure their

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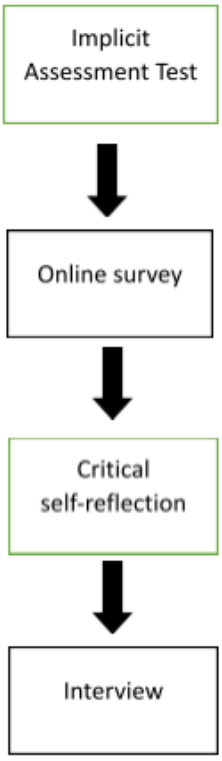
experiences were appropriately represented. According to Creswell and Creswell (2018), having the participants check the final report for accuracy and collecting data from multiple sources (triangulating data) are ways to assure validity in qualitative research.

Figure 1

Intervention Flow Chart



The instruments used for the research were the Implicit Assessment Test (IAT) provided by Harvard University at https://implicit.harvard.edu, online and interview questions developed by the researcher. The datasets collected were qualitative in both sources. The participants were the data collection source for all the research questions. The data collected provided information regarding both the process and the outcomes for the study. Proper data analysis is vital to ensure validity of the data obtained. Cypress (2017) pointed out that qualitative research provides valid data. According to Creswell and Creswell (2018), having the participants check the final report

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for accuracy and collecting data from multiple sources (triangulating data) are ways to ensure validity in qualitative research. The online surveys collected qualitative data the participants entered themselves. The recorded interviews were transcribed by the researcher verbatim. The online surveys and interview transcripts were coded, and themes were identified.

Results

The participants' reaction to the study overall was positive. All participants commented that the research is necessary, and a deeper understanding regarding how to teach students about cultural diversity is essential. Some participants expressed dissatisfaction with the IAT because they felt it either went too fast or may be affected by whether someone is right-handed or left-handed, which was a surprise to the researcher. All the participants seemed comfortable sharing their feelings regarding cultural diversity in nursing education. Some discussed the classes they teach or their experiences more than their comfort level regarding discussing cultural diversity in the classroom. They all verified their transcripts promptly and edited for clarification when necessary.

The online surveys provided some basic information, but it was noted that participants shared less information in the online surveys than they did in the interviews. Four themes were identified in the online surveys and the interview transcripts. The themes were a) There is insufficient educational preparation in cultural diversity in nursing education, b) The current national social unrest has increased awareness of cultural bias and inequity, c) Nursing faculty are role models for cultural caring, and d) Nursing faculty plan to change their behavior related to cultural diversity. The primary source for the themes discovered was the transcripts from the interviews since the participants tended to share less in the online surveys than they did when they were able to talk about their reactions in the verbal interviews.

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Theme one, the insufficient educational preparation in cultural diversity in nursing education, is illustrated by the comment from Participant 2 (P2), "I wish I would have even more experience and knowledge than what I do to discuss diversity" and by P6's statement, "in hindsight I can say the education I've had was inadequate or not at all adequate, but I didn't realize it or appreciate it until now." Theme two, current social unrest has increased awareness of cultural bias and inequity, is illustrated by P3's comment, "there is a lot going on in the world right now with the Black Lives Matter movement… that everyone needs to pay attention to". Theme three, nurse educators are role models for cultural caring, is illustrated by P5's statement, "You know we are models, and having knowledge, but also using it". Finally, theme four, nursing faculty plan to change their behavior related to cultural diversity, is supported by P5, "That [IAT] would actually be an interesting tool to have the students do before they get into the classroom". The statement by P3 "I plan to address [cultural diversity] heavily in the next class I teach" also supported theme four.

Conclusions

Limitations

One limitation is that the study group was small, and only nursing faculty were studied. Also, the researcher was a faculty member, which may lead to bias in presenting the results. According to Creswell and Creswell (2018), in qualitative research, inquirers should reflect on "how their role in the study and their personal background, culture, and experiences hold potential for shaping their interpretations" (p. 181). Thus, the researcher kept a reflexivity journal throughout the study. Mitigation of the limitations of the study involved collecting data until data saturation is achieved. According to Polit and Beck (2021), data saturation means that the sample

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size may increase as the study develops to increase the likelihood of obtaining all the available data. The achievement of data saturation was included in the research report.

Questions Unanswered and Future Explorations

The study results suggest that nurse educators will change their practices because of the critical reflection they performed after taking the IAT, but there are no data to support that the changes took place. Follow-up research at the site regarding what changes the participants made in their teaching practices would add that layer of data to the results of the study discussed here. Additional research with larger sample sizes that are divided into groups based on previous diverse cultural experiences would provide information regarding how much prior exposure to cultural diversity affects. A study that includes students in the study would also provide additional information regarding their perception of the nurse faculty participants' practice changes in the classroom or clinical setting. Mitigating implicit bias in health care and nursing education is an urgent issue in our country and the world. The results of this study indicate that making nurse educators aware of their implicit biases can serve as a motivator to reflect critically on their current educational practices.

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The Impact of In Situ Mock Code on the Return of Spontaneous Circulation

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Abstract

Adequate cardiopulmonary resuscitation (CPR) is known to improve patient outcomes. A benchmark report was conducted at the project site, a service provided by ZOLL®. The ZOLL monitor allows rhythm analysis while chest compressions are administered (Lim et al., 2021). The findings from ZOLL® revealed that most clinicians fell into the 0-20% category of delivering compressions within the target range. Therefore, the purpose of this quantitative, quasi-experimental quality improvement project was to determine if the implementation of the American Heart Association (AHA) Megacode Checklist of Critical Performance Steps for CPR would impact the rate of ROSC among adult patients in cardiac arrest at this acute care hospital in New Jersey over 30 days. Megacode Critical performance CPR was administered via simulation with Orem's theory and Lewin's theory guiding the project. The total sample size was 40, $n = 19$ in the comparative group and $n = 21$ in the implementation group. Date from the

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electronic medical record was analyzed with a chi-square test. Results showed no statistically significant difference between the ROSC rates for the comparative group (n = 10, 52.6%) and the implementation group (n = 13, 61.9%), X^2 (1, N = 40) = .351, p = .554. Despite the lack of statistical significance in ROSC rates, there was clinical significance shown as ROSC rates improved by almost 10%. Recommendations include sustaining the project with reanalysis over a longer timeframe.

Keywords: In-hospital cardiac arrest, ZOLL® monitor, CPR, AHA Megacode Checklist of Critical Performance Steps, simulation, ROSC.

Introduction

In the United States (US), the incidence of in-hospital cardiac arrest (IHCA) is 292,000 annually (Holmberg et al., 2019). The incidence of IHCA is one of the most challenging events that healthcare personnel must manage (Czekajlo & Dabrowska, 2017). Survival following IHCA is dependent upon implementation of adequate CPR using American Heart Association (AHA) chain of survival. First responders to ICHA are frontline staff members who must initiate lifesaving interventions. According to Kim (2018), the need for an effective acute cardiac arrest response is critical. Yet, given the high-risk, low frequency of inpatient cardiac arrests, frontline responders often are ill-prepared to intervene adequately during IHCA.

A benchmark report was conducted at the project site, by ZOLL®. The ZOLL monitor allows rhythm analysis while chest compressions are administered (Lim et al., 2021). One-minute CPR challenges were conducted with 43 staff members. The staff was asked to perform one minute of compressions without feedback. Next, the staff member was asked to perform one minute of compressions using the ZOLL® R-Series defibrillator with CPR feedback. On average, CPR without feedback was found to be less than 40% effective regarding compression

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rate and depth (Wilson, 2019). The findings revealed that most clinicians at the project site fell into the 0-20% category of delivering compressions within the target range. CPR guidelines specify the rate, depth, and recoil for compressions (Picard et al., 2021). Based on these findings, the project site determined a need for effective acute cardiac arrest response and determined that the best way to deliver this training was via in situ mock code (ISMC).

Practice using simulation has been shown to reduce the time of administration of tasks via repetition (Gray et al., 2021). Castillo et al. (2018) found that blending learning methods used in the simulation provides higher knowledge and skill retention levels for up to six months after the course than standard BLS instruction. Blakeslee (2020) stated that simulation increased critical thinking skills. In-hospital cardiac arrest is associated with death, yet despite this fact, IHCA has received little attention compared to other related incidences of medical emergencies (Andersen et al., 2019). This project provided the frontline staff members of medical-surgical units with ISMC, so staff members felt empowered, confident, and capable of delivering quality care to their patients. The ISMC allowed hands-on practice on the staff units in a safe, realistic environment familiar to the staff members. The clinical question guiding this quality improvement project was: To what degree does the implementation of the AHA Megacode Checklist of Critical Performance Steps for CPR impact the rate of ROSC when compared to current practice among adult patients in cardiac arrest at an acute care hospital in central New Jersey?

Literature Review

The literature review related explicitly to inpatient cardiac arrest, cardiopulmonary resuscitation, interventions, education for acute cardiac arrest, and simulation. Multiple studies exist to support the performance of staff in cardiac arrest situations, demonstrating the need for

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basic and advanced life support training. The instrument used for translational research was the American Heart Associations (AHA), Megacode Checklist (Czekajlo & Dabrowska, 2017). Good and Rabener (2021) found that ACLS skills are incorrectly accomplished. AHA guidelines recommend defibrillation as soon as possible (Hajeb-M et al., 2021). The American Heart Association focuses on strategies that have the highest impact on improving outcomes, including cardiopulmonary resuscitation and external defibrillation.

Literature has identified deficiencies in biannual training with poor-quality BLS (Brennan et al., 2016; Mäkinen et al., 2016). The sudden cardiac arrest of hospitalized patients in acute care environments pose challenges for first responder staff members. Most acute care facilities fail to offer staff opportunities to practice BLS skills to the degree that staff members feel proficient (Mäkinen et al., 2016; Panchal et al., 2019). Frontline caregivers play an essential role in initiating and providing BLS; therefore, the frontline first responder's role is critical to patient survival. Patient survival from a cardiac event requires an immediate response and high-quality BLS initiation (Nehme et al., 2021). Frontline staffers who respond to IHCA who initiate high-quality CPR are a critical link to the AHA's chain of survival. The chain of survival is based on early recognition, compressions, and defibrillation (Lund-Kordahl, 2021). Improvement of patient outcomes is based on CPR quality must increase (Bea & Hong, 2021). According to Forristal et al. (2020), simulation as an education modality increased knowledge and can translate the skills of CPR into practice.

Mäkinen et al. (2016) found that nurses and staff may be hesitant to begin CPR and do not use defibrillators in resuscitation due to a lack of confidence and fear of harming the patient. Simulation supports the opportunity to use and learn appropriate skills and knowledge to promptly and correctly provide necessary skills and interventions to save lives (Silverio et al.,

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2021). According to Udani et al. (2016), simulation enhanced knowledge and the retention of skills. Unver et al. (2018), identified that simulation as a technique amplifies learning and guides nursing students' experiences. Further development of simulation significantly allows learners to practice skills and enhances decision-making (Koukourikos et al., 2021).

The use of simulation for training offers a safety approach focusing on developing skills in a safe environment. Simulation in the situation, the environment, using emergency equipment of staff units allows for hands-on training. Reece et al. (2016) found that nurses perform better after hands-on skill practice than reading educational information. Both the National Council of State Boards of Nursing and the National League of Nursing support simulation as an educational tool (Bradley et al., 2019). This project implemented current AHA guidelines via ISMC to improve staff competence and capability of performing high-quality CPR to improve the patient outcome of ROSC during cardiac arrest.

Methodology

A quantitative methodology approach was chosen for this project since this project used data points to assess the effectiveness of the implementation of ISMC and the return of spontaneous circulation of cardiac arrest patients. A quasi-experimental design was chosen to support the quantitative methodology as to establish relationships among variables. The independent variable was the implementation of the AHA Megacode Checklist of Critical Performance Steps for CPR content and psychomotor skills. The intervention was delivered didactically and via ISMC simulation. The dependent variable included the rate of ROSC in all patients who experience cardiac resuscitation on the adult medical-surgical units during the project's implementation.

Sample

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For this project's purposes, the patient population was all patients hospitalized on the medical-surgical units of the project site hospital during the time of the project. The patient population was all adult patients who suffered from an IHCA and required CPR resuscitation. This project excluded any patients under 18 and patients who have do not resuscitate (DNR) orders. The medical-surgical units consist of approximately 100 beds, and the average daily census is 100 beds. These units are consistently full of patients in the post-anesthesia recovery unit (PACU), the emergency department (ED), and the intensive care unit (ICU) in holding waiting for these medical-surgical unit beds. The average code blues for the medical-surgical unit is 14 per month. However, due to COVID, the facility has seen an increased number of codes during this project. A power analysis using *G* Power 3.1.9.7 was conducted based on the statistical test planned for the project and the inferential non-parametric chi-square test. *G* power suggested a minimum sample of 26 (13 in the comparative group and 13 in the intervention group) based on 80% power, a large effect size ($w = .50$), and alpha set to .05 (Faul et al., 2007).

Nurses involved as participants in the training were employed on one of four medical-surgical units. The staff participants included registered nurses (RNs) and support staff composed of nurse aides (NAs). Staff demographics include 204 staff members' 140 (68.6%) are RNs, and 64 (31.4%) are NAs. Respiratory therapists were included in this project as they were part of the code team. The nurses and support staff participated in unannounced, preplanned ISMC on one of the medical-surgical units at a time. The ISMC (unannounced) took place on each unit and covered both the day and the evening shifts. Skill sets for the units are mixed, with both licensed and non-licensed personnel. The methodology used for this project followed a pit crew response for code blue emergencies. The pit crew model places staff members in key roles

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necessary to achieve ROSC. The pit crew model was reinforced during the debrief that followed ISMC.

Design

The quasi-experimental design was the most appropriate option, given the use of a convenience sample while also assessing the intervention's effect on the dependent variable. The quantitative outcome measured of the patient rate of ROSC in adult patients in cardiac arrest were compared before and after the implementation of the AHA Megacode Testing Checklist to understand the cause-effect relationship between the intervention and the outcome measure of ROSC. The type of quasi-experimental design used was nonequivalent-groups design (NEGD). In nonequivalent group design, the principal investigator chooses existing groups that appear similar, but where only one of the groups experiences the intervention. The population came from a convince sample of naturally formed groups, those patients who experienced SCA 30 days prior to implementation of the intervention and those patients who experienced SCA 30 days after the intervention.

Instrumentation and Data Source

This project used the AHA Megacode Training Checklist of Critical Performance Steps for CPR. The checklist served as a tool to assure that all critical performance steps for CPR were completed. Post-code blue resuscitation records provided information on interventions and timing over the 30 days of this project's implementation. Documentation during CPR was initially collected on the checklist, with further documentation in the EHR. The EHR was also the data source used to obtain the outcome data for the direct patient outcome of ROSC.

Results

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The results were determined using a non-parametric chi-square test. The chi-square test was conducted to compare the rate of ROSC in the comparative and implementation patients. The results are displayed in Table 1. The comparative group had a rate of ROSC of 52.6% (n = 10) and the intervention group had a rate of ROSC of 61.9% (n = 13), X^2 (1, n = 40) = .351, p = .554. The p-value is greater than .05, indicating that the difference between groups was not statistically significant.

Table 1

Results Comparing Rate of ROSC for Comparative and Implementation Patients

Variable	Comparative (n = 19)		Intervention (n = 21)		X^2	df	p-value
	n	*%*	*n*	*%*			
Rate of ROSC	10	52.6	13	61.9	.351	1	.554

Even though statistical significance was not attained in this short project, it was directly observed that staff members were more efficient in the code blue process. It was noted that staff time to defibrillation and administration of ACLS medication was reduced. Therefore, summary statistics were computed for these two other patient variables.

The first variable was the time of the first defibrillation in adult patients in cardiac arrest. Defibrillation occurred for 15 patients in the comparative group and 11 patients in the implementation group; thus, the total sample size for the summary analysis for the time of the

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first defibrillation was *n* = 26. The time of the first defibrillation decreased from the comparative group (M = 3.93, SD = 2.37) to the intervention group (M = 2.64, SD = 1.96).

Table 2

Time of First Defibrillation for Comparative and Implementation Patients

Variable	Comparative (*n* = 15)		Implementation (*n* = 11)	
	M	SD	M	SD
Time of First Defibrillation (minutes)	3.93	2.37	2.64	1.96

Regarding the time of first administration of ACLS medication in adult patients in cardiac arrest in the project, ACLS medication was administered to 17 patients in the comparative group and 21 patients in the intervention group; thus, the total sample size for the summary analysis on time of the first administration of ACLS medication was *n*= 38. The results are displayed in Table 4. The time of first administration of ACLS medication in minutes decreased from the comparative group (M = 3.82, SD = 2.07) to the intervention group (M = 3.14, SD = 2.53).

Table 3

Time of First Administration of ACLS Medication for Comparative and Implementation Patients

	Comparative	Implementation

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Variable	(*n* = 17)		(*n* = 21)	
	M	SD	M	SD
Time of First Administration of ACLS Medication in minutes	3.82	2.07	3.14	2.53

A total of *N* = 40 patients were included in the project, *n* = 19 in the comparative group and *n* = 21 in the intervention group. Data on code blues were collected for 30 days before (comparative) and 30 days after the implementation of the AHA Megacode Checklist (implementation) from the EHR and exported to IBM SPSS version 27 for data analysis to address the clinical question. A chi-square test showed the comparative group had a rate of ROSC of 52.6% (*n* = 10) and the intervention group had a rate of ROSC of 61.9% (*n* = 13), X^2 (1, *n* = 40) = .351, *p* = .554. The results are clinically significant and support the use of the implementation of the checklist to increase the rate of ROSC. However, the p-value was greater than .05, indicating that the results show improvement, although it was not statistically significant.

Conclusions

In-hospital cardiac arrest impacted 292,000 American families and continues to increase (Holmberg et al., 2019). Frontline staff members must respond to provide basic life support to restore circulation to essential organs, yet the skills and performance of these responders are inadequate (Sprehe et al., 2016). Due to the low-frequency, high risk of IHCA, frontline staff members often experience long periods without exposure to cardiac arrest emergencies, leading to loss of basic skill proficiency. Staff had improved knowledge and skills after simulation and deliberate practice supported by the implementation of the evidence-based American Heart Association (AHA) Megacode Checklist of Critical Performance Steps for CPR.

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This project highlighted the need for additional hands-on practice. Practice that exceeds the traditional bi-annual BLS training everyone attends. The project site has a certified simulation center available for daily hands-on practice using the simulation center. One of the rooms in the center, the skills room, can be equipped with a feedback manikin for training. Future implications would be to continue mock code simulation using both the simulation center and roving in situ mock codes throughout the facility.

Recommendations include the inclusion of mock code simulation as a part of the monthly onboarding of new clinical staff members. Additional recommendations include monthly scheduled, unannounced ISMC throughout various hospital units and scheduled monthly mock code practice drills in the facilities simulation center. The monthly simulation center mock training would consist of four hours of back-to-back mock codes, with a didactic portion and detailed debriefing sessions to hardwire practice changes based on evidence-based practice. The first recommendation is a larger sample size. The second recommendation for this project includes adding outpatient units within the organization and the inpatient acute medical-surgical units. With the addition of outpatient units, more learners and patients would have benefited. Although staff members of the Emergency Department and Intensive Care units feel they participate in actual code blue events, thereby not needing code blue training. A third recommendation is to increase the quality improvement project time for an additional 30 to 60 days or more. The final recommendation would be to hold monthly mock codes and mock codes during new employee orientation.

This project has created an opportunity to increase the participants' skills, giving frontline staff another tool to save lives. The project increased the confidence of staff members as they understand their role as they respond to IHCA patients. Nurses and staff care deeply about their

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patients. The positive impact of ROSC for IHCA patients is important for staff and patients; therefore, it is recommended to increase the frequency of ISMC on all units of the facility. Increasing the ROSC for cardiac arrest patients is a priority, given the number of IHCA that continue to increase annually.

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Implementation of an Algorithm Program to Improve Surgical Wound Classification Accuracy in Elective Colorectal Surgery

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Abstract

Surgical wound classification (SWC) is documented by registered nurses (RNs) to describe the level of intraoperative contamination. SWC accuracy is essential to surgical site infection prevention and clinical outcomes data. The project site experienced miscalculations on SWC documentation. Therefore, the purpose of this quantitative retrospective/prospective correlational quality improvement project was to compare among elective colorectal surgery cases how implementation of a SWC algorithm program using validated tools consisting of the SWC decision tree as recommended by the Association of perioperative Nurses (AORN), and inclusion of SWC on the World Health Organization's (WHO) debriefing checklist at the end of each case, would impact accuracy of SWC assignment by perioperative nurses in the operating room at an acute care, single center tertiary care academic facility in an urban northeastern city. Orlando's theory of deliberative nursing process and Roger's diffusion of innovation theory were used as foundations for this project. The SWC's were obtained from the EHR to evaluate the

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incidence of inaccurate SWC documentation for both pre (*n*= 55) and post *(n*=43) intervention groups of adult patients having elective colorectal surgery. The proportion of misclassified SWC prior to and after implementation were not equal, X^2 (1, N = 98) = 5.808, p = 0.016, indicating statistically significant improvement following implementation. These findings suggest that the implementation of a SWC algorithm program may improve SWC accuracy, which impacts clinical outcome data and patient outcomes. It is recommended that this program be continued and expanded to additional procedure types and operating rooms.

Keywords: Surgical wound classification, algorithm program, AORN, WHO, surgical site infection prevention, colorectal surgery, perioperative nurses, Orlando's theory of deliberative nursing process, Roger's diffusion of innovation theory

Introduction

Intraoperative data collection requires multidisciplinary collaboration and teamwork, as many data variables are collected throughout each surgical encounter. One such variable, the surgical wound classification (SWC), is collected and documented on every surgical encounter in the operating room and describes the level of contamination associated with the surgical procedure (Snyder et al., 2013). The accuracy of this variable is essential to the postoperative management of the patient, as SWC is utilized when evidence-based guidelines are followed for postoperative decision making (Berrios-Torres et al., 2017). SWC is documented by nurses at the end of each surgical encounter, and it is meant to classify the surgery according to what was encountered intraoperatively.

This variable is used as a method to predict a patient's risk for surgical site infection (SSI) based on the level of contamination or bacterial load faced by the patient at the time of the surgery (Zinn & Swofford, 2014). Strategies that aim to decrease SSI rate are critical, as SSIs are

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the most common infection associated with healthcare, with 31% of all infections relating to hospitalized patients being SSI (Centers for Disease Control and Prevention [CDC], 2013). SWC can be used by providers for decision making, and the patient outcome can be jeopardized if incorrect decisions are made by the provider based on incorrect information available to them in the medical record. Additionally, due to the predictive value of this variable, SWC has been noted in the literature to be a valuable means to drive quality improvement efforts (Ortega et al., 2012).

Surgical wounds are classified and assigned to each surgical encounter as one of four categories: clean, clean-contaminated, contaminated, and dirty-infected (Berrios-Torres et al., 2017). Criteria present intraoperatively impacts the SWC assignments (Zinn, 2012). Surgical characteristics, such as entry into the alimentary tract, acute inflammation, perforation of the intestinal tract, spillage of intestinal contents, and purulence or abscess in the surgical site, are some of the examples of impactful characteristics (Zinn, 2012). SWC was introduced in 1964 to describe the amount of contamination present at the time of surgery (Berard & Gandon, 1964), and subsequently modified in 1982 by the Centers for Disease Control and Prevention (CDC) to include mandatory reporting for surgical site infection risk stratification (Wang-Chan et al., 2017).

Unless standard guidelines surrounding SWC are adhered to per the guidelines set forth by the American College of Surgeons (ACS), the quality of hospital clinical outcomes data can become biased by the institution (Ju et al., 2014). According to the Association of Perioperative Registered Nurses (AORN), comprehensive understanding of wound classification is a critical element for the perioperative nurse so that he or she can competently assess and subsequently document the correct wound classification for each surgical event (Zinn & Swofford, 2014).

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There are several evidence-based opportunities to improve accurate documentation of SWC by nurses and to improve communication. One such tool that has been evaluated and recommended by the AORN is the use of a SWC decision tree that can help nurses correctly assess the wound (Zinn & Swofford, 2014). Another evidence-based opportunity to improve communication and decrease gaps in understanding is through a debriefing period at the end of each surgical encounter. Typically, a debriefing includes the anesthesia provider, surgeon, circulating nurse, and scrub tech or scrub nurse, and is the last part of a three-phase patient safety checklist tool that was created and is endorsed by the World Health Organization (WHO) (Bartz-Kurycki et al., 2017).

Practice Question

Amongst the team of operating room nurses, how does implementation of a SWC algorithm program, as compared to the current process of SWC, impact the rate of correctly documented SWC in elective colorectal surgeries over a period of 30 days? It was believed that implementation of a SWC algorithm program, which includes a SWC checkpoint during debriefing and a SWC decision tree, would improve the accuracy rate of documented SWC in elective colorectal surgery patients.

Literature Review

Accuracy of SWC requires multidisciplinary collaboration and use of standardized tools. The nurse plays a significant role in the accuracy of SCW selection and documentation as evidenced by the AORN guidelines, and opportunities to improve the uniformity of the understanding and documentation of SWC is a critical task.

The Nurse's Role

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Levy et al. (2015) completed a multicenter evaluation on surgical wound misclassification and described their experience assessing eleven institutions' SWC through operative note review. The authors reviewed more than 2000 consecutive cases during the 2011 calendar year and identified a concordance rate of only 58% for correct classification.

Snyder et al. (2013) aimed to measure the level of agreement in wound classification assignment among the intraoperative nurses and surgeons. The authors evaluated 374 pediatric general surgeries from 2010 to 2011 and noted a 48% disagreement amongst the providers, with the disagreement between the operating room nurse as compared to the surgeon being the most significant. It was concluded that improving uniformity and understanding among all intraoperative providers is a critical task.

In 2012, the AORN confirmed that most circulating nurses document the SWC at the end of each case, and they highlight the importance of comprehensive understanding by the nurse in their patient safety first article (Zinn, 2012). Zinn (2012) notes that in the AORN guidelines, a decision algorithm is recommended to assist the nurse in their accuracy in documentation of the SWC. This article argued and concluded that a nurse's understanding of what constitutes a specific wound classification is essential, that the nurse plays a key role in SWC assignment, and for the benefit of the patient, the nurse must strive to communicate the assigned SWC with the operative team to ensure accuracy (Zinn, 2012).

Evidence Based Debriefing and SWC Decision Tree

Chupp and Edhayan (2018) aimed to improve the accuracy of their hospital's SWC and hypothesized that adding a reference SWC decision tree to the operating suite with associated education would improve the rate of accuracy in their documented wound classifications. These authors analyzed trauma and general surgery cases for a period of 60 days during 2015. When

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comparing the nurse-documented SWC to the determined class based on the surgeon-generated dictation, the authors noted that of the 300 cases analyzed, they improved their rate of discordance from 23.3% to 16.4% (Chupp & Edhayan, 2018). The authors highlighted colorectal surgery as their highest level of discordance, and due to the clinical importance of these case types, they completed an additional analysis on colectomies, appendectomies, and cholecystectomies, finding that there was significant decrease in misclassification in colectomies after their intervention was implemented (Chupp & Edhayan, 2018). These authors confirmed that their SWC decision tree intervention appeared to be a viable option for institutions that are interested in improving their SWC accuracy by nurses and surgeons (Chupp & Edhayan, 2018). This article brought attention to the fact that surgical outcomes are under scrutiny, and soon outcomes such as surgical infection rates will be listed for public knowledge. It was concluded that a call to action is critical for other institutions to evaluate their system for SWC and attempt to improve their communication.

Methodology

The goal of this project was to determine if implementation of a SWC algorithm program based on AORN guidelines would improve the accuracy rate of the SWC documentation completed by the operating room nurses. This project focused on the effects of implementation of the SWC algorithm program to support improved documentation accuracy by operating room nurses regarding SWC. As this impacts the predicted rate of SSI, it is deemed an important practice improvement opportunity. As evidenced in the literature, it was believed that implementation of an algorithm program would improve the accuracy rate of SWC in elective colorectal surgery patients.

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This project used the American College of Surgeon's National Surgical Quality Improvement Program (ACS NSQIP) risk adjusted quantitative data with a retrospective/prospective correlational design to evaluate the selected SWC of elective colorectal surgery cases by operating room nurses before and after implementation of a SWC algorithm program designed to improve documentation accuracy. This design was selected based on Klazema's (2014) literature regarding quantitative research involving observation, collecting data, and analyzing the data. For this project, the implementation of the SWC algorithm program variable was singled out and studied to determine its effect on the SWC selection variables. Forsberg et al. (2018) note that where there is a heterogeneous nature of groups in which there is a large variation in the sample, validity can be compromised. Additionally, when the sample size or subgroups being evaluated are small, the generalizability of the results can be compromised (Forsberg et al., 2018). This evaluation included a homogenous sample of elective colorectal surgery patients with 98 cases in total for evaluation.

To answer the clinical question, this project compared the surgery type, operative details, and selected SWC on all elective colorectal surgery cases before and after implementation of the SWC algorithm program using AORN guidelines. The use of quantitative methods of inquiry with a correlational design to answer a similar clinical question has been addressed through several studies in the literature.

Sample Studied

The colorectal cases included in this project were selected from the operative log based on the standard ACS NSQIP case selection process. The population evaluation included 98 elective colorectal surgeries on which documentation was made by 12 operating room nurses in the main operating room at a single site for 30 days prior to implementation of the SWC

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algorithm program (n = 55) and for 30 days after implementation of the SWC algorithm program (n = 43). The sample was elective colorectal surgery cases selected from the operative log based on the standard ACS NSQIP case selection process. One hundred percent of elective colorectal surgeries for the timeframe were evaluated.

Design of Project

This project utilized a quantitative retrospective/prospective correlational design. The project sought to determine if a SWC algorithm program would improve the documentation accuracy of SWC in adult elective colorectal surgery cases. After Institutional Review Board (IRB) approval was obtained, the project commenced. To identify baseline status, data was extrapolated from the 55 pre-SWC algorithm group subject EHRs from the 30 days prior to implementation of the SWC algorithm program. Data was prospectively extrapolated from 43 post-SWC algorithm group subject EHRs from the thirty days after implementation of the SWC algorithm program.

Dependent/Independent Variables

Dependent variables for the project were the subject ID, surgery type, elective status, alimentary tract entry, presence of inflammation, perforation, intestinal spillage, purulence or abscess, the SWC assigned, and SWC selection based on the ACS guidelines. The independent variable for the project was the implementation of the SWC algorithm program which included both the validated SWC decision tree as recommended by the AORN, and inclusion of SWC on the WHO debriefing checklist at the end of each case.

Instruments Used

The ACS NSQIP program collects clinical data using standardized data definitions, analyzes the data, and provides the hospital with reports that are risk adjusted comparisons with a

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surgical quality standard (Huffman et al., 2013). Data is entered into the program by nurses who are certified through testing by the ACS. These reviewers use standardized definitions to enter preoperative, intraoperative, and postoperative data on the surgical cases through 30 days postoperative. The data is structured data entry with some yes/no and some drop down answers that are added into the cloud-based database. The program uses logistic regression to control differences in patient risk factors between hospitals and adjusts for the complexity of each surgical procedure with stabilization derived from using small samples in a hierarchical model with shrinkage adjustment (Huffman et al., 2013). The criteria used to assign good or poor performance is through application of the prediction equation of expected events and observed events, followed by a 95% confidence interval (CI) construction (Huffman et al., 2013). Ultimately the CI criterion and the distribution of the hospital decile, or where they sit in the distribution of all other hospitals in 10 sequential groups, is what determines the specific ranking for the given outcome or model.

Datasets Collected

Data was extrapolated from the 55 pre-SWC algorithm subject EHRs from the 30 days prior to implementation of the SWC algorithm program. Retrospective data collection to identify the baseline data were gathered for 30 days in the summer of 2018. The day after the SWC algorithm program was implemented started the clock for the 30 days of prospective evaluation. Data was prospectively extrapolated from 43 consecutively selected subject EHRs from the 30 days after implementation of the SWC algorithm program. Dates of prospective data collection were collected for 30 days in the fall of 2018.

Results

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The occurrence of misclassified SWC documentation was greater prior to implementation of the SWC algorithm program than after implementation. The observed rate of misclassification was 21.8% pre-SWC algorithm group (n=12) out of 55 subjects total, and the observed rate of misclassification was 4.7% post-SWC algorithm group (n = 2) out of 43 surgical cases total.

Statistical Analyses

Data obtained from the patient sample EHRs were analyzed using STATA version 15.1 software. In support of our theory, the proportion of misclassified SWC instances was not equal in both groups, X^2 (1, N = 98) = 5.808, p = 0.016. With an expected proportion of misclassification being 14.3% for both groups, statistically significant shift toward less SWC misclassification post SWC algorithm program occurred. Because this was a small sample, a Fisher's exact test was used to validate the small sample size (p = 0.020).

To illustrate that this SWC algorithm program did produce improved SWC documentation without random improvement, additional statistical analysis was completed. First, to determine if the pre-SWC algorithm group and post-SWC algorithm group were similar, a two-sample t-Test was completed on subject age resulting in a t-value of 0.5285 (p = 0.5984) which indicated no significant variance between the two groups in age. Next, a Chi-square analysis was run on each individual demographic characteristic: Entry into the alimentary tract in the pre-SWC algorithm group was 87% (n=48) and 69.7% (n = 30) for the post SWC algorithm group (p = 0.033). The presence of inflammation was 3.6% (n = 2) in the pre-SWC algorithm group, and 14% (n = 6) in the post SWC algorithm group (p = 0.064). Intestinal perforation was identified in 1.8% of the pre SWC algorithm cases (n = 1) and 4.7% (n = 2) of the post SWC algorithm cases (p = 0.419). Spillage of intestinal contents was noted zero times in the pre SWC algorithm group, and 2.3% (n = 1) in the post SWC algorithm group (p = 0.256). Purulence or abscess were identified in

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1.8% (n = 1) of the pre SWC algorithm cases and in 6.9% (n = 3) of the post SWC algorithm group (p = 0.200). While entry into the alimentary tract was the only statistically significant difference between the two groups, when inflammation, perforation, or spillage is evaluated, there were more of these characteristics in the post SWC algorithm group than in the pre SWC algorithm group, indicating that the improvement was not due to less complicated characteristics in the post SWC algorithm group.

To ensure that the argument that nurses were making their determinations randomly could be rejected, a kappa test was completed on each group. In the pre SWC algorithm group illustrated in Table 4, it was found that if each nurse had made their determination randomly but with probabilities equal to the overall proportions, it would be expected that the two nurses would agree on 56.4% of the patients. In fact, they agreed on 78.18% of the patients, or 49.96% (k = 0.4996) of the way between random agreement and perfect agreement. This amount of agreement with a corresponding p-value of less than 0.001 indicates that we can reject the argument that they are making their determinations randomly. In the post SWC algorithm group, it was found that if each nurse had made their determination randomly but with probabilities equal to the overall proportions, it would be expected that these two nurses would agree on 29.91% of the cases. The observed rate of agreement was 95.35% of the cases, or 93.36% (k = 0.9336) of the way between random agreement and perfect agreement. This amount of agreement also indicates that the argument that they made their determinations randomly in the post SWC algorithm group can be rejected.

Conclusions

By implementing a SWC algorithm program based on AORN recommendations, the accuracy rate of SWC documentation by operating room RNs was improved, as SWC

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misclassification decreased. This improvement was not by chance or based on random determinations by the nurses. The characteristics and demographics for both the retrospective and prospective groups were evaluated statistically to confirm that there were no significant differences between them. Since the SWC algorithm program improved the accuracy rate of SWC documentation by operating room nurses, the validity and reliability of ACS NSQIP outcome data in areas where SWC is used will be more accurate. Quality improvement and practice improvement projects that are implemented based on this risk adjusted data will be aligned correctly, thus focusing resources on areas of true concern. Patients who should have prophylactic antibiotics withheld or administered postoperatively, depending on the SWC assigned, will receive appropriate evidence-based care. When surgeons and nurses debrief at the end of each case to confirm correct SWC, if there is a question or disagreement, the SWC decision tree can be used as a tool to resolve conflict and identify the correct SWC.

The main concerns associated with incorrect SWC documentation are the impact on benchmarked and risk adjusted SSI data, and the impact on patient outcomes when SWC is used for postoperative decision making by providers. Improving the accuracy of SWC documentation is essential to create opportunities for identification and implementation of appropriate quality improvement efforts, and for appropriate evidence-based postoperative patient care. Therefore, institutions need to focus on and identify ways to ensure accurate SWC documentation. This practice improvement project statistically improved the accuracy rate of nurse documented SWC, which will have a positive impact for this patient population and has the potential for continued expansion to other surgical areas.

Questions Unanswered & Future Explorations

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A future project that could build on the success of this practice improvement project would be an expanded roll-out of the SWC algorithm program to all surgical case types. While elective colorectal surgeries had a high rate of inaccuracy initially, other case types also were noted to have inaccurate SWC documentation. Applying the SWC algorithm program in other surgical suites where other specialties perform surgery could improve SWC documentation accuracy on a larger scale.

Another recommended future project could be to evaluate actual risk adjusted SSI outcomes through the ACS NSQIP program. The ACS NSQIP risk adjustment takes six months to be published after the data is entered into the program, and is only published once per quarter, therefore it was not feasible to include this outcome data within the timeframes of this project. Using the SWC algorithm program implementation as a target date, evaluating the risk adjusted SSI outcome for colorectal surgery cases for a period before and after the implementation could be a valuable future project.

Last, an evaluation of SWC based on information that is not available during the intraoperative or debriefing phase of the surgical encounter could be important when determining the most appropriate time to assign the SWC. For example, if intraoperative fluid or tissue culture is positive, indicating that an infection was present during surgery, but purulence was not identified or documented intraoperatively, should the SWC be changed to dirty/infected? This information could drive forward future recommendations regarding evidence-based timing of SWC documentation to reflect if infection was present at the time of surgery.

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Sleep Quality of Online Doctor of Nursing Practice Students

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Abstract

Sleep problems are common among university students and approximately one third of the general population; however, little is known about the sleep quality of online Doctor of Nursing (DNP) students, and whether the flexible schedule offered by online programs helps support students to adopt a healthy sleep pattern. Guided by the Orem's theory of Self-care and Deficit, underpinned by DNP essentials, this DNP project examined the sleep quality of online DNP students before and after starting doctoral studies and the factors that influence their sleep quality. Two surveys: a) Cross-sectional survey, and b) Pittsburgh Sleep Quality Index (PSQI) were used to collect data from Aspen University – DNP online students. Results suggest that the sleep quality of online DNP students is impacted by their studies. These findings suggest that online DNP students are not immune to the sleep problems that commonly plague brick and mortar university students. There may be a correlation between online studies and sleep quality, but further studies are needed to confirm this relationship. Application of this project and its findings is useful to the nursing profession and to other online programs. An effort may be to institute a health promotion strategy to assess the sleep quality of new incoming online students, followed by re-assessment at interval(s) throughout the programs. This health

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promotion strategy may provide the online student insight to their sleep quality that may lead to self- care intervention.

Keywords: sleep, sleep pattern, online, DNP students, stress, sleep quality

Introduction

The fundamental importance of sufficient, restorative sleep in maintaining an individual's physical and mental health is well accepted among health professionals and researchers (Lund et al., 2010). Researchers have identified inadequate sleep and a high prevalence of fatigue among graduate/doctoral students is a concerning health issue (Metlaine et al., 2018; Hall et al., 2018; Paine et al., 2016; Ogilvie & Patel, 2017). Poor sleep quality is associated with higher odds of poorer mental health, diagnosed high blood pressure, diagnosed diabetes, diagnosed heart disease, poor/fair self-rated health, obesity, current smoking, and hazardous drinking (Lee et al., 2007; Paine et al., 2016).

Online education programs have become popular because of their flexible access to content and instruction at any time; and on average, students enrolled in online learning performed modestly better academically than those receiving face-to-face instruction (Means et al., 2013). Online DNP programs provide the flexibility to access curriculum at any time; especially as nurses work variable days, afternoons, evenings night shift while juggling other responsibilities. Transitioning educational programs from traditional brick and mortar to online is not new and has been studied extensively, including student locus of control (Dollinger, 2000). Online DNP programs have also adapted to support DNP students learning experience in virtual environment by providing novel support systems such as virtual preceptors (Johnson et al., 2021). However, little is known about how this access to course material at any time of the day or night impacts the sleep quality of online DNP students. The opportunity was to examine

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the sleep quality of online DNP students guided by Dorothea Orem's theoretical model of patient self-care and self-care deficit (Younas & Quennell, 2019; Surucu & Kizilci, 2012); underpinned by DNP essentials. Orem's model of patient self-care and self- care deficit is relevant today from a health promotion and disease prevention perspective. Orem's models theorizes that individuals are distinct, responsible for their own care and by knowing of potential health problems may provide the impetus for the individual to change behavior (Kurtz & Schmidt, 2016).

This DNP project examined sleep quality of online DNP students through three clinical questions. First, to determine how the sleep pattern of online DNP students compared to their sleep pattern before starting their DNP program. The second was to determine whether the sleep pattern of online DNP students improved during course breaks. And third, from a disease prevention perspective, identify key variables that affected DNP students sleep quality. These gaps of knowledge pertaining to the sleep quality of online DNP students is an impediment to self-care, to online DNP programs, and to the profession itself to support their doctoral students.

Literature Review

Examining papers using Fineout-Overholt et al. (2010) critical appraisal framework, ten papers of quality and/or interest specific to sleep quality of online DNP student informed this DNP project including establishing the definition of sleep quality. Sleep quality is defined as "one's satisfaction of the sleep experience, integrating aspects of sleep initiation, sleep maintenance, sleep quantity, and refreshment upon awakening" (Buysee et al., 1989); and sleep quality is measured using the PQSI – a validated and verified tool (Buysee et al., 1989).

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Four papers will be highlighted beginning with research conducted by Gilbert and Weaver (2010) who sought to examine the relationship between sleep deprivation, sleep quality, and academic performance. They hypothesized that participants who had higher levels of sleep deprivation and poorer sleep quality would have lower grade point average (GPA) and course incompletions versus participants with good sleep quality (Gilbert & Weaver, 2010). Sample size was 557 of undergraduate introductory psychology students; of which 35.7% (N=199) male and 64.3% (N=358) female. Data points included GPA, global sleep quality, hours slept, gender, number of drop courses, withdrawals and incompletes and they controlled for depression (Gilbert & Weaver, 2010). Data collection utilized demographic survey, Goldberg depression inventory tool, and the PSQI; and concluded that for optimal cognitive functioning, an individual required good quality sleep for learning, memory consolidation, critical thinking and decision making that is necessary for academic success in higher education (Gilbert & Weaver, 2010). A significant relationship noted between sleep quality and academic performance for women, however this same relationship did not exist for men (Gilbert & Weaver, 2010).

A paper by Cort-Blackson (2018) sought to understand the effects of sleep deprivation on the academic performance of online university students. Sample size was small - only 10 online Psychology university students – undergraduate and graduate. Qualitative in nature using interview face to face questions and open-ended interview questions. Weaknesses to this paper included a non-validated collection tool and a small number of participants; therefore, results cannot be assumed to be representative of the larger population (Cort-Blackson, 2018).

A third paper by Okano et al. (2019) sought to explore how sleep affects university students' academic performance by objectively and ecologically tracking their sleep throughout an entire semester secondary aim was to understand gender differences in sleep and academic

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performance. Their population were 100 students at MIT enrolled in a particular course using a novel wearable technology – a Fitbit—a wearable activity tracker. Fitbit uses a combination of the wearer's movement and heart-rate patterns to estimate the duration and quality of sleep. Appraising the research, highlighted new insights about the timing of the relation between sleep and academic performance; however, weaknesses include the lack of measuring online doctoral students, and a lack of generalizability because the sleep quality measures were made with proprietary algorithms of Fitbit where there is no published evidence that Fitbit's 1~10 sleep quality scores represent a valid assessment of sleep quality.

A fourth paper by Batten et al. (2020), sought to replicate the outcomes of a Canadian study by evaluating the sleep behaviors of university students in Australian and found themes associated with sleep issues. These themes included pressure to maintain grades; therefore, deprioritizing sleep as important (Batten et al., 2020). Students experience higher than average mental health and physical issues due to lack of sleep; consistent with studies that found that sleep is a contributing factor to overall physical and mental health (Batten et al., 2020; Lund et al., 2010). Batten et al. (2020) study confirmed that approximately 70% of participants would be receptive to receive information about sleep and sleep strategies via email, a hand-out and or a one-on-one consultation with a health care professional. The outcomes of the Batten et al. (2020) study replicated the results of the Canadian study suggesting that sleep issues in university students is truly a universal health issue (Chattu et al., 2018). Interestingly, the Batten et al. (2020), study highlighted a gap by identifying that although nearly 30% of university students reached out for help to address sleep issues; their choice of professional in descending order were to their doctor – 69%, family or significant other 41.3%, or friend 24.8% and a distant 6% sought out help from a nurse. Nursing is a caring profession and for the past eighteen years,

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continues to rank as American's most trusted profession (Wallner, 2020). These findings highlight an opportunity for nurses to become a trusted partner for sleep consultations, health promotion and increase the collaboration between nursing and other health professions in the field of sleep.

Methodology

The primary methodology of this DNP project was quantitative; and deployed two instruments. First, a cross-sectional survey to gather information about the sleep behaviors and factors influencing the sleep pattern of online graduate students. An online survey tool, known as survey monkey, was enabled to collect data, while providing anonymity for the participants. A total of eleven questions were included in the survey. Four demographic questions were posed at the beginning of the survey to collect information from the participants about their gender, age, shift work and the number of months of doctoral studies they had completed. The second instrument, Pittsburgh Sleep Quality Index (PSQI) developed by Buysee et al. (1989), was used with permission to assess sleep quality in students. The PSQI is a nineteen-item, self-rated questionnaire utilized to measure sleep quality during the previous month. The main survey items are grouped into seven components, each weighted equally on a 0 to 3 scale. The seven components consist of: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction over the last month. These component scores were added together to produce a "global PSQI score", which has a range of 0 to xx; with higher scores indicating worse sleep quality. Diagnostically, a global score of 5 or below is considered good sleep quality; whereas scores above 8 are considered, to be suggestive of poor sleep quality (Buysee et al., 1989). The PSQI may be completed in 15 minutes. A convenience sample was used to recruit volunteer participants for the DNP

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project. The DNP project volunteer participants were recruited from the Aspen University online DNP student body via the online DNP lounge. DNP project purpose, process, ethics and consent were clearly provided. No payment was made to any of the participants.

Results

A total of 15 participants gave consent in the cross-sectional survey. One participant did not answer any survey questions and hence was removed from the data analysis. The final sample size for the cross-sectional survey was 14. Table 1 presents the demographics of the 14 participants. 100% were female. 50.0% were 51-60 years old. Nearly 30% of the participants (28.6%) had been pursing online DNP studies for less than 6 months. Majority of the participants (85.7%) did not work rotating shifts.

Table 1

Demographics of Participants for the Survey of Sleep Quality

Variable		*N*	%
Gender	Female	14	100
Age	30-40 years old	2	14.3
	41-50 years old	1	7.1
	51-60 years old	7	50.0
	61 years old or older	4	28.4
Length of time pursing online DNP studies	Less than 6 months	4	28.6
	6-12 months	3	21.4
	13-18 months	3	21.4
	19-24 months	2	14.3
	25+ months	2	14.3
Work rotating shifts	Yes	2	14.3
	No	12	85.7

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Summary of Survey Responses for PSQI

A total of 25 participants provided consent for the PSQI. Sixteen participants did not answer questions 1-9 of PSQI; hence were removed from the data analysis. The final sample size for the PSQI was 9.

The first clinical question was to determine how the sleep pattern of online DNP students compared to their sleep pattern before starting DNP studies. Before beginning online doctoral studies, participants moderately agreed that they went to bed at the same time ($M = 4.00$, $SD = 0.78$; Table 2) and felt rested when getting up ($M = 3.29$, $SD = 1.33$), and that they were able to balance all aspects of their life ($M = 4.07$, $SD = 1.38$). Since beginning online doctoral studies, participants moderately agreed that the time they went to bed had changed ($M = 4.07$, $SD = 1.07$), felt less rested when they got up ($M = 3.79$, $SD = 1.31$), laid awake at night thinking or worrying about everything they had to do ($M = 3.79$, $SD = 1.25$), and had made changes to their daily/weekly routine to support a healthy sleep pattern during their studies ($M = 4.00$, $SD = 0.78$). Participants did not feel that they were able to balance all aspects of life to ensure adequate sleep about the same as they could before starting online graduate studies ($M = 2.36$, $SD = 1.15$).

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Table 2

Descriptive Statistics for Q2, Q3, and Q4 of the Survey Questionnaire of Sleep Quality

Item	*M*	*SD*
Q2. Before beginning online doctoral studies:		
a) I went to bed at the same time	4.00	0.78
b) I felt rested when I got up.	3.29	1.33
c) I was able to balance all aspects of my life	4.07	1.38
Q3. Since beginning online doctoral studies:		
a) The time I go to bed has changed.	4.07	1.07
b) I feel less rested when I got up.	3.79	1.31
c) I lie awake at night thinking or worrying about everything I have to do.	3.79	1.25
d) I have made changes to my daily/weekly routine to support a healthy sleep pattern during my studies	3.64	1.15
Q4. I feel that I am able to balance all aspects of my life to ensure adequate sleep about the same as I could before starting online graduate studies.	2.36	1.15

The second clinical question was to determine whether the sleep pattern of online DNP students improves during course breaks. Q5 of the survey questionnaire for sleep quality was used to answer the 2nd clinical question. The mean response score for Q5 was computed. The mean scores ranged from 1 to 5, with higher scores indicating higher agreement to the statement. The mean score of Q5 was 4.07 (*SD* = 0.92) (Table 3), indicating that participants moderately agreed that, during course breaks, the amount and quality of sleep they got improved.

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Table 3

Descriptive Statistics for Q5 of the Survey Questionnaire of Sleep Quality

Item	*M*	*SD*
Q5. During course breaks, the amount and quality of sleep I get improves.	4.07	0.92

The third clinical question was to identify some key factors that prevent online DNP students from adopting a healthy sleep pattern. To answer the 3rd clinical question, Q3 and Q4 of the survey questionnaire for sleep quality (concerning sleep pattern since beginning online DNP studies) and the scores of the 7 components for PSQI and the global PSQI score was used.

As the sample size was small, age, length of time pursuing online DNP studies, and working rotating shifts were coded so each variable contained only two levels (age: 30-60 years old vs. 61+ years old; length of time pursuing online DNP studies: ≤ 12 months vs. ≥ 13 months; working rotating shifts: yes vs. no). The demographic variable, gender, was not included in the analysis as all participants were female. Two-sample t-tests were used to determine a) if there was a difference in the response scores of Q3 and Q4 based on age, length of time pursuing online DNP studies, and working rotating shifts, and b) if there is a difference in the scores of the 7 components for PSQI (duration of sleep, sleep disturbance, sleep latency, day dysfunction due to sleepiness, sleep efficiency, overall sleep quality, and need meds to sleep) and the global PSQI score based on bed partner/roommate (Q10 of PSQI: Do you have a bed partner or roommate?).

There was no statistically difference in the sleep quality by age Q3 and Q4, or sleep quality by length of time pursuing online DNP studies, or working shifts; however there was a statistically difference in the mean response scores of Q3c (I lie awake at night thinking or worrying about everything I have to do) between participants 30-60 years old ($M = 3.30$, $SD = 1.16$) and participants 61+ years old ($M = 5.00$, $SD = 0$) ($t(9) = -4.636$, $p = 0.001$). Comparing to

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participants 30-60 years old, participants 61+ years old more often laid awake at night thinking or worrying about everything they had to do.

Table 4 shows the descriptive statistics for PSQI scores by bed partner. There was no statistically difference in the mean scores of PSQI component – duration of sleep between participants with no bed partner (M = 1.67, SD = 1.53) and participants with a bed partner in same bed (M = 1.50, SD = 1.05) ($t(7) = 0.196$, $p = 0.850$). There was a statistically difference in the mean scores of PSQI component – sleep disturbance between participants with no bed partner (M = 1.33, SD = 0.58) and participants with a bed partner in same bed (M = 2.17, SD = 0.41) ($t(7) = -2.546$, $p = 0.038$). Participants with no bed partner had statistically significantly better sleep quality in terms of PSQI component – sleep disturbance than participants with a bed partner in same bed.

Table 4

Descriptive Statistics for PSQI Scores by Bed Partner

	No bed partner (N = 3)	Partner in same bed (N = 6)
PSQI components		
Duration of sleep	1.67 (1.53)	1.50 (1.05)
Sleep disturbance	1.33 (0.58)	2.17 (0.41)
Sleep latency	1.00 (1.00)	1.67 (1.03)
Day dysfunction due to sleepiness	1.33 (0.58)	1.00 (0.63)
Sleep efficiency	1.00 (1.73)	1.33 (1.37)
Overall sleep quality	1.67 (0.58)	1.33 (0.52)
Need meds to sleep	1.00 (1.73)	1.50 (1.22)
Overall PSQI score	9.00 (1.73)	10.50 (4.32)

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There were a few notable selfcare findings from the PSQI. 50% respondents reported having difficulty staying awake with Activities of Daily Living (ADL), i.e., Feeding and/or Instrumental Activities of Daily Living (IADL), like driving a car. 60% used over the counter sleep supplements or prescription sleep medication, and 90% reported having difficulty to keep up enthusiasm to get thing done, which suggests an impact to their mental health.

Conclusions

The aim of this DNP project was to fill the knowledge gap by developing an improved understanding of the behaviors, attitudes, and factors influencing the sleep pattern of online DNP students. Based on the data collected and synthesis, this DNP project provided deeper insight and answered the clinical questions that suggests, there may be a correlation between online studies and sleep quality, but further studies are needed to confirm this relationship.

Upon analysis, synthesis and reflection, there are multiple thematic areas of further inquiry that this DNP project has illuminated but did not pursue. For example, This DNP project was undertaken against the backdrop of a global pandemic and evidence continues to suggest that the pandemic has caused burn out for all healthcare professionals (Talaee et al., 2020). The sample group were working nurses and further study into whether burn out due to pandemic impacted their sleep habits. This and other limitations, and unanswered questions require future projects and research into the, what, and why? Online DNP students are affected by sleep quality issues. This is a call to action for online DNP programs to review and/or implement health promotion services such as surveys used in this project to assess the sleep quality of online DNP students. This health promotion strategy may provide the online student insight to their sleep quality that may lead to self- care intervention.

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Examining Health Disparities as Predictors of Mortality from COVID-19 Infection at a Large, Urban, Safety-net Medical Center

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Abstract

We examined health disparities as predictors of mortality in patients with COVID-19 infection at a large, urban, safety-net medical center. Secondary data analysis was conducted of the medical records of 274 adult patients with COVID-19 who were discharged or died between March 2020 and March 2021. Backward stepwise logistic regression was used to examine the relationship between death and health disparities. Patient comorbidities with death were also examined. Age over 75 years, payor source, ethnicity, hypertension, cardiovascular disease, and gender had a statistically significant relationship with death. Final variables found to predict death in the presence of COVID-19 were age over 75 years, cardiovascular disease, and gender. Other than age and gender, no additional health disparity variables were found to predict death in the

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presence of COVID-19. Future research should explore if care provided in safety-net medical centers has an improved effect on health outcomes in patients experiencing health disparities.

Keywords: COVID-19, health disparities, safety-net providers, virus disease

Introduction and Literature Review

Since early 2020, hospitals and other healthcare facilities worldwide have strived to develop new protocols and education for healthcare workers to combat COVID-19. Still, there remains a need to better identify who is most vulnerable to this potentially life-threatening infection (Jain & Yuan, 2020; Ruan et al., 2020). Current research suggests that those most likely to be infected with COVID-19 are frail, elderly, and/or unhealthy (Jain &Yuan; Ruan et al.). A recent systematic review of predictive symptoms and comorbidities found common symptoms and comorbidities among individuals with severe COVID-19 infection and those admitted to the intensive care unit (ICU) with a COVID-19 infection (Jain & Yuan). The most prevalent symptoms in the severe infection group were cough, fever, and fatigue. In the ICU group, the most prevalent symptoms were cough, fever, and dyspnea while the most prevalent conditions were hypertension, diabetes, and cardiovascular disease (Jain and Yuan).

According to the Centers for Disease Control and Prevention (CDC), health disparities are "differences in health outcomes and their causes among groups of people" (CDC, 2020). Multiple factors can contribute to health disparities including sexual orientation (Dyar et al., 2019), race and ethnicity (Dyar et al.; Nguyen et al., 2019), income / socioeconomic status (Nguyen et al.), geographic location (Nyguyen et al.), age (Lee et al., 2019), gender (Molina, 2015), level of education (Molina), health insurance (Axelrod et al., 2018), disability (Shin et al., 2020), homelessness (Wadhera et al., 2019), and/or gender identity (Tabaac et al., 2018). As a safety-net hospital, the study facility provides healthcare to many patients who are prone to, or

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experiencing, health disparities. The medical center is one of five level one trauma centers in this western state within the United States and experiences an influx of critically ill patients from the community as well as smaller surrounding hospitals. Many patients are treated for COVID-19. This study examined variables associated with health disparities as predictors of COVID-19 deaths in patients in a large, urban, safety net medical center. Examining health disparities in relation to COVID-19 will add to what is already known clinically to better identify those at high risk and control spread of the disease.

Methodology

This descriptive study used a convenience sample from medical records to study predictors of death related to COVID-19 infection, focusing on variables associated with health disparities as risk for death. After institutional review board approval, the medical record database was queried for all patients diagnosed with COVID-19 infection between March 1, 2020 and March 31, 2021 and were 18 years of age or older. From this sample, there were 137 patients who died with COVID-19 infection and 137 randomly selected patients with COVID-19 infection who did not die and were discharged. Specific data collected for all patients included discharge status (death or discharged from the medical center), medical history (hypertension, type I diabetes, type II diabetes, and/or cardiovascular disease), and health disparity/demographic data to include gender, age, race, ethnicity, socioeconomic status, payor source, disability status, geographic location, homelessness, sexual orientation, and gender identity. To screen the independent variables for possible entry into the regression analysis, cross tabs using Pearson's Chi square were used to examine if they had a statistically significant relationship with the dichotomous dependent variable of death (death/no death). Variables that were found to have a

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statistically significant relationship with death using an alpha of .05 were entered into a backward stepwise logistic regression.

Results

Statistically significant positive relationships were found between death in patients with COVID-19 infection and age (p=<.001), payor source (p=<.001), ethnicity (p=<.001), hypertension (p=.01), cardiovascular disease (p=.01), and gender (p=.02). The relationship between death in patients with COVID-19 infection and socioeconomic status, disability status, race, homelessness, geographic location, and type II diabetes were not statistically significant. Most patients reported "straight" as their sexual orientation (n=185). All other options for this variable had three or less responses, thus, it was not large enough to include in the analysis. For the gender identity variable, 99 reported identifying as male and 97 as female. There were 78 who did not respond to this item. When comparing gender identity with gender, it was found that all who had reported male as their gender also reported identifying as male. Likewise, all who had reported female as their gender also reported identifying as female. Due to all the missing values, and the respondents reporting their gender identity the same as their gender, this variable was not examined. Only 4 patients reported a diagnosis of type I diabetes and there were no missing data. Due to this small sample of type I diabetics, this variable was not studied. For socioeconomic status, most were in the less than $79,000 (n=190) range and least were in the greater than $130,000 range (n=8). There were 6 missing data. Due to only 8 in this largest income group, and they may be outliers in number, these 8 were excluded from the analysis of this demographic. Before exclusion of the $130,000 or more group, a logistic regression was run,

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and the Nagelkerke R Square was .000 (indicating no relationship) and the "variables in equation" had a significance level of .888.

Backward stepwise logistic regression using the significant variables revealed 3 predictors of death in patients with COVID-19 infection including age over 75 years, cardiovascular disease, and gender. The classification table reveals specificity of this model of 65.7% of the time and sensitivity of 80.7%. Overall, this model predicts if the patient will die or not 73.2% of the time. Nagelkerke R Square for the final model was .391 (note: this is often compared to an R^2 value in regression). The Hosmer and Lemeshow Test was not statistically significant (Chi-square 2.237, p=.95) which informs us the model is specified. All three final variables had a Wald statistic (like a t-test) that was statistically significant. These data find that being 75 years of age or older increases the likelihood of death by 6.583 times, having cardiovascular disease increases the risk by 2.322, and being male increases likelihood by .525 times.

Conclusions

In addition to the known risks associated with cardiovascular disease and advanced age, the current study found that variables associated with health disparities, other than age and gender, among patients with COVID-19 infection had no impact on death. Although the relationship between severe COVID-19 infection and certain medical conditions has been previously researched, to our knowledge, this is the first study to examine health disparities as predictors of mortality in patients with COVID-19 infection. This study is not without limitations. Missing or limited data from the medical records did not allow the investigators to analyze all possible variables associated with health disparities including level of education, sexual orientation, and gender identity. This was also a one-center study, so generalizability is

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limited. Since none of the identified health disparities, other than age and gender, had any impact on death in patients with COVID-19 infection, it is plausible that this safety-net medical center is skilled in providing care to patients regardless of their status which is the primary mission of safety-net hospitals in the United States. Examining health disparities at the current study site was of special interest as significant resources are allocated to support individuals who are experiencing health disparities. For example, our homeless population will soon have a place to stay as we move toward completing the construction of our hotel-like building to provide housing as needed. We are also known as an LGBTQ+ center of excellence specializing in gender reassignment surgeries. Thus, it is important to further explore the quality or characteristics of care provided in safety-net hospitals and the implications for public health. Future research should investigate different types of healthcare facilities, utilizing all possible variables associated with health disparities, to identify differences in the type of care provided and the effect on patient health outcomes. The ability to accurately identify those at the highest risk for COVID-19, or any healthcare condition, assists in well-guided conversations between clinicians and patients about their projected healthcare status. However, clinical symptoms and status are not the only variables to consider.

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Development of an Advisory Opinion to Guide Preceptorships of Pre-licensure Nursing Students

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Abstract

Preceptorships of prelicensure nursing students is a complex process with multi-stakeholder involvement; yet no one stakeholder assumes full responsibility. Boards of Nursing (BON) exist to protect public safety by oversight of nursing practice; therefore, it is logical that BON's regulate preceptorships. A mixed method project using an exploratory sequential design examined regulation of preceptorships of prelicensure nursing students for the Arizona BON. A qualitative case study examined regulation of preceptorships from 51 state BON using thematic and content analysis. Thirteen identified content themes were reviewed against literature to support the basis of evidence and develop an advisory opinion. Using participatory action research, the advisory opinion was distributed statewide to three groups of nurse experts for quantitative examination by a Delphi survey. Descriptive statistics explored survey responses and differences in position were analyzed using chi-square. No statistical significance was noted in the proportions for reliable and very reliable ratings between the three groups [$\chi^2(4) = 1.62$, $p = 0.865$]. All three groups agreed on the reliability of the new advisory opinion. Analysis of Delphi results showed a Cronbach's alpha of .961, indicating an excellent level of internal

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consistency. Factor analysis revealed one factor with an eigenvalue of 6.97 and no other eigenvalues were > 1. These analyses showed that the survey was internally consistent and tested one factor, the accuracy of the advisory opinion. Based on the clinically significant results the advisory opinion was approved and published by the BON.

Keywords: Preceptorships, prelicensure nursing students, mixed methods, BON, advisory opinion

Introduction

The synergistic relationship between high quality clinical learning for nursing students and the delivery of high-quality patient care has been acknowledged, and its importance cannot be understated (Heidari & Norouzadeh, 2015). Nurse preceptorships are models in which nursing students are paired with experienced nurses in a practice setting, where a significant portion of clinical learning occurs (Phuma-Ngaiyaye et al., 2017). Preceptorships have become a common, everyday practice in nursing. With the nursing shortage and call for nurses to attain higher educational levels, the preceptorship model will continue as a high-volume nursing educational activity. Current policies, standards, and rules to guide the preceptorship process can differ depending on variables at the program, organization and state level. Because of this, it is necessary to carefully examine the current preceptorship process, clearly delineate responsibilities, and improve the standardization of these programs. This is essential to ensure that patient and nurse safety is maintained during this preceptorship experience.

Preceptorships are a complex, interactive process with the potential to place patients at risk because of the many stakeholders directly involved. These stakeholders include health care agencies, schools of nursing, nurse faculty, nurse preceptors and nursing students. Because of the complexity surrounding the preceptorship process, this topic warrants attention from regulatory

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boards. Many state boards of nursing (BON) do address basic guidelines related to the preceptorship experience, yet numerous gaps and inconsistencies related to the entire preceptorship process remain (Lewallen et al., 2014).

According to the National Council for the State Boards of Nursing (NCSBN, 2022) as the main regulatory agency for nursing, nursing boards have a primary role in the protection of the public by setting standards for competence of healthcare professionals. There are several ways that this is accomplished including approving nursing education programs in their respective states. Yet not every state clarifies the regulation for the protection of patients who are under the care of a nursing student during his or her clinical experience that is supervised by a nurse preceptor at a health care agency. Practice guidelines related to preceptorships in health care organizations need further clarification. The successful implementation of nursing preceptorships requires that all stakeholders have a clear grasp of their corresponding roles so that there is ultimate protection of the public. Communication between all contributors must be maintained throughout the preceptorship to identify and correct any practice that might be harmful or dangerous to the health of a patient or the public. The purpose of this mixed method project using an exploratory sequential design examined the complexities in nursing regulation of preceptorships for prelicensure nursing students for a state BON in the southwestern United States. A qualitative case study further examined regulatory guidelines for preceptorships from all 51 state BON using thematic and content analysis. Thirteen identified content themes were reviewed against current literature to support the basis of evidence and develop a current, evidence based advisory opinion.

Literature Review

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A comprehensive self of full text, English language academic journal articles published in the last seven years was performed to determine current and available knowledge on this topic. Themes that emerged included support of the preceptorship model as highlighted a growing body of evidence that supports the efficacy of clinical learning during preceptorships for nursing students at both a national and an international level (L'Ecuyer et al., 2018; Edwards et al., 2015; Spector et al., 2015). These studies also support the preceptorship model as the best framework to guide the clinical education of nursing students. A study adopted as the National Council of State Boards of Nursing's Transition to Practice (TTP) program model (Spector et al., 2015) provided high quality evidence to support findings that TTP programs built around a preceptorship model improve quality outcomes and patient safety (Spector et al., 2015).

The second theme that emerged in the literature included supports use of a selection process to evaluate experienced nurses prior to their assuming the role of a nurse preceptor, leads to improved preceptorship experiences for nursing students (Hugo-Van Dyk & Botma, 2021; Omer et al., 2016). The most notable impact preceptor training had was on patient safety for prelicensure and new nurses (Clipper & Cherry, 2015). This research supports the obligation of healthcare agencies to provide preceptor training programs.

There was considerably less available knowledge related to regulatory and collaborative processes associated with stakeholders involved in the preceptorship experience. Some studies that did focus on this issue discussed the dilemma of who owns overall responsibility of the student nurse preceptorship process (Lewallen et al., 2014; Meyer et al., 2014; Spector, 2015). Only four articles specifically discuss involvement of State BON in the prelicensure preceptorship process (L'Ecuyer et al., 2018; Lewallen et al., 2014; Meyer et al., 2014; Spector, 2015). The prelicensure preceptorship process is especially complex with many stakeholders and

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yet no one stakeholder owns total responsibility of the process. Instead, the process is essentially a collaborative effort. The literature does not discuss the specifics of regulation but highlights the difficulty in regulation of the preceptorship process. This is because state nursing boards have many different structures and levels of authority and all states have different regulation specifics related to preceptorships (L'Ecuyer et al., 2018; Lewallen et al., 2014).

Methodology

This project employed a quantitative sequential exploratory design. A qualitative case study examined regulation of preceptorships from 51 state BON using thematic and content analysis. Thirteen identified content themes were reviewed against literature to support the basis of evidence and develop an advisory opinion (Table 1).

Table 1

Frequencies and Percentages of Educators, Leaders and Preceptors in Consensus (*N=51*)

Theme Addressed by BON	
1. Definition of Preceptor	24
2. Definition of Preceptorship	8
3. Preceptor to Student Ratio	19
4. Facility to Preceptor Ratio	20
5. Preceptor Qualifications	33
6. Preceptor Approval/Orientation	17
1. Timing of Preceptorship Experience	8
2. Preceptor Oversight by Faculty	22
3. Healthcare Agency Responsibilities	13
4. School of Nursing Responsibilities	18
5. Faculty Responsibilities	28
6. Preceptor Responsibilities	16
7. Student Responsibilities	13

Note: Data from all 50 State Boards of Nursing and the District of Columbia.

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A Delphi survey was conducted, followed by a between-group comparison of responses using a Pearson chi-square analysis to validate an evidence-based advisory opinion guiding preceptorships. The Delphi method was used to arrive at a group opinion or decision on the advisory by surveying a panel of content experts, e.g., educators, leaders, preceptors (Hasson & Kenney, 2011). The convenience sample of content experts involved 160 nurse educators, leaders, and preceptors, all active members of the Arizona Action Coalition Education Collaborative Committee. The content experts responded to several rounds of questionnaires, and the responses were aggregated and shared with the group after each assessment. The responses from the educators, leaders and preceptors were compared for statistical differences ($p < .05$) between them involving the advisory opinion.

The content experts were sent the initial survey, a copy of the 2006 advisory opinion from the project site State Board of Nursing, and the current draft revised advisory opinion. The independent variable was the responses to the Delphi Survey by type of content expert (educator, leader, or preceptor). The final responses to the survey were compared between the groups. The dependent variable was the agreement between the content experts on the advisory opinion statement after the Delphi Survey, evidenced by no statistical difference in the scores between the groups.

The instrument used was a 9-item four-point Likert Scale Survey constructed to assess the reliability of the advisory opinion for preceptorships. Each question was based on a component of the advisory statement and was answered using a 4-point Likert scale (1 = very unreliable, 2 = unreliable, 3 = reliable and 4 = very reliable). Psychometric analysis of the survey by the investigator showed a factor analysis revealed one factor with an eigenvalue of 6.97 and no other eigenvalues > 1. Cronbach's alpha was .961, indicating an excellent level of internal

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consistency between administrations (DeVellis, 2012). The investigator determined that the Delphi survey measured the reliability or consistency of the advisory opinion statement evaluated by the experts.

The data collected included the iterative responses to the nine-item Delphi survey completed by the nurse content experts and collected between the three groups (1 – educator, 2 – leader, 3- preceptor). The consensus was defined as the proportion of nurses rating the items regarding the advisory as reliable (3) or very reliable (4). Descriptive statistics for consensus were reported as frequencies of each response on the nine-item four-point Likert scale, as well as the proportion of ratings of reliable (3) and highly reliable (4). To examine for any difference in consensus between the educators, leaders, and preceptors, a non-parametric statistical analysis using a Pearson chi-square test was used. The consensus of the three groups of experts would be demonstrated in agreement by the finding of no statistical difference between the groups ($p <$ .05) using the chi-square test.

Results

Sixty-two (38%) of the 160 nurses sent the survey responded. Of those, 57 (35%) had complete surveys. These survey participants included 33 nurse educators, 19 nurse leaders, and five nurse preceptors. The frequencies reported indicated consensus as a rating of reliable or highly reliable. As noted in the Table, the frequencies for reliable and very reliable for each question ranged from 86.0% to 98.2% (Table 2).

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Table 2

Frequencies and Percentages of Educators, Leaders and Preceptors in Consensus (*N=57*)

Consensus Questions	Total Consensus	Percent
Describes current rules of Arizona BON	55	96.5%
Describes goals of preceptorship	55	96.5%
Describes clinical agencies where occurs	55	96.5%
Describes responsibilities of nursing program	50	87.5%
Describes responsibilities of clinical agency	51	89.5%
Describes responsibilities of faculty	54	94.7%
Describes responsibilities of preceptor	56	98.2%
Describes responsibilities of nursing student	50	87.5%
Describes responsibilities of all stakeholders	49	86.0%

Note: Consensus – frequency of rating the item as reliable (3) or very reliable (4).

A Pearson chi-square test was used to assess consensus between the three groups of educators, leaders, and preceptors responding to the Delphi survey. The consensus of the three groups of experts would be demonstrated in agreement by finding no statistical difference between the groups using a chi-square test with a significance level of $p < .05$.

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Table 3

Cross Tabulation of Nurse Groups

Expert Group	Consensus of Reliable and Very Reliable		
	(*n,* %)	χ^2	p
Educators	32 (96%)		
Leaders	18 (95%)	1.62	0.865
Preceptors	5 (100%)		

Note. * = $p \leq .05$. A non-significant finding between the frequencies of ratings would show consensus between the groups of nurse educators, leaders, and preceptors. Mean agreement of Consensus = 97%.

According to the Pearson chi-square, no statistical significance was noted in the proportions for reliable and very reliable ratings between the three groups [$\chi^2(4) = 1.62$, $p = 0.865$]. (Table 3). All three groups agreed on the reliability of the new advisory opinion statement and had a mean agreement of 97%.

Since consensus was gained in all major topic areas involving all the nurse groups on the first stage survey, no further revisions of the advisory opinion or a second survey were necessary. The sequential explanatory approach using the Delphi survey and the between-group analysis showed that an agreement on important regulatory documents like the advisory on preceptorship could be achieved and validated using a numerical approach. Further, a rich, collaborative approach with the experts within this project created a highly reliable survey for practice opinion statement evaluation.

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Conclusions

An evidence-based practice guideline is necessary to guide preceptorships to ensure patient safety and clearly delineate the responsibilities of all stakeholders involved during this process. Since regulatory agencies, such as Boards of Nursing (BON), hold the clear legal and social obligation for patient safety, they are the logical force to provide practice guidance for this issue (Spector et al., 2015). This topic is important to nursing because preceptorships have become an established practice in nursing nationally and worldwide; and current literature is lacking in clearly identifying practice guidelines for this process. This work is useful to all schools of nursing, health care agencies, nurse educators, nurse preceptors, nursing students as well as regulatory agencies as this provides the most comprehensive, current evidence and practice-based guidance for preceptorships involving nursing students.

The sustainability of this project lies in the published advisory opinion by a BON in the southwestern United States and in the collaborative nature of the project. Practicing nurse experts on the state BON Education Committee had input and supported this advisory opinion. Since they highly agreed with the content of the advisory opinion, it is likely that they are more apt to comply with these published guidelines. The published revised and updated advisory opinion serves as a practice model for other BON and agencies seeking to provide better clarification of evidence-based practices in preceptorship with nursing students. This advisory opinion was developed to guide preceptorships of prelicensure nursing students. Further studies might focus on any differences in practice guidelines for different nurse educational levels, preceptorships involving distance education, virtual preceptorships during pandemic or natural disasters, and best practice for preceptor training.

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Patient Return Rates with Postpartum Preeclampsia after Educational Intervention

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Abstract

Postpartum Preeclampsia can present at any time in the postpartum period. The project site noted an increasing number of return postpartum hospital visits for symptoms of preeclampsia. An internal reviewed showed a gap in patient discharge instructions on the signs and symptoms of postpartum preeclampsia. The purpose of this quantitative, quasi-experimental quality improvement project was to determine if the implementation of the California Maternal Quality Care Collaborative's (CMQCC) Preeclampsia Toolkit at discharge would impact the number of return visits to the hospital among postpartum women in an acute care hospital in urban Colorado over four weeks. The uncertainty in illness theory by Mishel and Kurt Lewin's change model provided the project framework. Data on return visits to the hospital were collected using a standardized diagnosis code for a total sample size of 664 postpartum women, n=323 in the pretest or comparative group and n=341 in the posttest or intervention group. The data was analyzed using a chi-squared test X^2 (1, N = 664) = 1.12, p = .290, which indicated there was no statistically significant reduction in return visits. There was a reduction in revisits from the

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comparative (*n* = 3, 0.9%) to the implementation group (*n* =1, 0.3%) which did indicate clinical significance for the fewer return visits overall. Recommendations include sustaining the new practice and reanalyzing the data over a longer period prior to the dissemination of findings to the overall obstetrical community.

Keywords: Postpartum Preeclampsia, California Maternal Quality Care Collaborative toolkit, return postpartum hospital visits

Introduction

Many women around the world are at various stages of pregnancy at any given moment. Unfortunately, pregnancy is not without potential challenges. One challenge is preeclampsia (PE), which is a subset of the hypertensive disorders of pregnancy (HDP). Postpartum preeclampsia (PPPE) occurs during the postpartum period. Preeclampsia includes many symptoms. Most specifically, according to the American College of Obstetricians and Gynecologists (ACOG, 2020), is that of the elevated blood pressures of ≥ 140 mm Hg systolic and ≥ 90 mm Hg diastolic. These elevated blood pressures are combined with "proteinuria, or in the absence of proteinuria, new-onset hypertension with one or more of the following: thrombocytopenia, renal insufficiency, impaired liver function, pulmonary edema, cerebral or visual symptoms" (ACOG, 2020). Previous research has shown that preeclampsia occurs in a state of resolution after delivering the placenta (Roberts & Escudero, 2012). Powles and Gandhi (2017) found that approximately 5.7% of cases of preeclampsia or eclampsia may present in postpartum women up to six weeks after birth.

Currently, postpartum mothers are not adequately educated on PPPE. This is significant as PPPE can lead to long-term cardiac risk (Ying et al., 2018). The lack of maternal education limits patients' knowledge of PPPE and can hinder them from receiving timely care in the

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postpartum period. It is concerning that PPPE often goes unrecognized due to the mother's lack of awareness (Ybarra & Laperouse, 2016). Gathering accurate data about the number of women affected by this condition is hard to project**.** However, providing preeclampsia discharge teaching can improve the overall education provided to new mothers and improve patient outcomes. Implementing a standard postpartum preeclampsia educational tool, such as the California Maternal Quality Care Collaborative's (CMQCC) Preeclampsia Toolkit, could provide women with the improved ability to review pressing signs and symptoms requiring follow-up care (National Library of Medicine, 2019). The aim of the project was to improve patient education related to PPPE and therefore reduce unscheduled hospital visits related to PPPE. This education provided patients with an increased awareness of possible signs and symptoms of PPPE in the postpartum period. This may have allowed PP women to note these symptoms sooner prior to development of a more severe condition. If PP women picked up on these symptoms sooner, this could reduce rehospitalizations as they could be treated in the provider's office with outpatient therapies. The clinical question guiding this project was: To what degree does the implementation of the California Maternal Quality Care Collaborative's (CMQCC) Preeclampsia Toolkit impact the number of return visits to the hospital when compared to standard of care among postpartum women in an acute care hospital in urban Colorado?

Literature Review

The literature search was conducted utilizing EBSCO, ProQuest, and Google Scholar databases. The search terms included postpartum preeclampsia, postpartum hypertension, hypertensive disorders of pregnancy, postpartum ER visits, and postpartum cardiac risk. Results were limited to publications within the last five years; the searches also included full-text studies and empirical literature published in the English language. Preference was given to research from

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the United States. The literature review is divided into several themes and subthemes, with the first main theme evaluating the importance of postpartum education and follow-up. The first theme assesses the importance of the PP nurses in providing discharge education and their ability to educate postpartum patients on the complications that can occur post-discharge. The second theme reviews the various education delivery formats beneficial for PP education. The third theme relates to the importance of PP follow-up and keeping the follow-up appointments in the PP period.

When nurses know and understand the topic of postpartum preeclampsia, they can confidently educate postpartum mothers on the potential risk of this postpartum complication. Postpartum preeclampsia (PPPE) has significant risks both immediately and over the patients' lifetime due to its effects on the cardiovascular system (Benschop et al., 2020). The literature review looks at concepts related to the need for improving patient education received related to postpartum care. This includes areas where the nursing staff has had difficulties educating patients on possible postpartum complications as well as patient education delivery models.

The 2020 Joint Commission standards included points to address improved care related to preeclampsia and hypertension in pregnancy (The Joint Commission, 2019). Part of these guidelines include recommendations for improving nursing staff education related to preeclampsia, including postpartum preeclampsia. This topic had not been previously part of the postpartum education offered at the project site, denoting a need to implement this project to improve patient outcomes and align the project site practice with the Joint Commission recommendations. Early in the literature search, it became evident that postpartum nurses struggled with discussions related to potential complications that could occur during the postpartum period (Suplee et al., 2017a; Suplee et al., 2017b).

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Coordinating PP discharge teaching can be difficult (Suplee et al., 2017a). Discharge is an opportunistic time to educate and stress the importance of the postpartum follow-up appointment as an integral component of the birth experience. When considering PPPE, it is important to note that women are at increased risk from this postpartum complication as they are busy caring for a newborn and are not receiving as frequent of medical care during this time (Bushnell et al., 2014). It is essential for nursing staff to stay current on the various medical challenges mothers are facing after discharge (Suplee et al., 2017a). Nurses can be hesitant to speak about potentially frightening complications or information that may not be viewed as accurate from a cultural or societal vantage point. Providing standardized education can ensure that all women receive the same information based on evidence-based practice (Stuebe et al., 2021).

Methodology and Design

A quantitative methodology was used for this project seeking to analyze numeric data to see if more postpartum women recognize the possible signs and symptoms of PPPE causing them to return to the facility for evaluation. The project employed a quantitative quasi-experimental design to establish cause-effect relationships among variables. This quasi-experimental project used a nonequivalent-groups design (NEGD), which is pre-post two-group quasi-experimental design constructed like a pretest-posttest randomized experiment but lacking random assignment to group (Trochim & Donnelly, 2007). Groups were not randomly assigned but were naturally formed pre-existing groups, which were identified as the pretest group (30 days prior to implementation) and the posttest or intervention group (30 days post implementation). The intervention group received the evidence-based intervention post-implementation of the CMQCC toolkit of discharge instructions. The quasi-experimental design

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aimed to establish a cause-and-effect relationship between an independent variable, the CMQCC toolkit and the dependent variable which is the dependent variable was the number of returns to the hospital within 30 days post-discharge related to PPPE. Data on the dependent variable were collected from a four-week query of patient number of return visits to the hospital postpartum.

Project Sample

The project's population included a convenience sample of all the PP women who were discharged after having a viable or nonviable delivery of a fetus in the four weeks before and four weeks after the project implementation. The project site averaged 300 discharges per month from the postpartum unit. The power analysis identified that a sample size of 275 was required to show statistical significance, equating to an adequate number of PP patients receiving discharge education in the one-month timeframe of this quality improvement project.

Instrumentation and Data Collected

The instrument used for data collection for this project was the electronic medical record (EMR) of the project site. The Finance Department provided the initial data related to those women returning for evaluation of possible PPPE. To identify these postpartum patients, a standardized diagnosis code of "O16.5: Unspecified maternal hypertension, complicating the puerperium (postpartum)" guided their query. Then the EHR was utilized to capture the individual symptoms each mother presented with to determine if her symptoms met the World Health Organization (WHO) definition of PPPE (WHO, 2004). Data collected from the EHR included patient specific data related to if the patient status when presenting to the ER. Did the patient complain of a headache, or did they have a blood pressure recorded over 140/90 during that visit? Disposition from the ER was also evaluated to see if they were discharged home or

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were admitted. Data were collected for four weeks pre- and post-intervention to obtain how many women returned to the facility with possible signs and symptoms of PPPE.

Results

The data on the return visits were collected from the hospital's EHR for a sample of postpartum women (N=664) including women (*n*=332) in the comparative group or pretest group, and women (*n*= 341) in the intervention group. Raw data were organized using a Microsoft Excel file with a unique identifier for each patient. Data on return for evaluation and symptom data from electronic health records were extracted in a report and then manually entered the Excel file. After data entry in Microsoft Excel™ was completed, data were exported to IBM SPSS version 27. To ensure data were prepared for inferential analysis, a preliminary analysis of all variables was conducted to determine if the dataset had missing data or inaccurate entries. This included frequency counts for variables to check for missing data and values outside of the possible range of 0 = no return visit and 1 = returned visit. To answer the clinical question, a chi-square test was conducted. The chi-square tests allowed for comparing the return for evaluation rate for patients before and after the implementation, thereby answering the clinical question. The level of significance was set to .05, indicating a *p*-value of less than .05 would reveal statistical significance. The return for evaluation variable was a nominal-level variable and was analyzed using a non-parametric chi-square test as that is the most appropriate test for comparing two independent groups on a categorical dependent variable (McHugh, 2013). The patient groups were independent as patients in the comparative group (four weeks before implementation) were not in the implementation group. A chi-square test aligned with the project

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design since this test is commonly used to analyze group differences when the dependent variable is measured at a nominal level (McHugh, 2013).

A chi-square test showed a decline in the return visits from the comparative (n = 3, 0.9%) to the implementation group (n =1, 0.3%), X^2 (1, N = 664) = 1.12, p = .290. The p-value is greater than .05, however, which indicates that the decline was not statistically significant. The decline in return to evaluation does indicate small clinical significance as less patients returned to the hospital.

Summary statistics were also conducted on the principal signs and symptoms of postpartum preeclampsia (PPPE) of the four patients that returned for evaluation found that two patients in the comparative group had a headache and the patient in the implementation group also had a headache. Blood pressure was 140/90 or higher for one of the three patients in the comparative group and the implementation group patient that returned for evaluation. Home treatment occurred for two patients in the pretest group and for the patient in the intervention group. Only one patient was admitted, and that patient was in the pretest or pre-intervention group.

Conclusions

Healthcare leaders including healthcare systems leadership, unit and practice-based leadership, hospital education departments, and interested nursing staff should collaborate to continue improving preeclampsia education in the postpartum period. These activities should include educating other perinatal departments, and the Emergency Department nurses and physicians. The postpartum patient needs to receive consistent messages regarding PPPE and complications of pregnancy from all sources.

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Knowledge from evidence-based programs and sources allows patients to be active participants in their healthcare. While some may consider young, healthy postpartum mothers as safe from long-term health complications, preeclampsia in the postpartum period can develop de novo as it does in about 5.7% of cases (Powles & Gandhi, 2017). Continuing the conversation about different risk factors and long-term complications will increase patient awareness of this PP complication. Continuing to disseminate knowledge on PPPE into the community at large will also provide a safety net for all new mothers. Additional conversations should be had with providers and policymakers concerning the frequency of postpartum visits as standards of care in the postpartum period. Discussions related to insurance benefits and ongoing coverage options should be addressed as potential gaps in maternal cardiac heath. Pursuing exchanges about the gaps in care will provide women with a better opportunity to receive the high-quality care.

This quality improvement project supported the use of an evidence-based education intervention in the California Maternal Quality Care Collaborative's Preeclampsia Toolkit for discharge education. While the results of this project did not produce statistical significance, there was clinical significance in that there were fewer return visits overall. However, due to the short four-week timeframe, it was somewhat challenging to establish an actual number of clients who may have been impacted. A future project could follow the post-partum patients through the full six-week postpartum period. This could include collaboration with obstetric clinics to identify return visits to the clinics with complaints of symptoms associated with PPPE.

In the future, this intervention could be extended for a longer time with results collected after several months. Other future projects could also include qualitative aspects such as follow-up conversations with postpartum clients focused on exploring potential symptoms, reviewing understanding of the potential signs and symptoms of PPPE, and other potential PP questions.

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Future projects could use digital technologies and telehealth options, such as phone calls or text messages, to obtain this qualitative data.

Postpartum preeclampsia education may not be commonly found in postpartum discharge teaching. This lack of information provides an opportunity for additional knowledge acquisition by the postpartum nursing staff. Using evidence-based practices and literature, nurses have a unique opportunity to educate patients and families on a potential cardiac complication with lifelong sequelae both in the postpartum period and over a lifetime. This education should be woven into pregnancy phases through ongoing collaboration with healthcare providers and nursing staff to improve women's awareness of postpartum preeclampsia and prevent complications that may arise from this condition.

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Peripheral Intravenous Infiltration and Extravasation Prevention

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Abstract

Infiltration related to peripheral intravenous (PIV) therapy is a common complication in the pediatric population. Despite current practices to prevent pediatric PIV infiltration at the project site, PIV infiltrations persisted. The purpose of this quantitative quasi-experimental quality improvement project was to determine if or to what degree the implementation of the Children's Hospitals' Solution for Patient Safety (CHSPS) *Peripheral Intravenous Infiltration and Extravasation (PIVIE) Prevention Bundle 1.0* would impact moderate to severe infiltrations when compared to current practice among Neonatal Intensive Care Unit (NICU) patients in a pediatric hospital in central California over 4 weeks. Data on moderate to severe infiltration rates were obtained from the electronic health record. The total sample size was $N = 276$; $n = 115$ in the comparative group and $n = 161$ in the implementation group. A chi-square test showed a clinical and statistically significant difference in reducing moderate infiltration incident rates, $X^2 (1, N=276) = 5.73$, $p = .017$. No patients in either group had severe infiltrations during the project timeline but were organizationally required for the project. Therefore, the implementation of the CHSPS's *PIVIE Bundle 1.0* may reduce moderate to severe infiltrations in this population

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and setting. Recommendations are to sustain the bundle and disseminate the findings to other units to decrease infiltration rates.

Keywords: CHSPS PIVIE Prevention Bundle 1.0, PIV, moderate to severe peripheral intravenous infiltration, best practices in pediatric IV, neonatal IV access**.**

Introduction

The most common invasive procedure/therapy in the hospital setting has been peripheral intravenous or PIV therapy (Hakim et al., 2020; Martin, 2018; Nickel, 2019; Olivier et al., 2021; O'Neil et al., 2018; Welyczko, 2020). Despite its established use, complications associated with the clinical practice, such as phlebitis, infiltration, extravasation, and infection, persist (Bartzak, 2019; Fox et al., 2017; Gupta, 2019; Hadaway, 2017; Helm et al., 2019; Hugill, 2017; Jackson-Rose et al., 2017; Kim et al., 2020; Neocleous et al., 2017). These complications cause pain and discomfort, prolonged hospitalizations, and increased costs (Atay et al., 2018). Of PIV therapy complications, infiltration has been among the ones most commonly reported (Amjad et al., 2011). However, the incidence rate of infiltration problems has been recorded only within hospital organizations, as studies have shown varying infiltration incidence percentages from 16% to 78% (Atay et al., 2018; Carr et al., 2018; Simin et al., 2019; Tewfik, 2020). According to Pop (2012), PIV complications can occur in up to 80% of patients, but the actual complication rate may be difficult to determine due to variations in definition and reporting methodology.

In the pediatric hospital setting, initiating and monitoring intravenous therapy can be challenging, as patients have a higher risk for developing PIV-related complications (McCollum et al., 2017; O'Neil et al., 2018). According to Legemaat et al. (2016) and Calikusu-Incekar et al. (2019), the most common complication in the pediatric population, particularly in the Neonatal Intensive Care Unit (NICU), has been infiltration. Infiltration can cause minor self-healing

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complications, but some may result in amputation or loss of muscle, skin, and tendon, which can require reconstructive surgery (Atay et al., 2018; Bicen et al., 2018; Massand et al., 2018). The infiltration problem was true among the NICU patients with PIV therapy in the chosen project site in a pediatric hospital in central California. From July to October 2020, the pediatric hospital in central California reported an average of 46% of moderate infiltrations (108 moderate infiltrations out of 237 total infiltrations) and zero severe infiltrations. Most of the PIVIE incidents occurred in the NICU, with an average of 44% moderate infiltrations. Since moderate infiltrations can lead to severe infiltrations and injury, there was an urgency to the issue. PIVIE was an outstanding clinical problem, which led to implementing the CHSPS PIVIE Prevention Bundle 1.0 to improve clinical practice and patient outcomes by reducing and preventing moderate infiltration and severe infiltrations in the NICU population.

Research Question

This section identified the guiding question of the project. Implementation of the CHSPS PIVIE Prevention Bundle was a clinical practice that could reduce moderate to severe infiltration incidents. The following clinical question guided this project:

> Q: To what degree would the implementation of the *PIVIE Prevention Bundle 1.0* impact moderate to severe infiltrations when compared to current practice among NICU patients in a pediatric hospital in central California?

Literature Review

An extensive literature review was conducted to provide substantive information about infiltration problems associated with intravenous therapy and the chosen intervention, the CHSPS PIVIE Prevention Bundle 1.0. The three themes reviewed in this project were PIVIE, strategies to prevent PIVIE, and tools to assess PIVIE. Literature was collected using the

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following inclusion criteria: published between 2005 to 2021, English format or translated in English, full-text format, qualitative or quantitative methodology studies, and quality improvement studies. The following search engines were used: CINAHL, ProQuest, EBSCO, Ovid, Research Gate, and ProMed.

PIV Infiltration and Extravasation

PIVIE incidents as a clinical problem in the healthcare system have been well investigated, but not resolved. The studies conducted by Carr et al. (2018), Fonzo-Christe et al. (2018), Martin (2018), McCollum et al. (2017), and Simin et al. (2019) revealed the discomforts of PIV procedures; the complications of PIV therapy, such as infiltration; and strategies to prevent infiltration occurrence. Martin (2018) and McCollum et al. (2017) highlighted the impact of PIV insertion among pediatric patients needing medical interventions, such as administration of medications to ease the procedure process and prevent any PIV-related complications. Particularly, in Fonzo-Christe et al. (2018), the researchers identified a population group affected by PIVIE, which were the neonates.

Strategies to Prevent PIVIE

The discussion of PIVIE prevention strategies identified various interventions supporting the elements in the CHSPS PIVIE Prevention Bundle 1.0. The prevention strategies examined in this section were (a) PIV site assessment, (b) involvement of hospital-acquired condition champion/unit-based leaders/vascular access team, (c) patient/family education on PIVIE prevention, and (d) use of PIVIE prevention bundle/program. The articles reviewed in this section mentioned the importance of bundling PIV care interventions in making decisions surrounding patient care to improve outcomes.

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Routine IV assessment is a PIVIE preventive strategy. Jeong et al. (2017), Ray-Barruel (2017), Ray-Barruel et al. (2020), Schmutz et al. (2020), and Tofani et al. (2012) noted that direct IV site assessment could help identify potential IV-related problems, which can prompt clinicians to proceed to the next intervention. Moreover, Jeong et al. (2017) and Tofani et al. (2012) concluded that implementing hourly IV site assessment decreased IV complication incidents, thereby supporting the first element in the CHSPS PIVIE Prevention Bundle 1.0.

The following intervention pertains to the involvement of hospital-acquired condition champion/unit-based leaders/vascular access team members to improve PIVIE. Luton et al. (2018) and Stelter and Graham (2019) studied the roles of champions and unit-based leaders as peers in the patient care setting. The authors indicated that champions and unit-based leaders provide resources and mentorship to other clinicians regarding the clinical practice. Hence, the champions' and unit-based leaders' roles were to educate and train staff on PIV care and management, promote compliance to intervention implementation, and improve patient outcomes.

The following strategy is on patient and family education on PIVIE Prevention. Barbari et al. (2020) reinforced the importance of patient education in relation to care delivery. Park et al. (2016) and Watterson et al. (2018) implemented a program to reduce pediatric intravenous infiltration incidents. Both studies included patient and family education as interventions, resulting in decreased PIV infiltration occurrences.

The last strategy is the use of a preventive PIVIE preventive bundle. Amatya and Sadasivam (2019), CHSPS (2020), Kleidon et al. (2019), Ray-Barruel et al. (2019), Sangam (2019), Tasdelen and Caglar (2020), and Taylor (2015) implemented a collection of PIVIE preventive interventions, forming a bundle or a management program. All studies reported a

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decrease in infiltrations. Hence, PIVIE preventive interventions as a bundle more comprehensively approached infiltration problems, thus producing better patient outcomes. Furthermore, Blanco-Mavillard et al. (2020), Mulemba et al. (2021), and Nickel (2019) highlighted the importance of complying with the strategies set in the bundle, which includes continuous monitoring and recording of data when implementing strategies to reduce PIVIE incidents.

Tools to Assess PIVIE

Infiltration and extravasation as common complications of IV therapy have been evaluated in different ways, yet no tool has consistently measured PIVIE injuries. Chanes et al. (2012) investigated the INS Infiltration tool use. Despite the assessment tool's availability, Chanes et al. (2012) stated that unfamiliarity with and non-use of the score obtained using the INS tool remained. This contributed to the current issue of PIVIE among patients. Another aspect of using an infiltration scale, as Rodrigues et al. (2020) pointed out, was the lack of percentage measurement to gauge the extent of the infiltration injury, which influences the tool's applicability to different patient populations with varying degrees of body sizes/measurements. Amjad et al. (2011) and Pop (2012) examined the pediatric population's need for an infiltration assessment tool to evaluate the severity of the injury rather than grading the injury. Both studies mentioned the size difference between an adult and a pediatric patient and that an assessment tool with a criterion of measuring the injury by inches may not reflect the extent of the patient's actual injury. The studies suggested the use of measurement by percentage to assess infiltration injury.

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Methodology

This quality improvement project chose a quantitative methodology with a quasi-experimental design. The independent and the dependent variables could be numerically represented. Using the quantitative methodology supported the project's intention of testing an intervention to address a given problem (Henson et al., 2020; Kleinpell, 2013). Hence, it is appropriate to use the quantitative methodology to test the implementation of the CHSPS PIVIE Prevention Bundle 1.0 as an intervention to reduce infiltrations in the NICU.

Sample Studied

The population selected for this quality improvement project was the NICU patients with PIV therapy admitted to the pediatric hospital in central California. Patients in the NICU came as direct admits to the hospital or were transferred in from other satellite NICUs during the 4-week project implementation. A convenience sample was conducted to include NICU patients with at least one peripherally inserted intravenous catheter for IV therapy. The NICU has an 88-bed capacity, but there were approximately 50 staffed beds during the project time-frame due to a fluctuating patient census.

Design of Study

A quasi-experimental design was chosen for this quality improvement project. The quasi-experimental design allowed the primary investigator to identify the intervention and the target population in a non-random manner (Consuegra & Engels, 2016). The chosen intervention was the CHSPS PIVIE Prevention Bundle 1.0. In coordination with the Quality Department, the primary investigator introduced the CHSPS PIVIE Prevention Bundle 1.0 to the clinical practice by implementing the PIVIE Prevention project. The quasi-experimental design allowed the

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primary investigator to select the intervention to address the identified PIVIE problem in the pediatric hospital in central California.

Dependent/Independent Variables

The independent variable was the use of the CHSPS PIVIE Prevention Bundle 1.0. Data to support its use included the standard and recommended elements: hourly Touch/Look/Compare or Assess/Compare/Touch assessment documentation, notification of hospital-acquired condition champion/unit-based leaders/vascular access team members and the medical provider, and use of the standardized percentage measurement-based assessment tool. The recommended bundle element was the documentation of patient/family teaching on Touch/Look/Compare or Assess/Compare/Touch. The dependent variable was the number of moderate to severe infiltrations among NICU patients with PIV therapy.

Instruments Used

The project used two data sources. The first was the standardized percentage measurement-based assessment tool to assess infiltration severity among the NICU patients with PIV therapy. The second was the electronic medical record or EMR to gather PIVIE-related data. The following section examines each of the tools.

Standardized Percentage Measurement-based Assessment Tool

A CHSPS PIVIE Prevention Bundle 1.0 standard element (standardized percentage measurement-based assessment tool) determined the level of infiltration (moderate or severe) in this project. The percentage measurement-based assessment tool's use came about to fulfill the need to assess infiltrations among neonatal and pediatric patients accurately. Amjad et al. (2011) and Pop (2012) suggested using a percent to measure the severity of infiltration among neonate and pediatric patients. The tool requires measuring the size of the infiltration in centimeters (x)

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and the length of the limb where the infiltration is identified in centimeters (*y*). Then, *x* will be divided by *y* and multiplied by 100 to determine the infiltration percentage. The percentage measurement-based assessment tool is an existing section in the PIV assessment in the patient's EMR.

Electronic Medical Record

The data were obtained from the EMR and from an Excel Report on PIVIE created by the Quality Department. The data included the patients with PIVs and patients with occurrences of PIVIE. Also, the PIVIE Bundle elements data are hourly site assessments using the Touch/Look/Compare or Assess/Compare/Touch methods, the involvement of the hospital-acquired condition champion/unit-based leaders/vascular access team members and medical provider, use of the standardized percentage measurement-based assessment tool, and patient/education on PIVIE prevention using the Touch/Look/Compare or Assess/Compare/Touch methods. Data on patients with PIVs, PIVIEs, types of severity, and CHSPS PIVIE Prevention Bundle 1.0-related data were retrieved from the PIVIE assigned auditor and the Quality Coordinator.

Datasets Collected

The following data were collected from the Quality Department: (a) NICU patients with PIV therapy, (b) number of total infiltrations, (c) number of moderate to severe infiltrations, and (d) the CHSPS PIVIE Prevention Bundle 1.0 elements data. This project intended to acquire a sample size of at least 32 participants, but the number of participants depended on the number of NICU patients with PIV therapy at the project implementation time. The EMR-linked Excel Report included NICU patients with PIV therapy and provides the following information: age, sex, race/ethnic background, PIV status, PIVIE bundle elements, and the infiltration severity

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based on the use of the standardized percentage measurement-based assessment tool. Any identifiable patient data was removed to protect safety and privacy. Age, sex, and race/ethnic background were used for descriptive purposes only.

Results

The project included a total of 276 NICU patients with PIV: $n = 115$ in the comparative group (4 weeks pre-implementation) and $n = 161$ in the implementation group (4 weeks post-implementation). The majority of the participants in both groups were female and white. The most common ethnicity in the comparative group was non-Hispanics, while in the implementation group, it was Hispanic. The mean age average was 36.88 days (SD = 46.22) for the comparative group, ranging from 1.54 to 240 days. The mean age for the implementation group was 40.67 days (SD = 50.08), ranging from .75 to 270 days (see Table 1).

Table 1

Descriptive Data for NICU Patients with PIV

Variable	Comparative ($n = 115$)		Implementation ($n = 161$)	
	n	%	*n*	%
Gender				
Male	26	22.6	69	42.9
Female	89	77.4	92	57.1
Race				
American Indian or Alaskan	0	0.0	1	0.6
Asian	9	7.8	2	1.2
Black or African American	5	4.3	6	3.7
White or Caucasian	98	85.2	139	86.3
Other	3	2.6	6	3.7
Unknown	0	0.0	7	4.3
Ethnicity				
Non-Hispanic	63	54.8	41	25.5
Hispanic	49	42.6	108	67.1
Unknown	3	2.6	12	7.4
	M	*SD*	*M*	*SD*
Age (days)	36.88	46.22	40.67	50.08

Note. *M* = mean, *SD* = standard deviation

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The non-parametric chi-square tests compared the comparative and implementation NICU patient groups after implementing the CHSPS PIVIE Prevention Bundle 1.0 to address the infiltration problems. Results are displayed in Table 2. There were 115 comparative NICU patients with PIV therapy, and 6 (5.2%) of these patients had infiltrations. There were 161 implementation NICU patients who had PIV therapy, and 1 (0.6%) developed an infiltration. All infiltrations in both patient groups were moderate. The results showed that there was statistically significant difference between the comparative (n = 6, 5.2%) and implementation (n = 1, 0.6%) patients on moderate infiltration incident rates, X^2 (1, N = 276) = 5.73, p = .017. There were no severe infiltrations in either patient group (see Table 2).

Table 2

Chi-Square Test Results Comparing Comparative and Implementation Patients on the Occurrence of Moderate Infiltrations

	Comparative (n = 115)		Implementation (n = 161)			
Patient outcome	n	%	N	%	X^2	p-value
Moderate infiltrations	6	5.2	1	0.6	5.73	.017

Figure 1 illustrates moderate infiltrations for the comparative and implementation groups. Moderate infiltration rates for the comparative and implementation patient group decreased by 4.6%, which improved the patient outcome. The result showed there was no change in the severe infiltrations as both groups did not have any severe infiltrations. Thus, the current practice and the use of the CHSPS PIVIE Prevention Bundle 1.0 were effective in preventing severe infiltrations.

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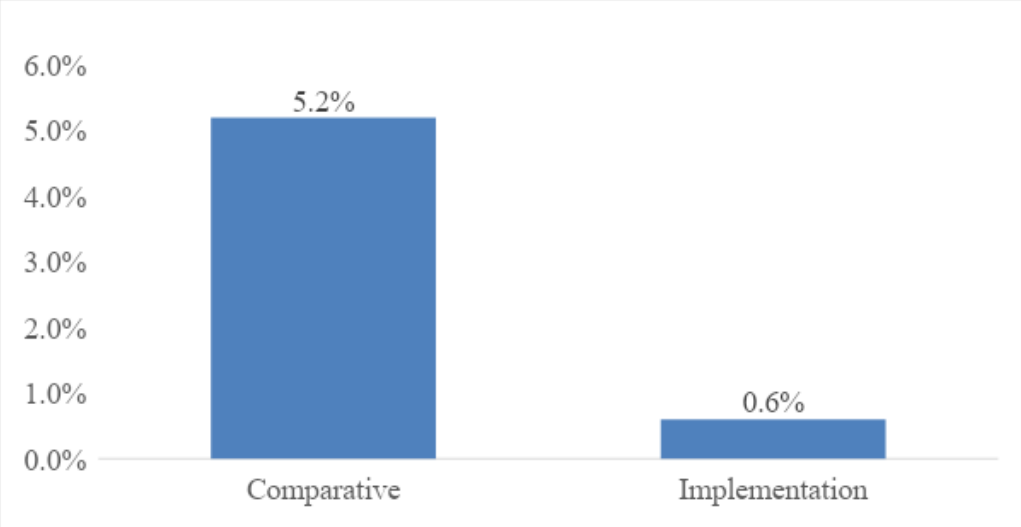
Figure 1

Moderate Infiltration Rates for Comparative and Implementation Patients



Conclusions

The findings supported that CHSPS PIVIE Prevention Bundle 1.0 impacted moderate infiltrations among NICU patients with PIV therapy when compared to the current practice. A non-parametric chi-square test showed a statistically significant difference between the comparative (n = 6, 5.2%) and implementation (n = 1, 0.6%) patients on moderate infiltration incident rates, X^2 (1, N = 276) = 5.73, p = .017. No patients in either group had severe infiltrations. The result showed that the CHSPS PIVIE Prevention Bundle 1.0 implementation reduced moderate infiltrations. Since there were no severe infiltrations recorded in the comparative and implementation groups, there was no statistical difference noted in the occurrence of severe infiltrations. The project results supported the implementation of the CHSPS PIVIE Prevention Bundle 1.0 in decreasing moderate infiltrations among NICU patients with PIV therapy. Clinical significance was supported as the moderate infiltration rates declined post-intervention.

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The project could not find data to support the effectiveness of the CHSPS PIVIE Prevention Bundle 1.0 on severe infiltrations due to a lack of data. Although the project had enough participants to correlate the chosen intervention with the infiltration incidents, there were no severe infiltrations recorded from the comparative and implementation groups. However, the project may have prevented severe infiltrations since the implementation of the CHSPS PIVIE Prevention Bundle 1.0 could capture moderate infiltrations before it worsened to a severe infiltration. The project suggests an extended project implementation period to capture more infiltrations to relate the CHSPS PIVIE Prevention Bundle 1.0's impact on serious infiltration prevention or detection of severe infiltration incidents.

The CHSPS PIVIE Prevention Bundle 1.0 project effectively decreased moderate infiltrations and continued to prevent severe infiltrations among NICU patients with PIV therapy. The project introduced an evidence-based practice that replaced the current practice to prevent infiltrations. The data collection process had its challenges, but it had no hindering effect on the project. Lastly, the project advanced the clinical practice by adopting the CHSPS PIVIE Prevention Bundle 1.0 and improving patient outcomes by decreasing infiltration incidents.

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Support Systems for Doctoral Students when Writing their Dissertation Manuscript

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Abstract

Many students drop out of the manuscript phase of a dissertation, 50 % or more. This article discusses a framework to reduce the number of All But Dissertation (ABD) students in higher education. Twelve experts examined and agreed by consensus on the support requirements necessary to support a doctoral student writing a dissertation manuscript in this modified Delphi study. Literature provides many studies focused on the overall topic but none were found that created an actual framework that could be used by dissertation students as a support network while writing their document. The study results found aspects of student success that institutions of higher education can and probably should provide doctoral students to aid in their dissertation success.

Keywords: cohort, chair, committee, doctoral student motivation, LIS

Introduction

Researchers and authors have addressed the issue of All but Dissertation (ABD) students from many different angles (Holmes, Robinson, & Seay,2010). ABD individuals equal nearly 50% of entering doctoral students (Bagaka's et al., 2015). Topics on student motivation, university

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resource support tools, use of cohorts, development of support networks of family and peers, and the value of doctoral committees are examples of literature suggesting dissertation students will succeed more often with these elements included in their support system. Using information found in the literature as a methodological framework to assist the dissertation student and universities with a support strategy in the form of a model is a better way to help students complete the final phase of their dissertation journey.

Completing doctoral dissertations is challenging for distance learning when students are separated from their university (Lim et al.,2019). For example, they stated the retention of doctoral students is dependent on their ability to be independent. Students and institutions will use the model from this study as a means of creating means of trust and effective communication for the doctoral learner. Library services, effective online technology, and services to assist students with writing services and processes, templates, procedures all assist with consistency and providing direction to the student. Strategies to encourage the dissertation student to seek a formal support network increase the likelihood of completing the dissertation manuscript (Holmes, Robinson, & Seay, 2010).

This problem addressed in the study was the development of a dissertation student support capability that mitigates the potential of becoming an ABD and ensures the requirements to finish a written dissertation is available. The purpose of the study was to develop a framework for the successful completion of the writing dissertation manuscripts by dissertation students and academic institutions. The assumption is with the right model and the dissertation student and learning institutions working together to implement support the ABD status for dissertation students during the dissertation manuscript writing stage of the doctoral journey will be

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reduced. This study supplies a successful strategy for student dissertation manuscript writing support that is a gap in literature according to the author's research.

The modified Delphi technique with the assistance of 12 expert participants currently writing their manuscript provided a reliable framework that can be implemented by the student with the assistance of their institutions. Student motivational requirements are addressed based on literature and serve as the most basic element of any effort for a student to endure and complete their doctoral dissertation manuscript.

Literature Review

Students in their doctoral journey require basic personal motivational reasons to complete the entire dissertation program and write the dissertation manuscript. The most common issues necessary for supporting dissertation students writing their dissertation were the development of four support capabilities: cohort, family and peers, tools, and committee, as found in literature that provides insight into why there are such a significant number of ABDs.

McCarthy (2016) used the experiential learning theory and model created from the work of Kolb (1984) and used it in learning educational practice still today. Kolb pioneered the concept of learning by experience as a holistic approach to education. We absorb and understand information, but we do not learn until we have experienced the information and applied it to our understanding and practice. Learning is when an individual is actively involved in knowledge acquisition by doing. The method of this study applies this concept by using participants who have participated in a doctoral program that included all the support requirements examined, ranked, and decided upon.

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Student Motivation - Intrinsic and Extrinsic

As a dissertation chair it is a good idea to ask new dissertation students to tell me what the intrinsic and extrinsic drives are to complete the manuscript and overcome the difficulties, pressures, and outside negatives? Intrinsic and extrinsic motivation to complete a set of tasks need to be strong enough to carry an individual to completion no matter what (Holmes et al., 2019, p. 11).

Cohort

Findings found within a study by Pemberton (2010) focused on women working on their doctoral degree in educational leadership included the use of institutional cohorts is a value when pursuing academic efforts. These are like my experience when creating a doctoral cohort of a maximum to date of 4 students. The collective establishment of an opportunity for collaboration between doctoral dissertation students at the same point in the dissertation manuscript writing is a positive and will encourage students to stay with the tasks and not choose to quit their journey.

Holmes et al. (2010) summarized their study regarding cohorts included the use of a cohort that did improve ABD statistics, and the use of cohorts supplies a strategy that supports doctoral learners' success. Marshall and Klocko (2017) found the use of formal cohorts was a key component to completing their dissertation.

Family and Peers

Family and peer as a success strategy for mitigating the ABD results with doctoral strategy are very logical. Individuals that are dedicated to supporting, encouraging, and not distracting student during the doctoral journey is critical. Breitenbach et al. (2019) examined and discussed the relationship between doctoral learner and their family during their doctorate experience. Participants in their study indicated their family as motivational support which was

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very important from time to time. Participants also stated there were times when their family negativity impacted their success which was demoralizing and frustrating. Those participating in this study that if the family and peers were more integrated into the activities of their progress it was very helpful. For instance, understanding on the part of family or peers that the dissertation effort demands a time commitment meant they were more receptive to the student's inability to always be at gatherings and events. A study by Tiamuh (2018) found that participating students believed family and peers were critical in their retention and successful completion of the dissertation journey.

Tools

Tools as a category include items like libraries, writing templates, and examples of well written dissertation. These supportive tools and resources have no limit and grow over the years of a doctoral program from faculty addition of samples and examples. Lounges created by the schools within a university for support of doctoral students house many artifacts to support students.

In a study by Marshall and Klocko (2017), dissertation students stated there was value in information and resources supplied by the institution. Student requirements did vary by student, but academic support for dissertation efforts was positive. Other support came from the university sponsoring writing forums and resources. Sugimoto (2012) provided feedback on doctoral learners' tools support needs as they progress toward the completion of their dissertation manuscript. Their findings were clear indicating doctoral students need support from the textbook used during the classroom phase of the dissertation journey. Bagaka's et al. (2015), claimed the individual student has the ultimate responsibility to ensure they are successful in the completion of their dissertation manuscript.

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Dissertation Committee

The faculty provided by the university is critical according to Marshall and Klocko (2017). Faculty need to be qualified and continually trained on the resources available to them and the student and means of becoming more viable. The dissertation chair was viewed in their study as being instrumental to the student and that relationship evolves over time. One key consideration for Chairs/mentors is students are all different in some manner and for that reason the Chair will need to vary how they work with a student. The Chair's ability to motivate, empathize and ensure the student is progressing positively, are key attributes.

Sugimoto (2012) concluded the role of the committee chair is to serve as the primary interface to a doctoral student and the dissertation committee members served in a secondary role but are critical to the success of a doctoral student as well. Committee members serve a purposive role and are not needed for administrative functions according to the doctoral student participants. Typically, the committee members are chosen for their methodological expertise and/or their expertise with the subject matter related to the problem statement and research questions being studied. This raises a set of questions the institution needs to address regarding the choice of the committee chair and the committee members. Who should make this decision and at what time in the process?

Methodology

Methodological literature on the modified Delphi technique is readily available because it is often used to agree on the goals and objectives of a study using consensus. Covvey and Ryan (2018) developed a model, like being used for this study. The study included three rounds of questions per the typical methodology used for a modified Delphi with an initial proposal of the content requirements of a course of study in global health education. Experts were recruited from

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a mailing list of educational faculties in the pharmaceutical education industry. The goal of the study was to provide a consensus for the course objectives to be used in pharmacy faculty instruction. The study ended with agreement on consensus for the global health education course. The researchers summarized the use of the modified Delphi process provided the capability to identify the course objectives in global health education.

Eubank et al. (2016), authored a study to determine through consensus the best diagnosis and treatment practice for patients with rotator cuff issues. Statements from each participant were provided in the initial round and grouped, in the second round the groupings were presented to the group for agreement and further discussion, and finally in the third-round consensus was agreed upon. The consensus was then presented to the medical community as standardized care and treatment for patients with rotator cuff rehabilitation. The systematic literature review in advance of the study was summarized to get the consensus effort started. The use of a modified Delphi technique was viewed as valid and provided the consensus needed to begin with rotator cuff treatment.

Rajhans et al. (2020) studied the existing curriculum during the earlier stages of the COVID-19 pandemic. The effort was to develop a competency matrix to transform optometry during COVID-19 restrictions, online. The study was an attempt to share lessons learned between the experts and come to a consensus on how to deal with the issues presenting a set of changes due to the pandemic. The authors found the methodology was cost-effective and assisted greatly in plotting futuristic educational goals and objectives.

The development of a model for use by dissertation students and academic institutions was best achieved by using a qualitative modified Delphi methodology. Twelve expert participants took part in this study. To be considered an expert participant for this study students

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needed to be currently participating in an online university's dissertation manuscript phase and currently 40% to 90% complete with their dissertation requirements. Additionally, all expert participants needed to be a member of a cohort of students.

In the modified Delphi methodology three rounds of questions were asked the participants. The participants were asked to agree or disagree with the categories based on the literature source: cohort, family/peers, tools, and committee. They were also asked to add a new category if they chose and to rank the additional suggestion and the other four in importance as they have progressed through the dissertation writing process. In between each round the data collected was summarized and submitted to the participants for review and comment in the second and third rounds.

The first-round question covered the belief by the participants the common requirements were accurate, a solicitation for added features of the model, and a ranking of the importance of each requirement. Additional comments of any kind were also requested of the participants. The second-round question provided the data collected from the first round and the participants were asked to respond with concerns, review their ranking if they changed their mind, and finally allowed the participants to add anything else in the commentary for inclusion in the study's results. The third round was presented to the participants as a final draft of the data provided. Participants were asked to make any final comments and verify they had reviewed the results and agreed consensus was achieved.

Results

First Round

The first round began by asking each participant to evaluate four categories derived from the literature search for necessary support system requirements for dissertation manuscript

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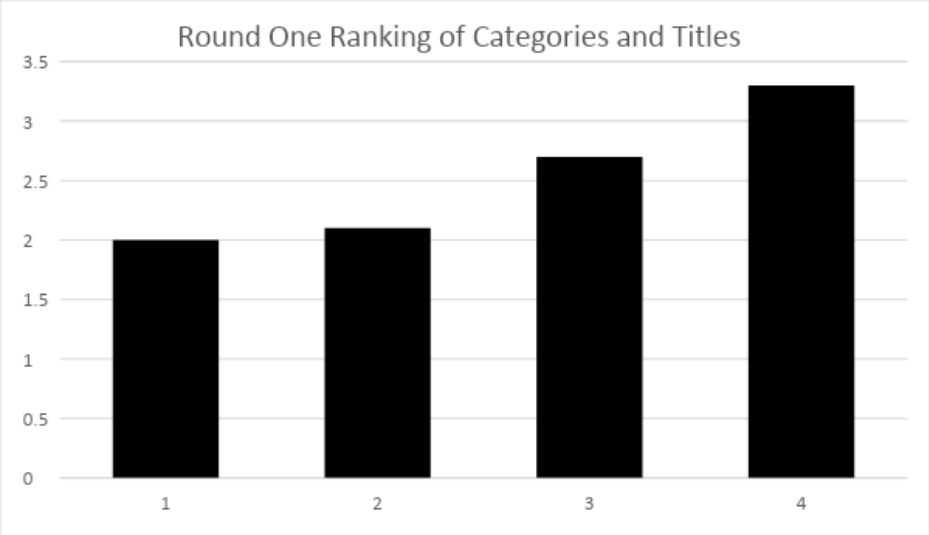
students. These initial categories were dissertation committee, cohort, peers and family, and resources available for student support. The participants were asked to agree or disagree with the categories, rank each category in importance from 1-4 with 1 being the most important, and to add suggest another category based on their experience if they choose to.

First Round Results

After the participants in the study replied the information was compiled. The ranking of the four categories was committee – 1, resources (templates, library sources) – 2, social (includes family, peers, work associates) – 3, and cohort – 4. Participants did suggest other categories, but they fit within the four categories with a category title change, peers changed to family/peers and tools changed to resources. The other two categories remained the same (see Figure 1).

Figure 1

Round One Ranking of Categories and Titles



Comments were provided by the participants in the final round as seen below; they were:

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Once a month zoom meetings with the head chair and cohort to discuss any problematic issues or concerns within the students' dissertation. This way students can learn from other students and receive advice from their chair leader.
Internal drive to complete work
Writers/Dissertation Retreat (2-3 days of intense support from faculty mentors, committee chairs) (5)
The Aspen curriculum inadvertently coxed me into thinking about a dissertation topic for a long time. This gave me confidence in the selection of my dissertation path when I was suddenly thrust into the dissertation phase.
In the absence of a cohort, I would have ranked peers higher on the list. To me, if one has the cohort to rely on, that covers the peer aspect of the process. If we didn't have cohorts, I probably would have used the doctoral lounge discussion boards much more.

Second Round

The second round started with asking the participants to review the results from Round 1 comments. The information in parenthesis were notations respondents included to define the different categories.

1. Committee
2. Resources (templates, library sources)
3. Social (includes family, peers, work associates)
4. Cohort

Second Round Results

Round two resulted in consensus agreement on the ranking of each category and an agreement by the participants to the category name changes. In addition, the participants did not add any new categories, but suggested changes to category titles (see Figure 2).

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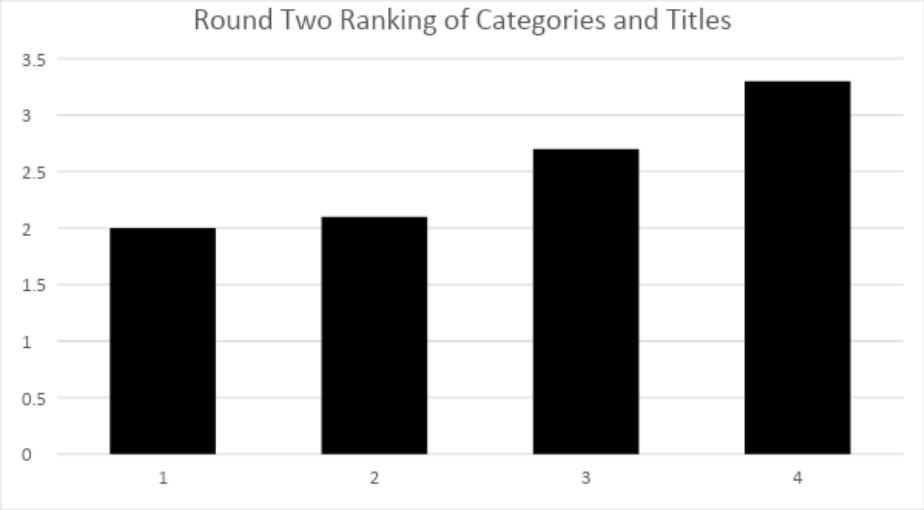
Figure 2

Round Two Ranking of Categories and Titles



Comments were provided by the participants in the final round as seen below; they were:

I agree with the idea of a once-a-month zoom with the cohort and chair to go over concerns, problem-solving, and upcoming areas of focus.
I like the once-a-month Zoom meeting, but it might be better with only your committee and not the entire cohort every time.
I think an overhaul of the doctoral lounge would be helpful, much information is older than 5 years old.
The committee is important to help hold things together when things are becoming overwhelming.
I think meeting with the chair, perhaps once or twice per class is very helpful.
My only comment is that although cohort may be last on the list, it is still a necessary component of completion success.
The committee was very helpful in the dissertation writing process. The tools were essential to help me with the writing process to give me a format to fill in.
I believe the categories are like spokes on a wheel. Depending on where the student is on the journey, a different spoke may be pointed toward the ground. The spokes need to all be connected for the wheel to go around.

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4C'S - Do you like the alliteration for use with the framework? Committee, Cohort, Capital (resources/assets), and Community (social).

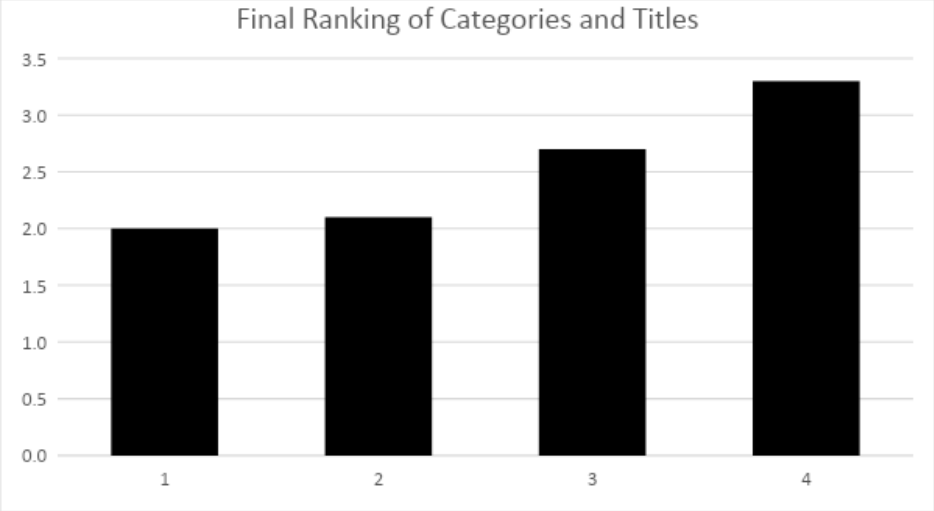
Third (Final) Round

Final Round Results

In the final round, the participants confirmed the results from the previous rounds were in fact what they had reviewed, and that consensus was achieved. This didn't mean everyone completely agreed but consensus, by definition, was reached (see figure 3).

Figure 3

Round Three Final Ranking of Categories and Titles



Comments were provided by the participants in the final round as seen below; they were:

I would rank the categories differently based on my experience with the dissertation. I would rank them as 1-Committee, 2-Cohort, 3-Social, 4-Resources, with 3 and 4 being interchangeable depending on where I was in the dissertation process. For instance, if I were just starting and having difficulty motivating myself to write, I might rank Social before Resources. Conversely, if I were in the thick of researching and came up against a technical issue with my document, I would rank Resources above Social.

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The last 42 weeks with my dissertation cohort have made me realize everyone has similar concerns. We all know the importance of having a great committee, but also feel that the resources are vital to our success. Of course, the community and cohort are important, but it is the first two that can improve the success of the doctoral student.
I agree with the consensus of the ranking, but I feel numbers 1 and 2 are both very close.
My chair has been extremely helpful in ensuring that I have been able to write my dissertation. My committee's review of my work has been extremely useful. I appreciate the formatting provided by Aspen and that helped me with any formatting issues that I have had. I have been fortunate to have colleagues that helped keep me motivated in the writing process.
I believe that a cohort could be more effective than a community if it is an organized and scheduled cohort.

Recommendations

Follow-up activities to this study should be completed to have any effect in the field of education. Further duplicative studies with different participants are encouraged to triangulate the data from this study with other studies based on different participants and settings. They include:

1. Publication of the study in a journal where dissertation students and university administration can read the study and consider what they need to do for participating in the effort to reduce the number of ABD students
2. Development of a plan to educate students and university officials on the benefits of supporting dissertation students. When we examine each category; cohort, community, capital, and committee there is some opportunity for the institution to provide support.
3. There is a cost to earning a doctorate, both financial and sacrificial. I prefer to switch the idea of a doctorate costing to the concept of it being an investment. However, we do need to acknowledge there are financial responsibilities for all

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students and at times that one issue creates ABDs. What can be done to keep the brightest minds from this burden is a discussion that needs to take place?

Conclusions

This study utilized the basics of experiential learning theory based on Kolb's (1984) since all participants had experienced the support system which was studied in the research. Kolb's research and subsequent studies by many researchers agree students learn best when they incorporate what is experienced in their life and memory into new information. The student participants in this study had the advantage of the support studied available to them. Each of the four original categories of this study was based on actual support the dissertation student has as aides in their online university.

As a researcher using these experienced participants adds validity and reliability to the study. Research supports what they understood through active learning allowed the students to use the experience to provide with confidence input that is not theoretical but rather experiential. The student's experiential learning in this study supplied positive outcomes.

The question we ask ourselves now is who is responsible for identifying and securing the support needed to complete their doctoral dissertation manuscript writing. For the most part responsible for the successful completion of a dissertation has been and still is the responsibility of the student. This study doesn't change that overall role because if no one else supplies what is needed the individual needs to find a way or make away.

Nearly 50% of students beginning a doctoral dissertation drop out, literature provided the basis for things the student and/or university can do to level the playing field and change the percent to a more favorable statistic. The literature identified four primary categories, in the study the names changed, the importance was found to be different throughout manuscript

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writing but all four categories were confirmed by consensus to be important in the students' journey.

The student participants were all found from within one university offering all needed support to students so their ability to rank and confirm importance was at the expert level. The student participants had completed all the classes necessary for their doctoral program and were currently working on the manuscript required for their dissertation to be complete. All participants of the study did go on to complete their doctorate in the field of education, which supplies some support for the creation of and implementation of a committee, a cohort, a community, and collateral.

As higher education academicians we should be concerned with the ABD status. Many factors other than those discussed in this study are also contributors like financial obligations, severe health issues, and just plain lack of commitment and motivation. If this is a journey it needs a means of transporting us, a wheel perhaps, we can think of the categories as spokes in a wheel. All the spokes must be there and available for the wheel to keep going around and around.

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Released Offenders Perception of Hiring Managers Cultural Competence

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Abstract

In response to the growing demand for justice reform across the United States and the continued call for alternatives to detention, creating a culturally competent workforce and including offender culture as part of diversity, equity and inclusion practices, and policies can emerge as a viable method to help reduce recidivism. There is not a lot of information and data concerning the relationship between understanding offender culture and having a culturally competent organization and the reduction in recidivism. Even less is known about how released offenders perceive employers and organizations who hire them. Fifteen released offenders who had been actively seeking employment or become employed post-incarceration responded to a survey. The most common ideas and themes that emerged across all responses were discrimination, culturally incompetent, dehumanizing, judging, and support system. These shared ideas and themes demonstrated evidence of dissatisfaction with the lack of policy and practice that supports re-entry and aids in reducing recidivism across organizations that hire released offenders as well as the absence of cultural competence of released offenders on the part of hiring managers and employers. While many of the issues surrounding offender re-entry that exist within the criminal

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justice system are not repairable or may not be able to be addressed, it is highly recommended that future research measure both released offenders' and employer organizations' perceptions.

Keywords: cultural competence, released offenders, recidivism, discrimination, perceptions, dehumanizing

Introduction

Within the criminal justice and rehabilitation systems, offenders are streamlined through a process that is predesigned, based on variables, findings, and arguments that mirror policy and budgets (Carson, 2010). The criminal justice departments and those organizations responsible for overseeing mental, behavioral health, and human services geared to supplying services to these individuals, operate under what seems to be a one size fits all guidelines and processes, particularly in the areas of criminal justice and mental health (Turton et al., 2011). While this approach may benefit the interest of program funding and serve as an attempt to meet constitutional and legal policies, it does not lend well to the overall outcomes for those offenders involved, nor is it a legitimate approach to offender rehabilitation.

In a previous evaluation of rehabilitation programs, Burkhardt (2009) found that it is critical that the programs and focus consist of a robust system and holistic approach that not just offers short term assistance or temporary guidance but is inclusive of continuous improvements plans, that target not only the offender behavior but the root cause of their behaviors, including childhood traumas, abuse, and any issues that relate to their dysfunction as an adult. These should include education and employment interventions as well as emotional and mental development interventions, that will allow these individuals to be successful and contributing members of society.

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While the issue of ex-offender employment from the perspective of the employer had not received additional attention since 2009, the topic has been well researched (Griffith & Jones-Young, 2017; Litchenberger, 2006; Miller, 2019; Obatusin & Ritter-Williams, 2019). These studies considered the employer perception of the ex-offender, the offense, and the length of incarceration as well as any skills (vocational or trade) that the ex-offender may possess, prior to determining whether they can be employed within the employer organization. The issue of the employment needs, including the barriers and legal consequences of becoming gainfully employed and the released offender perception of obtaining gainful employment, has also been previously addressed (Marieke & Dean, 2018; Wesely & Dewey, 2018; Power & Nolan, 2017). Notwithstanding these studies, there is even a greater need to understand the barriers that released offenders experience in seeking gainful employment, from childhood trauma, lack of skillset, and vocational training of the perception of employers learning that the applicant is a convicted felon and possibly on probation or parole. There needs to be an understanding of what these perceptions are from the ex-offender perspective and the impact on the efforts, self-esteem, and recidivation possibility so that department of corrections, department of probation and parole as well as reentry organizations and community agencies can create and implement policies and or programs that address a culture of acceptance among organizations that may employ and employ ex-offenders.

Literature Review

The United States Department of Justice (DOJ) along with local state criminal justice offices has responded to the increasing rate of re-incarceration across the United States among young to middle-aged adults by creating and implementing re-entry and second-chance programs (DOJ, 2019). Several states have initiated in prison reentry programs that are geared

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towards educating, job training, and employment readiness so that upon release into their communities, released offenders are able to successfully reintegrate, find jobs and become self-sustaining (DOJ, 2018). In-prison and release programs primarily focus is on community safety, reducing recidivism, decreasing crime rates, and assuring the safety of law enforcement officers.

Several reports pointing out the success of reentry programs (Ames, 2019; Hancock & Oxholm, 2020; Prescott et al., 2020), have been published, however, there is not a lot of information and data concerning the direct impact of the programs across organizations that employ these released offenders. In addition, there is also a lack of information that addresses the initiatives and efforts on the part of the communities and organizations, that focuses on their policies and procedures that consider the released offenders' readiness or ability to successfully return to society. While the community and public safety focuses are noble and deserving, the need for ensuring that the released offenders themselves, feel safe, are given a fair opportunity to not reengage in criminal activities, and are met with genuine opportunity is also important. According to Darakai et al. (2017), individuals who are returning to their communities after serving time within the penal system are often met with disdain, shun, disrespect, and fear from the community. So even while these individuals may have gone through a rehabilitation process and have acquired skills necessary to seek and obtain gainful employment, the fear of the community that they will recommit a crime often results in the individual recidivating.

Consequently, funds and other resources that have been invested largely into prison and out-of-prison programs to ensure that released offenders successfully reintegrate, are then wasted (Abrams, 2006). As such, it is important that the Department of Justice as well as state and local criminal enforcement agencies, work directly with community organizations and the

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community to create a culture of competence and understanding and prepare the community as well to competently receive released offenders.

The focus of the current study is on the perception of the offender regarding the organization's cultural competence and the response of the reentry efforts by the Department of Justice in determining what procedures, policies, and processes are put in place on an organizational level to welcome, accept and embrace released offenders into the workforce. This current research also will include qualitative information about the offenders' level of trust in the hiring organizations based on the offender's perception of cultural competence that further seeks to explore these organizations' efforts in creating a culture that supports offender rehabilitation in helping them to obtain and retain gainful employment.

Methodology

The sample population for this study included 15 participants who were recruited from social media advertisements and flyers posted to social media (LinkedIn). For the purpose of this study, individuals who were selected had self-identified as being a released offender or being on probation or parole and who had experienced difficulties or some form of barrier in seeking and obtaining gainful employment according to the terms and conditions of their release from incarceration. Participants in this study were selected using a random purposive sampling method. This method was best in presenting the outcomes of the study without preconceived notions or bias (Sharma, 2017). Moreover, this method of collection was best determined to reduce any generalizations that could have been derived from the study. Random purposive sampling selects the sample based on the needs of the research Guarte & Barrios, 2006).

A phenomenological approach according to Creswell (2013) reduces an individuals' experience of a phenomenon into a description. As such, this approach allowed the researcher to

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be able to describe and define the perceptions of offenders regarding hiring managers' cultural competence, according to the offenders' experiences when seeking gainful employment. The chosen method allowed for the use of tools that were most beneficial in examining the experiences and attitudes of the released offenders and capturing the meanings of those experiences. Moreover, this research consisted of various factors that make the use of a phenomenological inquiry a more beneficial approach. The focus of this study was on released offenders or offenders and the similar experiences they shared. In addition, the research addressed how they perceived the hiring manager's cultural competence during employment application, interviews and even orientation as well as employment encounters as offenders without generating philosophical assumptions as suggested by Creswell (2003).

A thematic analysis method was used to draw on a theoretical framework to analyze the qualitative data. Thematic analysis is described as an approach in research that acknowledges reality as well as deciphers the exterior of reality (Braun & Clark, 2006). This method created an opportunity to conduct a comprehensive analysis of certain elements of the collected data. The thematic method of analysis was also most appropriate as it allowed the themes present in the data and related to the research questions to be identified, investigated, and described.

The data collection instrument was survey responses from the selected population who frequently or have at one point in time applied to, interviewed for, or became employed within an organization in their community after release from incarceration or while on probation or parole. In addition, the research will use and analyze peer-reviewed journals and articles that detail and provide vital information regarding the specific culture being researched. This included the participant's reentry beliefs and knowledge, knowledge of the community organizations that work with reentry programs, human resource knowledge, criminal justice, and

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recidivation knowledge and knowledge of the laws and or policies that guide fair hiring practices. The method used for data collection was a survey questionnaire (Appendix A) which was developed and guided by the DOJ's guidelines for reentry. The survey was created and sent via survey monkey which is a web-based survey tool. No field tests were necessary as the questions were developed using the DOJ's reentry focus and policies as established by the Federal Interagency Reentry Council. The data were analyzed using a thematic analysis approach which focused on finding and analyzing themes within the data (Guestet al., 2011). It was then presented in a sequential format which consisted of the results of the questionnaires, previous research, and a theoretic exploration of the issue. Once the surveys were completed the responses were then uploaded, coded, and organized using the MAXQDA analysis software.

Results

The purpose of the study was to gain an understanding of released offenders' perception of hiring managers and organizations at which they seek employment post-incarceration. The perceptions of these offenders provided a glimpse into the reality of a released offender's efforts and process to becoming gainfully employed. The participant's responses and experiences served as a guide in finding the common themes that were appropriate to the research question.

Fifteen participants responded to and completed this study, and one participant provided a mode of contact was able to be member-checked. Of the fifteen participants, one respondent indicated that they had not been hired and did not get the job at the organization which they interviewed. The participant responses mostly reflected a negative or mixed feeling about employers and employer organizations who hired released offenders. Several of the participants shared neutral responses to specific questions, including the participant expressing their concerns to the prospective employer or employer organization. Several of the participants expressed

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feelings and perceptions of being dehumanized, not good enough, or being sentenced a second time due to the feeling of being judged by an employer or employer organization. Although a few of the participants expressed some form of gratitude, some of their responses also reflected a negative emotion and perception towards employers who worked with released offenders.

Other responses suggest that although released offenders can participate in job interviews, find jobs that possibly match their skill set, or even receive an opportunity to speak directly with a prospective employer, they feel inadequate and unprepared for the workforce. This is mostly because their first experiences are already negative, and the prospective employer does not appear to be equipped with the knowledge to effectively communicate with the released offender. This brings on a feeling of shame, a lesser sense of self and does not contribute to a positive rehabilitation process. Moreover, the reported feelings of discrimination and frustration suggest that hiring organizations are culturally incompetent regarding released offenders or even possible prison culture. Only one of the fifteen participants reported a positive interaction with an employer organization during the interview process. The participant reported that "I got hired from the organization that would come to the prison to help us, so I just had to interview right before I got out actually interviewed in prison and was given a start date for when I got out." While this participant reported a positive experience, it could be concluded that this is a rare occurrence. More so, it can also be asserted that programs that operate within the prison system have the potential to reduce barriers to seeking employment post-incarceration. Fourteen of the fifteen participants reported that their perceptions of hiring organizations had changed after their interview experiences.

Conclusions

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According to the survey responses, the released offender perception appears to be significantly impacted by the cultural competence levels of hiring managers and organizations. While the decision to engage in behaviors that positively impact the released offenders' rehabilitation solely rests on the decisions that the released offender makes and the actions which they engage in; these behaviors can be influenced by perception. According to Pogarsky et al., (2018) an offender may be deterred from engaging in criminal behavior if they are well rewarded. This can be in the form of appropriate compensation and often respect and culturally relevant policies and programs (Guiterrez et al., 2018). Moreover, organizations that offer supportive and ongoing training opportunities are more likely to have employees who are happy and compliant.

Some of the feelings that participants reported during the study appeared to have the potential to resort to negative behavior. They reported feeling judged, inferior, dehumanized, and discriminated against, based on their having a record. The goal of reentry programs across the Department of Corrections and Department of Justices' initiatives is to reduce recidivism, to ensure that released offenders receive the learning, skills, training, and ultimately gainful employment (Casey et al., 2017). Irrespective of this goal, several participants felt that even with training and learning, the environment, policies, and opportunity for growth were not worth the emotional and mental stress that were associated. It is pertinent to the reentry process that released offenders find and maintain a positive place in society. According to Agnew (2001) every released offender is not equal and each individual experience reentry differently. While one individual may have the ability to adapt, another may struggle with the process. Agnew, further suggested that released offenders who experience unjust or unfair treatment are more

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likely to harbor anger, which in turn leads to the individual to an increased recommitment to being imprisoned (Litswan et al., 2013),

Moreover, those participants who may have had negative experiences during incarceration are most likely to anticipate negative experiences upon release (Agnew, 2001) and as such, these emotions, and perceptions which the participants of the current study reported suggest a higher likelihood of recidivation. The participant's perception of the employer organization's being culturally incompetent, treating participants as inferior or discriminating against them (released offenders) are all experiences that contribute to the potentially negative impact that the hiring process has on the successful rehabilitation of released offenders and increases the likelihood of reoffending and reincarceration.

Further research could be particularly informative in determining the correlation between recidivism and failed employment of released offenders. Utilizing quantitative data regarding the number of released offenders who seek and maintain gainful employment versus the number who seek employment and recidivate would be useful to the department of corrections in solidifying processes and improving the second chance act. This would be particularly necessary to the Justice Department who spends millions of dollars in funding towards the goal of reducing recidivism. Extending this study over a larger population and including would provide a deeper understanding and more context to the issue and as such assist in the call for a more streamlined reentry process, inclusive of all stakeholders; probation and parole, agencies funded by the department of justice and corrections as well as government and local correctional agencies.

Further research should also include an assessment of the organizations who receive federal funds to prepare and help integrate released offenders into their communities. This should include a specific focus on educating community organizations who hire released offenders,

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prisoners, and reentry leaders within the community, especially those who work directly with probation and parolees as well as the employers who operate and hire within the communities in which released offenders live and seek employment,

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Assessing Self-Efficacy Beliefs of High School Students Towards Arithmetic and Algebra

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Abstract

The study aimed to assess the self-efficacy beliefs of students of Grades 11 and 12 studying the International Baccalaureate Diploma Program towards arithmetic and algebra. 68 students participated in the quantitative correlational study. The data collection consisted of two achievement tests, to measure performance in each, arithmetic and algebra, followed by a 9-item 5-point Likert type scale to assess self-efficacy beliefs. The results showed that a moderately positive correlation existed between self-efficacy beliefs and performances in arithmetic and algebra and that significant differences existed in the beliefs based on the level of performance.

Keywords: self-efficacy beliefs, international baccalaureate, arithmetic, algebra, high school

Introduction

Math, described as a study of structure and order evolved from the practices of counting and measuring objects (Programme, 2021) consists of different components, where each branch of math help to understand different aspects of the world. Thus, although math is a single subject, it is made up of several components such as arithmetic, algebra, geometry, trigonometry,

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and so on. Each of these components has its relevance and is introduced to students of different ages. Arithmetic consists of basic math operations whereas algebra consists of using variables and constants to form expressions. While arithmetic requires more concrete reasoning, algebra requires the use of slightly more abstract thinking, but both have their relevance in math.

Self-efficacy beliefs are an individual's beliefs in their ability to solve a task (Bandura, 1990). Student self-efficacy beliefs are key factors for academic achievement (Olivier et al., 2019). When the beliefs are high, students are more motivated to complete a task. For math, when self-efficacy beliefs are higher, students are more motivated to have higher academic achievement, resulting in lower dropouts. Studies in the past have examined self-efficacy beliefs with math performance where the beliefs were found to have a positive impact on performance (Ozkal, 2019). However, the studies have been conducted towards the general nature of math. Perhaps, different students have different perceptions and confidence levels towards individual components depending on their understanding and capabilities.

The purpose of this study was to understand the self-efficacy beliefs of students towards the individual components of arithmetic and algebra. Understanding the beliefs towards each component individually can help educators pace the syllabus in a better manner so that adequate time is devoted to each component leading to better understanding and confidence. Arithmetic and algebra are components that students would have the highest familiarity with, where differences in self-efficacy beliefs may or may not exist. Thus, this research aims to understand whether differences in self-efficacy beliefs exist towards arithmetic and algebra, individually.

Thus, the theoretical framework guiding the study is as follows:

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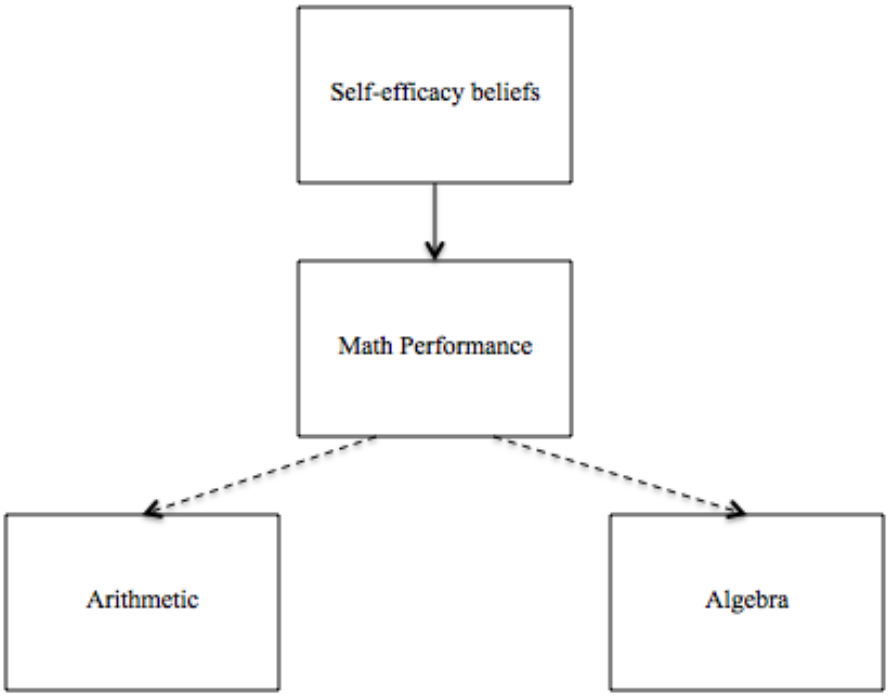
Figure 1

The Theoretical Model



The set of hypotheses that guide the study are:

Null Hypothesis (H_0): There is no difference in the self-efficacy beliefs between arithmetic and algebra.

Alternate Hypothesis (H_1): There is a significant difference in the self-efficacy beliefs between arithmetic and algebra.

The research questions that guide the study are:

Research Question 1: What are the correlations between self-efficacy beliefs and the performances of students in arithmetic and algebra?

Research Question 2: Does a significant difference exist in the self-efficacy beliefs

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towards arithmetic and algebra?

Research Question 3: Does a significant difference exist in the self-efficacy beliefs towards arithmetic and algebra based on the branch of math, gender, level of achievement, and grade level?

Literature Review

Self-efficacy beliefs play an important role in motivation where individuals with higher beliefs have more tolerance to pain (Bandura, 1990). When the beliefs are higher, individuals can exercise better control over ordinary events. For students with higher self-efficacy beliefs, the determination to better in a subject was more as it enhanced the self-esteem levels and reduced the anxiety levels (Xie et al., 2019). When students have higher self-efficacy beliefs, they are seen to have higher performance (Bhowmick et al., 2017; Ozkal, 2019). Self-efficacy beliefs mediate the relationship between growth mindset and math and science career interests for boys (Huang et al., 2019). Thus, self-efficacy beliefs affect anxiety levels, are important predictors for math performance, and also help students develop more perseverance.

Previously, self-efficacy beliefs have been assessed with anxiety where a bidirectional link was seen between the variables, where higher anxiety levels led to lower self-efficacy beliefs (Huang et al., 2019). Gabriel et al. (2019) studied the constructs of math anxiety and math self-efficacy for 244 undergraduate majors and determined that the variables were negatively correlated. Ozkal (2019) investigated self-efficacy beliefs and engagement in math lessons to determine that self-efficacy beliefs were positively correlated with performance. Mumcu and Aktaş (2015) studied the attitudes and self-efficacy perceptions of students to math, where the results revealed that students enrolled in regular school programs compared to the other students showed higher self-efficacy beliefs. Yüksel and Geban (2015) predicted the science and math

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achievements of high school students based on student and academic self-efficacy and anxiety, where the results revealed that academic self-efficacy had a positive impact on performance. Bhowmick et al., (2017) assessed the anxiety levels and self-efficacy beliefs towards math performance to show that anxiety and self-efficacy beliefs were inversely correlated.

Other related studies for self-efficacy include a study conducted by Görgün and Tican (2020) to investigate the math self-efficacy perceptions of students to their problem-posing attitudes. The perceptions were higher in the lower grades than the higher ones and a moderate positive correlation was seen between the variables. While studying the effect of goal setting on motivation, self-efficacy, and performance, Sides and Cuevas (2020) conducted a quasi-experimental study to discover that self-efficacy or motivation was not impacted by goal-setting but instead helped improve performance in math. Morán-Soto and Benson (2018) conducted a mixed-methods study on engineering students to examine self-efficacy beliefs and preparation methods. The findings revealed a mismatch between the self-efficacy beliefs and the competence levels for some students, where those whose views were in sync had a better performance compared to those with an imbalance and tended to procrastinate.

Several studies have been conducted to assess self-efficacy beliefs with different variables. While many of these studies are related to math, more general or basic math content has been assessed. Few studies have assessed self-efficacy beliefs with individual math components. Understanding self-efficacy beliefs to different math components will help educators to deliver the syllabus in a manner that can improve performance.

Methodology

A quantitative correlational method was employed to understand the self-efficacy beliefs of students towards arithmetic and algebra. A purposeful sampling technique was used where

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students of Grades 11 and 12 studying the International Baccalaureate (IB) syllabus were chosen for the study. Initially, IRB approval was taken. After receiving the consent of the organization and parents, a pilot study was conducted before proceeding with the actual data collection. Data collection was done in one sitting. In some cases, the researcher collected the data via Google Forms from the students, whereas in some schools, the math schoolteachers collected the data from their students. The school decided for this, as the survey instruments were similar in nature to the regular class tests.

Sample Studied

The sample consisted of students of Grades 11 and 12 across five schools in Mumbai. The students were expected to sit for two tests, one for each component. 72 students participated in the study (19.9%), however, 68 students appeared for both tests and were considered for the sample.

The sample was analyzed based on gender, grade level, math option selected, and level of performance. For this study, 24 males (35.3%) participated. Twenty-three participants (33.8%) were from Grade 11. Math in the IB is offered at the standard level (SL) and higher level (HL), where 16 students (23.5%) had taken the subject at the standard level. IB math consists of two options, Math Application and Interpretation (MAI) and Math Analysis and Approaches (MAA), each one being offered at the two levels, thereby resulting in four levels (MAI HL, MAI SL, MAA HL, MAA SL). Totally 45 (66.2%) students were from MAA HL, 7 (10.3%) from MAI HL, 7 (10.3%) from MAA SL, and 9 (13.2%) from MAI SL.

On analyzing the data based on level of performance, a performance of 12 or more on 15 was considered high, less than 6 was low, and the rest was moderate. In arithmetic, there were 6

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high performers, 33 moderate, and 29 low performers. In algebra, there were 18 high, 22 moderate, and 28 low performers.

Design of Study

The study aimed at understanding student self-efficacy beliefs towards arithmetic and algebra and understanding the values to see if significant differences existed. Hence, a quantitative correlational study was used. The performances of the students were assessed for arithmetic and algebra, using achievement tests followed by gaining the self-efficacy levels of the participants. The independent variables were the performances in arithmetic and algebra and the dependent variables were the self-efficacy beliefs for each component.

Data Collection Instrument

The data collection instrument consisted of three sections, one for basic details including student identification number, gender, math option selected, and so on. The second section consisted of an achievement test of 15 marks specific to each component. The third section consisted of nine statements taken from the motivation section of the Motivated Strategies for Learning Questionnaire (Jackson, 2018; Ozkal, 2019) which is one of the most widely used instruments designed to measure self-regulated learning. These statements were modified for each component, where for the arithmetic survey, each statement included the word arithmetic, whereas, for the algebra survey, each statement included the word algebra. A five-point Likert type scale was used where "Strongly Agree" corresponded to a value of five and "Strongly Disagree" corresponded to a value of one. Two such instruments were created, one for each component of arithmetic and algebra.

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Results

The data was first downloaded from Google Forms and obtained in Excel format. The data was formatted and the results were analyzed using SPSS (Version 28) software as follows:

RQ 1: What are the correlations between self-efficacy beliefs and the performances of students in arithmetic and algebra?

A Pearson's correlation coefficient was used to examine the self-efficacy beliefs and performance in each component. A weak positive correlation was seen for both, arithmetic and algebra performance and self-efficacy beliefs. Tables 1.1 and 1.2 display the results of the correlation.

Table 1.1

Correlations Between Arithmetic and Self-Efficacy Beliefs

		Arithmetic Performance	Arithmetic Self-Efficacy
Arithmetic Performance	Pearson Correlation	1	.253*
	Sig. (2-tailed)		.037
	N	68	68
Arithmetic Self-Efficacy	Pearson Correlation	.253*	1
	Sig. (2-tailed)	.037	
	N	68	68

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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Table 1.2

Correlations between Algebra and Self-Efficacy Beliefs

		Algebra Performance	Algebra Self-Efficacy
Algebra Performance	Pearson Correlation	1	.450**
	Sig. (2-tailed)		<.001
	N	68	68
Algebra Self-Efficacy	Pearson Correlation	.450**	1
	Sig. (2-tailed)	<.001	
	N	68	68

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

RQ 2: Does a significant difference exist in the self-efficacy beliefs towards arithmetic and algebra?

On comparing the self-efficacy beliefs towards arithmetic and algebra, no significant difference were seen t(134) = - .437, p = .663. Table 2 displays the descriptive statistics for self-efficacy beliefs and performance.

Table 2

Performances and Perceptions for Both Math Components

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Both Performances	Arithmetic	68	7.0882	3.85070	.46697
	Algebra	68	7.4265	3.78258	.45871
Both Self-Efficacy Beliefs	Arithmetic	68	31.9412	5.49595	.66648
	Algebra	68	32.3971	6.60877	.80143

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RQ 3: Does a significant difference exist in the self-efficacy beliefs towards arithmetic and algebra based on the branch of math, gender, level of achievement, and grade level?

The self-efficacy beliefs of the students were compared across the four math options using a one-way ANOVA. No significant differences were seen. Table 3 displays the results of the performance and self-efficacy beliefs of the participants.

Table 3

Comparison of Performance and Self-Efficacy Beliefs based on Math Option

		Sum of Squares	df	Mean Square	F	Sig.
Arithmetic Performance	Between Groups	68.036	3	22.679	1.568	.206
	Within Groups	925.435	64	14.460		
	Total	993.471	67			
Arithmetic Self-Efficacy	Between Groups	41.771	3	13.924	.450	.718
	Within Groups	1981.994	64	30.969		
	Total	2023.765	67			
Algebra Performance	Between Groups	88.067	3	29.356	2.158	.102
	Within Groups	870.565	64	13.603		
	Total	958.632	67			
Algebra Self-Efficacy	Between Groups	151.778	3	50.593	1.167	.329
	Within Groups	2774.502	64	43.352		
	Total	2926.279	67			

While comparing the performances and self-efficacy beliefs based on the level of math chosen, no significant differences were seen except for the performance in arithmetic for SL and HL students. Table 4 displays the descriptive statistics and Table 5 displays the results of the independent two-sample t-test.

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Table 4

Descriptive Statistics for Standard and Higher Level Students

	Level	N	Mean	Std. Deviation	Std. Error Mean
Arithmetic Performance	Standard	16	5.3125	3.21908	.80477
	Higher	52	7.6346	3.89081	.53956
Arithmetic Self-Efficacy	Standard	16	31.5000	4.66190	1.16548
	Higher	52	32.0769	5.76278	.79915
Algebra Performance	Standard	16	6.2500	3.92428	.98107
	Higher	52	7.7885	3.70128	.51328
Algebra Self-Efficacy	Standard	16	31.5625	5.18933	1.29733
	Higher	52	32.6538	7.01227	.97243

Table 5

Two Samples T-Test for Standard and Higher Level Students

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Arithmetic Performance	Equal variances assumed	1.307	.257	-2.16	66	.017	.034	-2.32212	1.07171	-4.4618	-.18238
	Equal variances not assumed			-2.39	29.748	.012	.023	-2.32212	.96891	-4.3015	-.34264
Arithmetic Self-Efficacy	Equal variances assumed	.281	.598	-.365	66	.358	.716	-.57692	1.58148	-3.7344	2.58060
	Equal variances not assumed			-.408	30.442	.343	.686	-.57692	1.41315	-3.4612	2.30735
Algebra Performance	Equal variances assumed	.048	.827	-1.43	66	.078	.156	-1.53846	1.07297	-3.6807	.60378
	Equal variances not assumed			-1.38	23.811	.089	.178	-1.53846	1.10723	-3.8246	.74770
Algebra Self-Efficacy	Equal variances assumed	1.369	.246	-.575	66	.284	.567	-1.09135	1.89887	-4.8825	2.69986
	Equal variances not assumed			-.673	33.482	.253	.505	-1.09135	1.62132	-4.3881	2.20546

While comparing the self-efficacy beliefs based on gender, males were found to have significantly higher self-efficacy beliefs than females for arithmetic. However, no such difference was found for algebra. Table 6 displays the descriptive values of data and Table 7 displays the results of the independent two-sample t-test.

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Table 6

Description of Values Based on Gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Arithmetic Performance	Male	24	6.8333	3.82971	.78174
	Female	44	7.2273	3.89910	.58781
Arithmetic Self-Efficacy	Male	24	34.0417	4.43777	.90586
	Female	44	30.7955	5.72054	.86240
Algebra Performance	Male	24	8.3750	3.78570	.77275
	Female	44	6.9091	3.72183	.56109
Algebra Self-Efficacy	Male	24	32.7917	7.19287	1.46824
	Female	44	32.1818	6.34391	.95638

Table 7

Two Samples T-Test for Comparing Self-efficacy Beliefs based on Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Arithmetic Performance	Equal variances assumed	.093	.761	-.401	66	.345	.690	-.39394	.98333	-2.35723	1.56935
	Equal variances not assumed			-.403	48.131	.344	.689	-.39394	.97808	-2.36035	1.57248
Arithmetic Self-Efficacy	Equal variances assumed	.530	.469	2.410	66	.009	.019	3.24621	1.34716	.55651	5.93591
	Equal variances not assumed			2.595	58.071	.006	.012	3.24621	1.25073	.74267	5.74975
Algebra Performance	Equal variances assumed	.012	.915	1.543	66	.064	.128	1.46591	.95013	-.43109	3.36290
	Equal variances not assumed			1.535	46.701	.066	.132	1.46591	.95497	-.45556	3.38738
Algebra Self-Efficacy	Equal variances assumed	.910	.343	.361	66	.360	.719	.60985	1.68803	-2.76041	3.98010
	Equal variances not assumed			.348	42.560	.365	.730	.60985	1.75225	-2.92496	4.14466

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While analyzing the data based on the level of performance, there were no significant differences in the self-efficacy beliefs for arithmetic. However, for the algebra test, significant differences were seen. Table 8 displays these results.

Table 8

Comparison of Self-efficacy Beliefs Based on Achievement Level

		Sum of Squares	df	Mean Square	F	Sig.
Arithmetic Self-Efficacy	Between Groups	154.064	2	77.032	2.678	.076
	Within Groups	1869.701	65	28.765		
	Total	2023.765	67			
Algebra Self-Efficacy	Between Groups	647.792	2	323.896	9.240	<.001
	Within Groups	2278.487	65	35.054		
	Total	2926.279	67			

The data was further analyzed based on the level of performance. Significant differences were seen in the self-efficacy beliefs for both arithmetic and algebra. The results of the descriptive statistics and independent two-sample t-test are presented in Tables 9 and 10 respectively.

Table 9

Descriptive Statistics of Self-efficacy Beliefs Based on Achievement Level

	Category arithmetic	N	Mean	Std. Deviation	Std. Error Mean
Arithmetic Self-Efficacy	Low Performers	29	30.4138	6.31052	1.17183
	High Performers	6	35.3333	1.86190	.76012
Algebra Self-Efficacy	Low Performers	28	28.7857	7.41549	1.40139
	High Performers	18	35.8333	3.63399	.85654

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Table 10

Comparison of Self-efficacy Beliefs Based on Achievement Level

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
						One-Sided p	Two-Sided p			Lower	Upper
Arithmetic Self-Efficacy	Equal variances assumed	2.961	.095	-1.87	33	.035	.070	-4.91954	2.62722	-10.264	.42558
	Equal variances not assumed			-3.52	28.382	<.001	.001	-4.91954	1.39677	-7.7789	-2.06011
Algebra Self-Efficacy	Equal variances assumed	5.653	.022	-3.74	44	<.001	<.001	-7.04762	1.88294	-10.842	-3.25281
	Equal variances not assumed			-4.29	41.699	<.001	<.001	-7.04762	1.64243	-10.363	-3.73236

While assessing the self-efficacy beliefs based on grade level, no significant differences were observed. The results of the descriptive statistics and two-sample t-tests are displayed in Tables 11 and 12, respectively.

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Table 11

Description of Values based on Grade Level

	Grade	N	Mean	Std. Deviation	Std. Error Mean
Arithmetic Performance	Grade 11	23	6.5652	3.87094	.80715
	Grade 12	45	7.3556	3.85626	.57486
Arithmetic Self-Efficacy	Grade 11	23	32.0870	6.57760	1.37152
	Grade 12	45	31.8667	4.93411	.73553
Algebra Performance	Grade 11	23	7.4348	3.69060	.76954
	Grade 12	45	7.4222	3.86998	.57690
Algebra Self-Efficacy	Grade 11	23	32.4348	6.67305	1.39143
	Grade 12	45	32.3778	6.65135	.99152

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Table 12

Two Samples T-Test for Comparison based on Grade Level

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Arithmetic Performance	Equal variances assumed	.112	.739	-.79	66	.214	.427	-.79034	.98970	-2.766	1.18565
	Equal variances not assumed			-.79	44.282	.215	.429	-.79034	.99093	-2.787	1.20640
Arithmetic Self-Efficacy	Equal variances assumed	1.148	.288	.155	66	.439	.877	.22029	1.41910	-2.613	3.05361
	Equal variances not assumed			.142	35.026	.444	.888	.22029	1.55631	-2.939	3.37968
Algebra Performance	Equal variances assumed	.349	.557	.013	66	.495	.990	.01256	.97687	-1.938	1.96295
	Equal variances not assumed			.013	46.356	.495	.990	.01256	.96178	-1.923	1.94812
Algebra Self-Efficacy	Equal variances assumed	.168	.683	.033	66	.487	.973	.05700	1.70674	-3.351	3.46461
	Equal variances not assumed			.033	44.304	.487	.974	.05700	1.70856	-3.386	3.49972

The conclusion and discussion of the results are presented in the next section.

Conclusions

Here is a review of the Research Questions and the findings.

RQ 1: What are the correlations between self-efficacy beliefs and the performances of students in arithmetic and algebra? A weak positive correlation was observed between performance and self-efficacy beliefs for each component. This follows previous literature where self-efficacy beliefs have a positive impact on performance.

RQ 2: Does a significant difference exist in the self-efficacy beliefs towards arithmetic and algebra? No significant differences were seen in the self-efficacy beliefs of the participants.

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This indicated that students had nearly the same confidence levels for both components, perhaps due to the high familiarity with the subject.

RQ 3: Does a significant difference exist in the self-efficacy beliefs towards arithmetic and algebra based on the branch of math, gender, level of achievement, and grade level? While comparing the self-efficacy beliefs across the four math options, no significant differences were seen. This indicated the presence of similar perceptions where the math option did not impact the self-efficacy beliefs. While comparing the students based on the level of math, no significant differences were seen in the self-efficacy beliefs. The only significant difference was observed in the arithmetic performance, where HL students had a better performance than the SL students. The similar self-efficacy beliefs indicated that both levels of students had similar confidence levels. This is an interesting finding, as one would assume HL students to have higher self-efficacy beliefs. However, the presence of similar beliefs indicated that the confidence levels of HL students were similar to the SL students. Hence, efforts need to be made to work on the self-efficacy beliefs and confidence levels of both, HL and SL students.

Analysis based on gender revealed that there was a significant difference in the arithmetic self-efficacy beliefs where the males had significantly higher beliefs than females. There were no differences in performance based on gender. This indicated that in arithmetic, the males had higher confidence levels. However, for algebra, no differences were seen indicating that both genders experienced similar confidence levels.

When analyzing the data based on performance levels, a significant difference was seen in the self-efficacy beliefs for algebra. This indicated that for arithmetic, students had similar beliefs, but for algebra, the differences in perceptions were significant and dependent on the performance of the student. A further analysis based on high and low performers indicated that in

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arithmetic, the differences were not significant but for algebra, significant differences existed. This indicated that in algebra, the high performers had significantly better confidence levels than the low performers. Thus, even if a student is an HL student, but a low performer, the student will have relatively low confidence levels. The math option selected by the students does not impact the beliefs, but the level of performance of the student has an impact on the self-efficacy beliefs. No significant differences were observed in the self-efficacy beliefs when comparing the data based on the grade level. This indicates that the grade level does not impact the perceptions of the students.

Overall, the findings revealed that subtle differences existed in the self-efficacy beliefs of the students. Although the differences were not observed initially on comparing the values, analysis based on gender and level of performance showed that differences in perceptions existed. Arithmetic and algebra are components of high familiarity. Although they are both important math components, students felt differently about them. Educators need to be made aware of these differences so that differentiation can be done based on students as well as the math component being taught. Efforts need to be made to improve the self-efficacy beliefs of the students by improving their confidence levels. This can be done via drill practice through worksheets, additional resources, or even technology-based applications to help improve the confidence levels.

The current study focused on understanding the self-efficacy beliefs of students towards arithmetic and algebra. Further studies are recommended towards other components like geometry, trigonometry, statistics, and calculus. The study can also be extended to different grade levels and different boards. The study was conducted on students of Mumbai. The study can be repeated to understand the perceptions of students in other parts of the world. The

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limitations of the current study included a relatively small sample size. Thus, further studies with larger sample sizes are recommended. Other limitations also included the fact that some students appeared for these tests from home due to the pandemic and were monitored via web cameras. Nine statements were chosen to assess self-efficacy beliefs, perhaps, increasing the number of statements can be done for future studies.

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Adult Female Survivors of Commercial Sexual Exploitation Speak about Factors that Led to Their Victimization

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Abstract

This qualitative study interviewed nine survivors of the commercial sex industry to discover how they speak about factors that led to their exploitation. Constant comparative analysis was used to code participants' statements into three timeframes, childhood, entering the sex industry, and exiting the sex industry, with three overarching themes for each time frame: what is happening, their response, and what happens next. Grounded theory was used to create a theoretical framework for the data. The conceptual summary discusses a cycle of overwhelming issues, limited resources, and hollow solutions. The participants had pressing needs, which required immediate attention. The issues included escaping abuse, feeding addictions, and providing for children. With limited resources, due to both lack of guidance in childhood and environmental constraints, the women chose options that provided immediate, although temporary, reprieve. Those solutions, including drug use, seeking attention from unhealthy peer groups, and sex work,

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provided temporary rescue. The cycle began again when that solution became the next problem to be solved. The cycle continued until additional resources were provided to offer a solid solution. Limitations and implications are given in light of this new framework.

Keywords: commercial sex industry, survivors, exploitation factors

Introduction

Throughout the world, people are bought and sold like commodities. The United States is no exception. Scholarly research has only recently begun to dissect this phenomenon. The purpose of this study was to examine how adult female survivors of the commercial sex industry talk about factors that may have led to their victimization.

The study included nine adult female participants who have all worked in and exited the sex industry. Qualitative methodology was used to collect and analyze data. The interview prompts were as follows:

P1: Tell me a little bit about your childhood.

P2: Tell me about your relationships with your peers.

P3: Tell me about your victimization.

P4: At what point did you realize that you did not want to be in the situation, but you did not know how to get out?

P5: What do you think was the most significant factor to your being victimized?

Literature Review

Researchers find it difficult to accurately report the issue of commercial sexual exploitation (CSE) because it is enveloped in secrecy and different systems report victims in a variety of ways. The United States Bureau of Justice reports that 82% of suspected human trafficking incidents between January 2008 and June 2010 were labeled as sex trafficking, with

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40% of those involving a child (Banks & Kyckelhahn, 2011). Ninety-four percent of victims were female, and 83% were U.S. citizens.

Women who enter the sex industry as adults are not always considered victims. A trafficked individual is one who engages in sexual acts "as a result of force, threats of force, fraud, coercion, or any combination of such means" (U.S. Department of State, n.d., para. 2). According to the U.S. Department of Justice (2014), prostitution is "a sexual act or contact with another person in return for giving or receiving a fee or a thing of value" (para. 5). Prostitution is the trading of sexual acts for money, drugs, food, shelter, or other needed items (Murphy, 2010). Even though these adults cannot be classified as a victim of sex trafficking and are not protected under the law, advocates consider all sex workers to be victims of CSE. Barry (1995) states, "sexual exploitation is a practice by which person(s) achieve sexual gratification or financial gain or advancement through the abuse of a person's sexuality by abrogating that person's human right to dignity, quality, autonomy, and physical and mental well-being" (p. 326).

There are common themes when viewing the childhood homes of commercial sex workers. Childhood sexual abuse is a risk factor (Estes & Weiner, 2001; Farley et al., 2005; Reid, 2011; Shannon & Csete, 2010). Often, rape is the first sexual experience that the victim encounters (Hom & Woods, 2013). The sexual abuse is part of the problem, but the silence that is encouraged confounds the problem (Friedman, 2005). The victim learns that her body is to be treated in a sexual way, and she may equate love with sexual abuse.

Violence and neglect in the home are additional risk factors (Farley et al., 2005; Hossain et al., 2010). Physical abuse is common among the victims (Williamson & Prior, 2009). Most of the victims report neglect, such as not having enough food or functioning utilities in the home. Many times, the victims are easily persuaded to work due to hunger or their basic needs not

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being met. Sixty-four percent had at least one parent with a drug or alcohol addiction. Children whose parents are mentally ill or sexually promiscuous, and those living in poverty and in areas where adult prostitution is nearby, are also at risk (Estes & Weiner, 2001).

With the home life full of turmoil and/or abuse, children often leave, even agreeing to work with a pimp because it may be a better situation than they are currently facing (Marcus et al., 2014). Sixty percent come from single family homes, usually having the father absent (Shared Hope International, 2007). Negative self-esteem is prevalent among victims (Hom & Woods, 2013; Reid, 2011). Traffickers and pimps do not want healthy and aware children. Children who have been trafficked are likely to have minimal or no parental support.

Some women enter the industry to satisfy a drug addiction; wherein, their desire for drugs is stronger than their aversion to prostitution (Reid, 2014). The woman, having to support herself and her children, finds limited job opportunities and knows that there is money to be made in the sex industry (Benoit & Millar, 2001; Murphy, 2010). Oftentimes, they are undereducated and may have limited decision-making skills due to past trauma and drug abuse (Davis, et al., 2009; Murphy, 2010). According to Murphy (2010), "prostitution may be considered a behavior derived from desperation and determination to achieve necessary resources to sustain life, such as food, clothing, or shelter, or to escape a current lifestyle of violence and abuse" (p. 775).

Methodology

The purpose of this study was to examine how adult female survivors of the commercial sex industry talk about factors that may have led to their victimization. Qualitative methodology was used to collect and analyze data.

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Sample Studied

The study included nine adult female participants who have all worked in and exited the sex industry. They were recruited from a rescue organization that assisted them in their efforts to leave the sex industry. Each participant was provided with a consent form, stating that their participation in the study had no effect on the services they received through the organization. They were asked to stop the interview at any time if they felt uncomfortable or in distress.

Semi-Structured Interviews

This study used semi-structured interviews in which the same questions were asked of each participant (Corbin & Strauss, 2015). The questions were adjusted as needed for each individual, as discussed below. Semi-structured interviews also allow for researchers to use prompts to delve deeper into certain subjects and to allow the participant to bring up topics that were not asked by the researcher.

Interview prompts. In this study, the interview prompts were as follows:

P1: Tell me a little bit about your childhood.

P2: Tell me about your relationships with your peers.

P3: Tell me about your victimization.

P4: At what point did you realize that you did not want to be in the situation, but you did not know how to get out?

P5: What do you think was the most significant factor to your being victimized?

The first two prompts were the same for each participant. Based on each participant's response to the first two prompts, regarding whether they identified as a victim, I asked the third prompt in one of two ways: a) "Tell me about your victimization," and b) "Tell me about your

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entry into the sex industry." In interviews in which I reworded prompt three, I carried that wording over to prompt five.

Open Coding

After transcribing the interview, it is important for the researcher to read the entire document, without analyzing or coding, to fully understand the story being told (Corbin & Strauss, 2015). During the second read through of the first interview, initial coding began. The coding process continued until themes emerged. The codes pointed to three parent nodes: childhood, entering the sex industry, and exiting the sex industry. Eventually, the overall phenomenon demonstrated three questions in each parent node: What is happening? What actions do they take? What happened next? These three child nodes were now under each parent node. Previous child nodes were then housed as grandchild nodes. For instance, lack of protection and guidance was held under childhood (parent node), what is happening (child node). Although the grandchild nodes changed throughout the process, the parent and child nodes remained stable after the fifth interview.

Results

Childhood

When the participants were children, they lived with many negative or risk factors and very few protective or favorable factors. Three categories comprised the positive aspects of childhood; buffering adults, finding outside acceptance in school, sports, and peers and physical needs being met. (See Figure 1)

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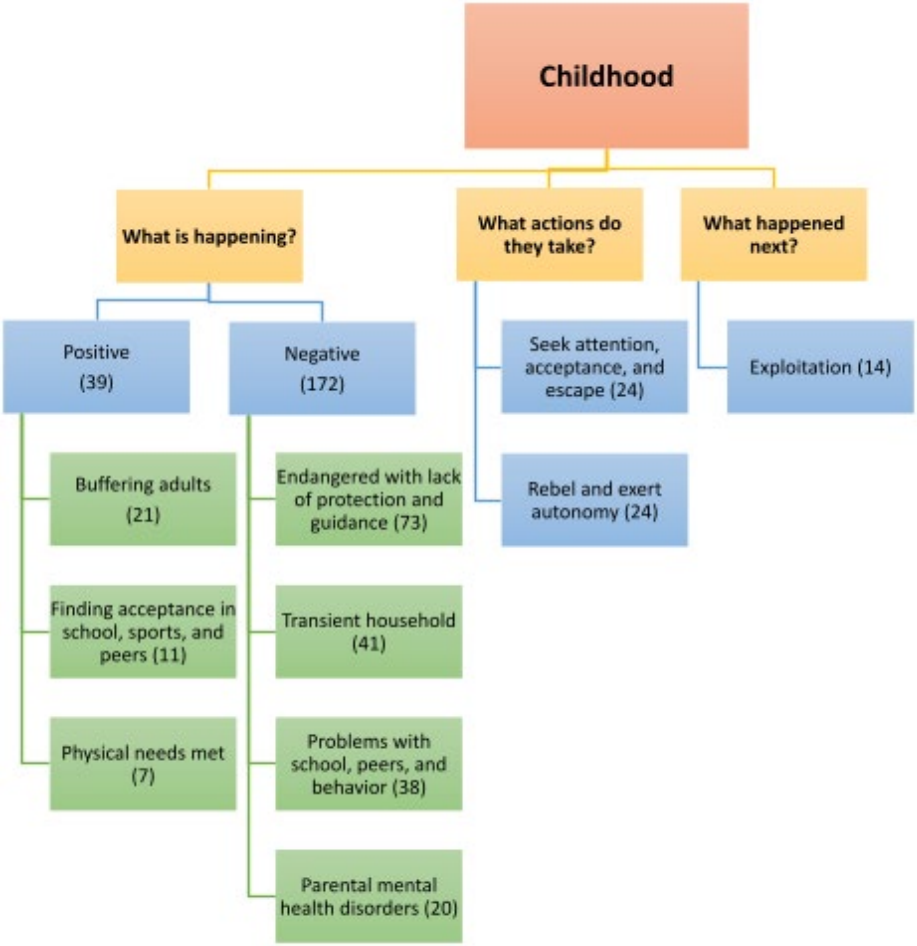
Figure 1

Childhood Node Structure



In contrast to the 39 mentioned positive factors of childhood, 172 statements were included in the category of negative factors in childhood. The participants' memories of childhood moved toward actions they chose in light of their circumstances. When the statements were coded, they presented two different topics: seeking attention, acceptance, and escape, and rebelling and exerting autonomy.

After discussing the events of their childhood and how they reacted to those circumstances, they discussed what happened next in their lives. The women spoke of being taken advantage of and being offered drugs. The main theme discussed was exploitation. Eight

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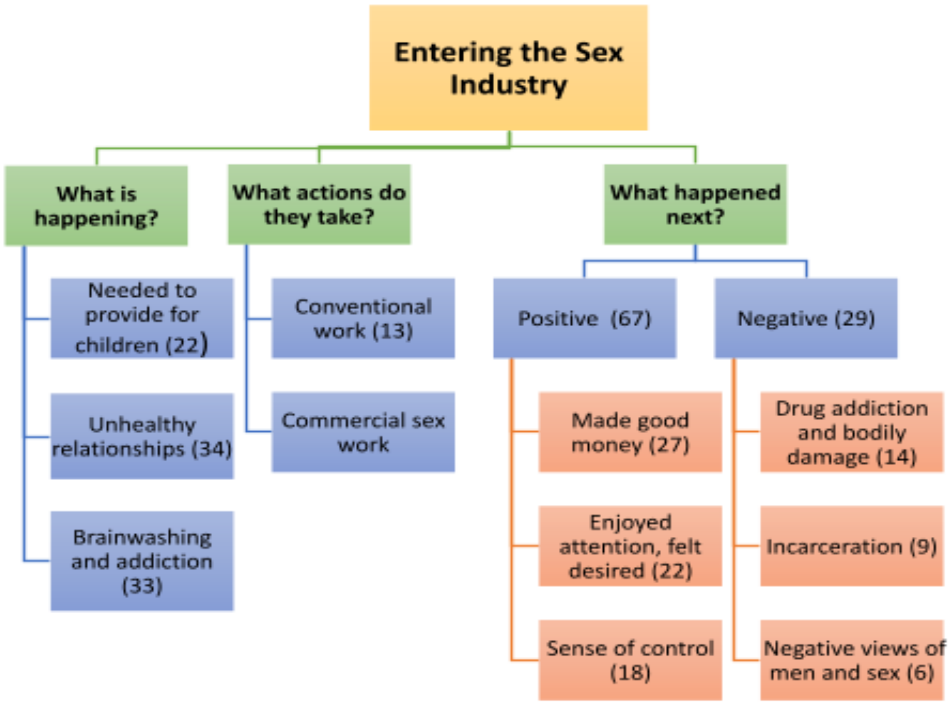
participants spoke of having children or experiencing a form of exploitation while they were still minors. The thoughts coded in this category were brief because their stories moved quickly to the larger exploitation of the sex industry.

Entering the Sex Industry

The participants spoke of needing to provide for their children, brainwashing and addiction, and being in unhealthy relationships. (See Figure 2.) Overwhelmed, the participants tried to meet their needs through conventional work and sex work. When conventional jobs could not offset their difficulties, participants entered the sex industry. They found that sex work took care of the overwhelming issues they were facing, temporarily solving the combination of providing for needs while equipped with limited resources.

Figure 2

Entering the Sex Industry Node Structure



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Interestingly, more positive than negative references were made in this category. Entering the sex industry solved some of their problems at this point, and that felt liberating. They spoke of enjoying a sense of control, liking the attention, and feeling desirable. They made enough money to provide for their children, addictions, and necessities. Negative references included incarceration, negative views of men and sex, and the physical ravages of addiction.

Exiting the Sex Industry

The women spoke of several factors that pushed them to the breaking point, including violent attacks and feelings of disgust, guilt, loneliness, and entrapment. (See Figure 3.) The fourth interview question directly related to this time in their lives. Each participant was asked, "Was there a time you wanted to get out but didn't know how?" This led to a follow-up question of, "Why did you finally leave?" The answers to these prompts became an important part of the study because this is when a lifelong cycle was broken. Throughout life, the participants continually sought solutions that temporarily fulfilled their needs. However, those solutions later became their own problems. When the participants finally left the sex industry, they found resources that were strong enough to provide a solid solution. To make their final exit, the participants relied on two main things: creating a new path for themselves and asking for and receiving help.

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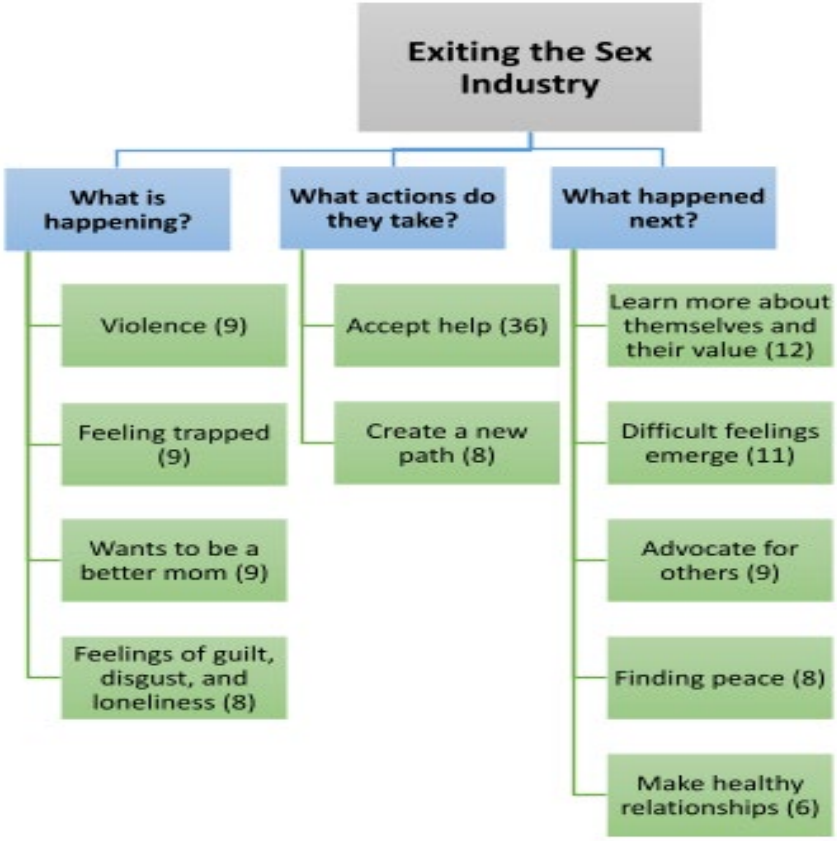
Figure 3

Exiting the Sex Industry Node Structure



Conclusion

The core category of this study has been identified as "Overwhelming Issues, Limited Resources, Hollow Solutions" (See Figure 4). This concept represents the action-interaction shared by commercial sex workers in discussing factors that led to their victimization. This study identified three distinct phases repeating in a cyclical pattern. The participants(a) are presented with a situation that overwhelms them, b) seek to solve that issue with limited resources, and c) and achieve a hollow solution. This cycle repeats itself, as the solution is not solid enough to retain permanence. Many times, the solution becomes an overwhelming issue that must later be solved.

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Figure 4

Conceptual Summary

The participants had pressing needs, which required immediate attention. The issues included escaping abuse, feeding addictions, and providing for children. With limited resources, due to both lack of guidance in childhood and environmental constraints, the women chose options that provided immediate, although temporary, reprieve. Those solutions provided temporary rescue and later became more overwhelming situations from which they needed escape. The cycle began anew. The chain broke when two things happened. First, the participants were provided with resources from friends, counselors, and rescue organizations, and second, they walked through a lengthy program, which provided a supported solution. Short-term decisions were seen in conjunction with long term goals.

Future Explorations

As with any research, the current study includes limitations. All participants were heterosexual women who had successfully exited the sex industry in the U.S. The study does not account for males, homosexual, or transgender workers, those still in commercial sex work, or victims in other countries. The sample was non-random and pulled from one recovery agency,

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and the interviews contained self-reports of childhood memories with no opportunity to triangulate data. The women in this study did not discuss the rise of technology and commercial sex work because they were prostituted before the explosion of sex purchased over the internet. Further research should compare these findings to victims of the internet sex industry.

More research is needed to fully understand what happens before a woman enters the sex industry, as it is important to break the cycle before entry. Additionally, the women spoke repeatedly of their children. One participant, in discussing raising her two daughters, stated, "Somebody, somewhere, has to break that chain. And I'm gonna start with a little chain." Further research is needed to understand how women with ineffective parents learn how to guide their own children.

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Primary School Educators' Inclusive Leadership Origins to a Diverse and Multi-Ethnic Student Population: A Case Study

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Abstract

The gap between cultural-sensitive education and its actualization in inter-cultural relationships continue to impact many industries such as education, business and healthcare, to name a few. Although cultural-sensitive education are new offerings and positions across industries, they fail to actualize this knowledge in building relationships (Chin & Trimble, 2015). The aim of this study was to examine the participants' responses of their cultural-sensitive origins and then, whether their results would provide a credible educational model in cultural-sensitive actualization. This case study is a qualitative interpretive research approach that relies on subjective or non-numerical data to study people in their particular situation in their natural settings (Denzin & Lincoln, 1994). The cross-industry struggle with not only communication but also cultural understanding interaction continues to block meaningful progress towards organizational goals and objectives. This inter-cultural relationship building challenge is examined through primary level teachers' perspectives in the public school system of Hawai'i. Hawai'i's diverse and multi-ethnic population spans decades in its inter-cultural relationships and marriages and this study's primary level student classroom provide a situational context for

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linking Hawai'i's unique culture and its intangible spirit of Aloha as components examined for its cultural-sensitive contributions in the actualization process. The case study analyzes participant responses' cultural-sensitive profile, their curriculum development and instructional practice and links their cultural-sensitive approach to this researched theoretical framework. Lewin's theoretical framework and its 3-stage action plan reveal Hawaii's spirit of Aloha. as a tangible foundational concept, essential to the participants' cultural-sensitive origins and their actualization in their respective student classrooms.

Keywords: Hawai'i, culture, diverse, multi-ethnic

Introduction

In the United States, the traditional predominance of a Western European population has changed towards a more multi-ethnic and diverse population over the past thirty years and is projected to continue over the next twenty years (Treuhaft & Madland, 2011). Are the leaders of educational institutions able to meet the growing population of multi-cultural ethnic and diversity needs in education to 21st-century performance standards? The dominance of the power elite culture or the majority of Western European ancestry is a historic and accepted culture (Chin & Trimble, 2015). "Acculturation has been defined as the alterations that result from continuous, direct contact between two or more different cultural groups and/or individual members thereof " (Fox et al.,2013, para. 1). The acculturation process of foreign nationals to western culture have been difficult for not only western leadership to communicate and deliver on educational performance standards but also for those transplanted diverse and multi-ethnic identities and family life (Kam, 2020). According to Chin and Trimble (2015), the dilemmas of leadership self-awareness, image management, negotiation, decision-making, and problem-solving impact communication to a diverse and cultural organization (Kam, 2020); these communication

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shortcomings influence efficiency and production, in preparing students in primary, secondary and higher education to course actualization in navigating real-world circumstances (Chin & Trimble, 2015). It is this communication shortcoming that challenges the leadership of a culturally diverse population and how Hawai'i's educators develop a culturally sensitive curriculum and an instructional practice to a multi-ethnic student population.

According to Cobbs and Turnock (2003), the African American success stories in corporations are well documented, however, continue to be at a minimum in contrast to the number of U.S. corporations. Although the African American struggles and successes are specifically acknowledged, these struggles can be generalized to other racial/ethnic groups of Asian and Latino Americans (Chin & Trimble, 2015). The specific culture is discussed in this and other studies however it is not the specific culture that is being targeted but the focus on the struggles of including the diverse cultures and identities in their organizational functions and interaction.

Communication challenges with diverse and multi-racial employees result in pre-service training and orientations however they continue to fall short in meeting the industry and organization performance standards. Leadership from a range of industry sectors struggle with the application of communication and connection to a growing ethnic employee population and the presence of their respective lived experiences and history that influence their inability to succeed. (Paniagua, 2017; Sears, 2012; Thompson et al., 2011). This research study focused on Hawai'i educators' origins of their curriculum development and instructional practice of a diverse and multi-ethnic student population, and then linked their approach to Kurt Lewin's theoretical framework (1947).

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The quest for themes and patterns of Hawai`i's primary level educators referencing their rich multi-ethnic history and traditions and their alignment to Lewin's theoretical framework presents the research question as:

RQ1. What are the origin perspectives of elementary school teachers in their curriculum development and instructional practice to a multi-ethnic and diverse student population?

Literature Review

Theories Related to this Representative Gap and Approaches to Narrow the Gap

The literature on multi-ethnic population perspectives of inclusive leaders, culturally competent training, diversity education courses and orientations share their frustrations with attempted diverse approaches in meeting the increasing marginalized population learning curves. The gap from education and then actual instruction persists and continue to be a challenge as behavioral outcomes of academic learning and performance fall short of organization standards (Garcia, 2020; PR Newswire US, 2019; Smolen et al., 2006). Due to the broad scope and diversity of literature related to cultural diversity, this review was organized with a focus on the following topics: a) An overview of the increase in multi-ethnic and diverse populations, b) Theories related to this representative gap and approaches to narrow the gap, c) The programs that are introduced to address this growing population, and d) The significance of these effects of this representative gap in education of a multi-ethnic and diverse population.

An evaluation study of diversity field training for social workers addressed the diverse inclusion of race, ethnicity, national origin, color, gender, sexual orientation, age, marital status, political belief, religion, family structure, or mental or physical disability in their client profile. This study revealed that the culturally competent field instructors avoided confronting diversity

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and cultural areas where their own personal judgments of their students' ignorance and prejudices negatively influenced their abilities to address these areas. The relationship between instructor and student, the self-awareness of the instructor, and the relationship with the organization were factors that obstructed addressing culturally diverse client issues (Armour et al., 2004).

Studies within the higher education's perceptions and attitudes continue to add to the acculturation challenges faced by diverse and multi-ethnic groups (Smolen et al., 2006). In Catalonia, Spain, post-doctoral researcher Paniagua (2017) collected data from two primary schools that examined the nature of the exclusion experienced by three special education needs children of linguistically, culturally, and socioeconomically diverse families. He found that the unintentional but widespread form of exclusion is still present and firmly rooted in common-sense taxonomies set to discriminate against behaviors or thinking that goes against the normal student profile (Artiles &Trent, 1994). This "habitus" (Paniagua, 2017) is defined as the class or race-based predispositions ingrained and shared in the teachers' culture (Diamond et al., 2004) and is manifested in their instructional practice.

United States universities have struggled with the growing ethnic and diverse student population due to their incorrect perceptions as to the design and curriculum applications of teaching to such a multi-racial population. According to Fuller (1994), middle-class Western European teachers have lived-experiences from their own surrounding community culture or their own school community culture that restricts their perspective on ethnicities and cultures that are different from them, resulting in a point-of-view that these diverse students are low academically in skills and knowledge learning capacity (Bennet, 1995; Cockrell, et al., 1999; Fuller, 1994). This perspective coupled with their lack of linguistic and cultural skills and

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knowledge fuel the difficulty in helping multi-ethnic students transition between home and school (Gay, 1993; Goodwin, 2000).

Methodology

This case study structure and design examines this unique culture's instructional teachings via the perspectives of a case study small sampling of 3rd to 5th-grade level teachers in Hawai`i's Department of Education public school system. Its approach employs the procedures of an emerging design based on the lived experiences of individuals in their respective natural classroom setting (Creswell, 2003). The research methodology and design is detailed in its examination of the target population sampling's profile in consort with their survey responses via closed question responses to the existing survey Culturally Responsive Teaching Outcome Expectancy Scale (Siwatu, 2007). Considering this methodology the relevant sources of data and their respective triangulation, the data validity and reliability are discussed along with their respective data format presentations. This study uncovered the themes or patterns for this group's instructional practice and curriculum development; in addition, the internal and external forces as well as their relevance to Lewin's theoretical framework and field theory (Lewin, 1947) and their influence on the diverse and multi-ethnic student population are revealed.

The participants' 'insider' cultural perspective was part of the discovery process and this sub-culture of the organization's primary school culture is essential in generating themes or patterns of an inclusive leadership theory (Bourke, 2016; Christensen et al., 2015). The individual's Likert-rating percentage scale of their personal experience in the classroom setting, their introspective analysis of this experience, their diverse and inclusive curriculum development considerations for instructional practice for their multi-racial and diverse classroom were the focus of this anonymous survey. The data collected from their lived experience, in this

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case, years of service and years living in Hawai'i (demographic profile), in the current situational natural setting context (their classroom) (Christensen et al., 2015) evidenced the link between their teaching method approach and their educator profile background and history.

According to Rosenthal and Rosnow (1991), when studies are done in their natural settings with humans, proof of cause and effect or probable causation cannot absolutely be proved as with a quantitative methodology, as the identified variables are studied to clearly identify their sequence, their measurement and their relationship (Creswell, 2003), and then results and their connection to the purpose statement. The independent and dependent variables are presented, and where applicable a control variable and these variables are measured via instrument tools either via a survey or in controlled laboratory. Their respective linear ordering is not appropriate to this case study, where the variables and their influence on participants are compared and studied, but of a qualitative methodology, where the data is solicited for the participants' responses from their natural settings in their unknowing relevance to the theoretical framework and situational context. (Creswell, 2003; Denzin & Lincoln, 1994; Lewin, 1947c). Lewin's field theory formula served as a reference in relation to the culturally sensitive survey results for teacher responses to their curriculum development and instructional practice in their situational context of a diverse and multi-ethnic student classroom. Siwatu's (2007) survey aligned to Lewin's situational life space formula ($B = f(p,e)$ as the baseline of uncovering themes or patterns.

The research question for this qualitative study did not involve objectives or predictions that involved variables and statistic tests but took the form of the research question and Lewin's theoretical framework, field theory, formula and action research collaboration limited to survey instrument statement responses. The phenomenon of the pre-service diverse and multi-racial

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training of the Hawai'i educator were examined as a potential contributing factor, the teacher outcome of a multi-ethnic classroom, and the internal and external forces that influence student learning, and finally the implications of these survey responses were descriptively shared. Lewin's 3-stage model was a non-intentional focus yet being used in their instructional practice and their responses further demonstrated and reinforced Lewin's model. Siwatu's (2007) survey statements provided the action research feedback in the survey instrument and the Likert-percentage-rating scale proved helpful in ascertaining teacher's instructional practice and curriculum development. The participants' description of their current experience explained their rationale for their behavior outcomes as provided by the optional comment box. Categorized data was visually presented in a table of statements with similar survey ratings for an inferential analysis of the data collected and their results' relevance to Lewin's theoretical framework and field theory (Stringer, 2014). The participants' responses were analyzed for themes or patterns and then the background, traditions and lived experiences were analyzed for their validity and reliability.

Results

The approved additional survey questions provided an additional perspective to the triangulation process and relationship of the research question of the origins of Hawai'i educators' cultural sensitivity applications in curriculum and instructional practice. This design linked the profile to the participants' demographics to validate the case study's research question origins and part of the triangulation analytics.

The survey responses were listed by their percentage responses to the degree of certainty that the instructional practice behavior will lead to the specified culturally sensitive outcome; 100% is "totally certain" that the behavior or concept will lead to a positive culturally sensitive

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outcome and then, decreasing in certainty to 0% that the behavior does not contribute to a positive culturally sensitive outcome. Although a small participant sampling, it proved sufficient in its saturation level of 80% or more in their responses.

The initial coding stage as noted in Table 1, list relationships' and were the literal words or thematic concepts in item numbers 2, 13, 16, and 17. Although 'teaching methods' was a literal word category assigned to item 3, it could also be assigned to 'instruction matched to learning preferences' as noted in items 4,9,10,11,20, and 27. A 'community of learners' was literally and thematically gleaned from items 5, 24, ad 25 in establishing confidence in their academic abilities when their cultural backgrounds are a consideration. The reduced number of items under the categories of 'communication', 'activating prior knowledge' and 'assessments' although significant elements in instructional practice, cultural-sensitivity was not acknowledged in its literal words or conceptual idea. The categories where cultural sensitivity was essential to instructional practice were 'Cultural contributions' and 'demographics'. These two categories noted a considerable number of items under each category.

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Table 1

Initial Coding – Stage 1

Item #	Descriptive key word categories
2,13,16,17	Relationships
3	Teaching methods
5,24,25	Community of learners
6,15	School versus Home culture
7,22	Communication
8	Activate prior knowledge
4,9,10,11,20,27	Instruction matched to learning preferences
12,14,19,23, 26	Cultural contributions
18,21	Assessment
28,29,30,31,32,33,34,35,36,37	Demographics

Kurt Lewin's theoretical framework was referenced as evidenced in key words as noted in Table 2, describe the participants' life space in 'relationships', 'community of learners', 'instruction matched to learning preferences', 'cultural contributions' and 'demographics' align to Lewin's theoretical framework formula in key words of 'behavior', group at a certain point in time', and environment.

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Table 2

Selective Coding – Stage 3 – Kurt Lewin Theory

Item #	Descriptive key word categories
2,13,16,17	Relationships
3	Teaching methods
5,24,25	Community of learners
6,15	School versus Home culture
7,22	Communication
8	Activate prior knowledge
4,9,10,11,20,27	Instruction matched to learning preferences
12,14,19,23, 26	Cultural contributions
18,21	Assessment
28,29,30,31,32,33,34,35,36,37	Demographics

In the contemplation and presence of the life force, Aloha, the following unuhi laulâ loa (free translation) may be used" (HI Rev Stat § 5-7.5, 2013).

Akahai, meaning kindness to be expressed with tenderness;

Lôkahi, meaning unity, to be expressed with harmony;

Olu`olu, meaning agreeable, to be expressed with pleasantness;

Ha`aha`a, meaning humility, to be expressed with modesty;

Ahonui, meaning patience, to be expressed with perseverance.

The expressive characteristics of tenderness, harmony, pleasantness, modesty and perseverance are actions or behaviors, not theoretical sayings. Items numbers 5, 24 and 25

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labeled under the category of ‘community of learners’ demonstrate ‘unity’ as expressed in harmony. Item numbers 2, 13, 16, and 17 as key word ‘relationships’ align with the spirit of Aloha’s key words of ‘kindness’ and ‘agreeable’, expressed as behaviors of ‘tenderness’ and ‘pleasantness’ respectively (Table 3).

Table 3

Selective Coding – Stage 3 -- Aloha Theme

Item #	**Descriptive key word categories**
2,13,16,17	Relationships
3	Teaching methods
5,24,25	Community of learners
6,15	School versus Home culture
7,22	Communication
8	Activate prior knowledge
4,9,10,11,20,27	Instruction matched to learning preferences
12,14,19,23, 26	Cultural contributions
18,21	Assessment
28,29,30,31,32,33,34,35,36,37	Demographics

Both categories used in results’ reporting are an in-depth analysis that provided validity and reliability to this study’s research question relevance.

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Table 4

Axial Coding -- Stage 2

Item #	Descriptive key word categories
2	Trust
13,16,17	Relationships
3	Teaching methods
4	Student learning needs
5,24,25	Community of learners
6	School versus Home culture
7,22	Communication
8	Activate prior knowledge
9,10,20	Instruction matched to learning preferences
11,27	Visual aids
12,14,19,23, 26	Cultural contributions
13	Parent
15	Classroom structure matched to home culture
18,21	Assessment
28,29,30,31,32,33,34,35,36,37	Demographics

The first and second coding stages uncovered the participants' themes or patterns that exhibited agreement that their curriculum and instructional practice were in response to their student classroom of a multi-ethnic and diverse student population. The key words or codes when referenced to Kurt Lewin's theoretical framework and Hawai'i's spirit of Aloha descriptive

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explanations were then linked and exhibited in the coding process of stage three's selective coding stage.

Conclusions

> "The Universal Declaration makes it clear that everyone must acknowledge:
> not only otherness in all its forms but also the plurality of his or her own identity, within societies that are themselves plural. Only in this way can cultural diversity be preserved as an adaptive process and as a capacity for expression, creation and innovation" (UNESCO, 2016, para.3).

This statement was a paragraph lifted from the Universal Declaration at their 31st session of this general conference in the wake of the 911 debacle in 2001. Although created in the emotional aftermath, its meaning holds true today and serves to promote rather than alienate. Unfortunately, the habitus (Paniagua, 2017) of those who find differences as unfamiliar and threatening continue and it is this case study's purpose to introduce a culture that has its origins in cultural diversity.

The situational context we find ourselves may be one of plurality and as such UNESCO recommends this context as opportunities for "an adaptive process and as a capacity for expression, creation and innovation" (UNESCO, 2016, para.3). This 31st general conference declared the divide that exists and a plan for future sustainability.

The future recommended vision to bridge the gap between learned knowledge and actualization would target those industries that continue to struggle with multi-ethnic and diverse community communication. A proposal to introduce a course actualizing "Diversity" to the University of Hawai'i's community colleges should be a viable consideration. The community college classroom would be the action plan field of study where the 'learned' actualize their

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knowledge by observation and teacher interaction. This separate classroom provides a wide range of multi-ethnic and diverse community for a situational context.

An action plan following the principles of Stringer's Action Research (2014) would be the textbook for this community college classroom and provide one of the forces behind Lewin's theoretical framework, Lewin's three-stage model will also serve as a component for this classroom course and the community college student classroom field of study as the situational context. Project based learning is another recommendation for this course, as actualization in their full-time work environment would be a worthwhile experiential assignment as executive probing questions would help to bridge the 'learned' to the 'learner.'

Hawai'i's multi-ethnic perspectives of its origins provide a window of diversity opportunity to not only educate but also actualize. The acculturation process of foreign nationals to western culture have been difficult for not only western leadership to communicate and deliver on educational performance standards but also for those transplanted diverse and multi-ethnic identities and family life (Kam, 2020). Leadership self-awareness, image management, negotiation, decision-making and problem-solving continue to be problematic in the efficiency production and student preparation in primary, secondary, and post-secondary education in navigating real-world diverse circumstances (Chin & Trimble, 2015). Lewin's theoretical framework and accompanying action plan model are a brief introduction on diversity challenge resolve that can only be initiated with a leadership willing to adopt its diversity issues.

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Healthcare Leader Strategies for Leveraging Electronic Health Records

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Abstract

Healthcare organizations may incur significant losses of productivity and profit because of the absence or incomplete implementation of Electronic Health Records (EHRs). EHRs are important to healthcare leaders because they enhance communication between providers and patients, reduce unnecessary costs, and increase adherence to clinical guidelines. Grounded in the transformational leadership theory, the purpose of this qualitative multiple case study was to explore strategies that some successful healthcare leaders used to leverage EHRs in their organization to increase profit and productivity. The participants were nurse managers from four healthcare organizations that successfully implemented an EHR system in Georgia. Thematic analysis was used to analyze the data from semi-structured virtual interviews and public organizational documents. Four themes emerged: the importance of effective communication between EHRs, usability of software for EHRs, requiring accurate documentation, and additional training for the medical staff. The key recommendation of the study is to ensure that the medical office staff effectively communicate with other providers to provide smooth transitions of a patient's care. Implications for social change include improving efficiencies through

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coordination of healthcare services, enhancing clinical decision making, and providing better healthcare at a lower cost to patients.

Keywords: electronic health records, EHR, health care costs, productivity

Introduction

The purpose of this qualitative, multiple case study was to explore the strategies used by healthcare leaders to leverage EHR systems to increase profit and productivity. The selection of qualified participants was Nurse Managers that worked in four physician offices in the west central region of Georgia. Four themes developed from the data analysis: (a) the importance of effective communication between EHRs, (b) usability of software for EHRs, (c) requiring accurate documentation, and (d) additional training for the medical staff. An electronic health record (EHR) is a real-time, digital version of patients' records that are readily available for providers to make decisions about a person's care (HealthIT.gov, 2018). An EHR contains the medical and treatment history where other healthcare providers and organizations can share information. Due to the benefits and liabilities, some clinicians believe it may not be a good idea to implement an EHR. Initially, an EHR promoted a paperless environment (Strauss, 2015). In 1992, EHR hardware quickly adapted in the medical world, making it easier to access medical information (Evans, 2016). However, some providers have continuously used paper records as well, causing privacy breach risks and potential for human errors. The Health Insurance Portability and Accountability Act (HIPAA) plays a significant role in protecting patients' privacy, such as protected health information (PHI). Nurses, physicians, and coordinators play a vital role in patient care services in healthcare organizations (Ma, et al., 2016). In healthcare, EHRs are vital because they are a form of communication between providers and patients,

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reduce unnecessary costs, and increase adherence to clinical guidelines (Menachemi & Collum, 2011).

Research Question

What strategies do healthcare leaders use to leverage EHRs in their organizations to increase profit and productivity?

Literature Review

The literature review provides background information of the study that is beneficial with answering the research question: *What strategies do healthcare leaders use to leverage EHRs in their organizations to increase profit and productivity?* Transformational leadership is a process that changes and transforms employees who need inspiration and empowerment to succeed in times of uncertainty. Transformational leaders are responsible for creating a clear vision for their organization. By treating each person with respect, satisfying their needs, and assessing their motives, an organization have productive workers that are happy with jobs and less likely to look elsewhere for employment. The four components of TL are intellectual stimulation, idealized influence, individualized consideration, and inspirational motivation (Deschamps et al., 2016). Implementation of EHRs helps facilitates a patient's health history in planning a proper treatment and help patients become engaged in their health. The meaningful use of EHR users in 2020 is approximately 3.1 percent for general acute care hospitals, which is reflects a +.05-percentage point adjustment required by legislation (Centers for Medicare & Medicaid Services [CMS], 2019).

Vendors often visit the offices or log in remotely through technical support. The American Recovery and Reinvestment Act of 2009 (ARRA) is a stimulus plan that invested $59

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billion in healthcare initiatives, including $19 billion in healthcare information technology (Prasad, 2014). The Centers for Medicare & Medicaid reimburses providers as an incentive for using an EHR and established the EHRs Incentive Program to support the nationwide implementation, adoption, and meaningful use of EHR technology (Lippincott, et al., 2017). Productivity shows an increase that physicians used a combination of EHRs and paper charts from 25% to 34% (Price, et al., 2013). The U.S. Department of Health and Human Services protect the health of all Americans and providing essential human services. The quality domain of healthcare consists of (a) effectiveness provides care processes; (b) efficiency: maximizing the quality of care delivered through healthcare; (c) equity: providing an equal need of healthcare to anyone; (d) patient-centeredness: educating, supporting, and meeting patients' needs and preferences; and (e) safety: providing safety to actual or potential bodily harm and timeliness (Agency for Healthcare Research and Quality, 2018). The patients' care is essential for patients and providers where the majority feel empowered to have access and make informed decisions about their health.

Methodology

Sample Studied

Four nurse managers from four physician offices in the west central region of Georgia participated in the study. The study sample consisted of a registered nurse and three LPNs. The nurse managers' work experience is a combination of 53 years in the nursing field and a combination of 49 years of EHR experience.

Design of Study

The researcher used a qualitative, multiple case study design and criterion sampling approach to obtain the participants for the study. Criterion sampling was selected because the

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main goal was to focus on participants' specific components who have experienced the implementation of EHRs.

Dependent/Independent Variables

There were no independent/dependent variables for this study because a qualitative multiple case study was designed.

Instrument Used

The researcher conducted semi-structured virtual Zoom interviews with eight open-ended interview questions to gather data for the study. The researcher interviewed each nurse manager, individually, and the interview questions were asked in the same format and wording for each participant. The participants selected the date and time that was convenient to their work schedule.

Datasets Collected

Four interview transcripts served as the datasets for this study. The interviews ranged from 50 minutes to an hour and 36 minutes. After reviewing the recorded interviews, the researcher analyzed the transcripts, coded the data, and developed the themes to answer the research question. A color-coded system was used to keep track of data identified with codes and associated themes. The researcher used NVivo 12 to import the data to find the codes and create the themes based on the responses from the participants. The data was triangulated from the interview transcripts and public organizational documents available online. After each Zoom interview, the researcher sent the recordings to TranscribeMe, which transcribed and sent transcriptions of each interview. To ensure accuracy, the researcher manually transcribed the interviews as well.

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Results

To reduce bias on the use of EHRs, the researcher avoided observing data from a personal perspective by following the interview protocol.

The findings of the research question are as follows:

1. Effective communication between EHRs systems is designed to communicate with other providers accessing patients' medical records which contributes to the continuity of care. Working in a healthcare environment is stressful with high demands and with little to no room for errors. Navigating EHR implementation and leveraging challenges is related to contacting technical support and vendors when an issue arises, such as a virus in the software or system updates affecting the daily workflow. The nurse managers stated that their office is equipped with technical support services 24 hours a day, 7 days a week. The open communication between other physicians will empower the medical office staff (nurses, techs, and administration) if the healthcare leader is intellectually stimulated. Teamwork between the staff, technical support, and the vendors is needed to successfully implement and run the system.
2. Usability of software for EHRs is essential to the staff and patients to meet their healthcare needs. The participants stated that the EHR systems used in their practice are Cerner and Epic. The software digitally stores the health information of each patient. It can be shared among different providers. The nurse managers indicated that EHRs were implemented to save money, increase profit, keep track of medical notes, and a mandate to use an EHR by the State of Georgia. Time management must be in place to improve job satisfaction, patient

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satisfaction and outcomes. The nurse managers implied that prioritizing, decision-making, scheduling, and multi-tasking will improve the usability of software for EHRs.

3. Requiring accurate documentation for physicians and nurses is vital for accurate recording of medical information regarding a patient's demographics, medical history, diagnoses, and prescription record. Quality documentation that accurately supports the diagnosis assigned and reflects the core delivered for appropriate reimbursement is based on the software used. Teamwork plays a vital part in accurate documentation because multiple people will be reading the medial notes and the patient's health depends on accurate documentation. Documentation is mostly due to human error, not the system itself. It is important to document correctly for the next physician/nurse to review and move forward with the patient's care. The patient's medical records are updated in real-time, instantly available, and seen by authorized users. The nurse managers suggested that requiring accurate documentation increases profit due to concise billing, with the ability to charge more for the services provided. Although the office may result to paper charting on occasion, paper charting is an alternative when the system malfunctions. Paper charting is important because the patient comes first. However, it causes a big conflict when the physicians want to stand there and chart the information right then, and the nurse managers must write down everything on paper. Once the system comes back up, the nurses must put in the vitals and orders. It causes conflict because it is a time constraint, especially on a busy day.
4. Additional training for the medical staff pertains to obtaining additional learning skills of the EHR system through clinical modules to train and develop an individual on their respective job position. The consultants for the EHR companies are experts of the software vendor's application and managing people through change. Additional training includes web-based,

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in-classroom (before Covid-19), and 1 on 1 training. The staff's workload and profit are subtopics with additional training for the medical staff. The tasks assigned to the staff (physicians, nurses, lab techs, and administration) are used for planning and controlling production. The staff uses different sections in an EHR system due to their position and workload. Profit plays a role in additional training for the medical staff due to improving operational efficiency, lowers overhead, and increase revenue due to accurate billing and coding. The nurses indicated their respective office increased their profit margin through billing and coding after implementing a new system with software to accurately price the medical services rendered. The nurse managers disclosed that the intent to leverage engaged medical staff have higher career satisfaction and may stay in their current role due to a connection characterized by dedication to their patients and work ethics.

Conclusions

Based on the results of the study, the researcher believes that increasing the profit and productivity for nurse managers by leveraging EHRs are vital for cost-effective processes, accurate diagnosis, and treatments, which increases overall health and safety for patients. The findings from the nurse managers interviews suggested that: (a) effective communication between EHRs, (b) usability of software for EHRs, (c) requiring accurate documentation, and (d) additional training for the medical staff were strategies used to answer the central research question. However, some healthcare providers continue to paper chart and use paper files. Therefore, some nurse managers lack strategies to leverage EHR systems to increase profit and productivity. Additional research is needed to identify other strategies that will be effective with increasing profit and productivity for other nurse managers that have not implemented an EHR system.

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The Problem of Human Trafficking in Colombia: Multiple Case Study

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Abstract

Colombia, South America has unique challenges when it comes to human trafficking. There are unique factors in Colombia that contribute to the human trafficking problem, and the government has taken a proactive approach to combat human trafficking that should be replicated in other countries around the world. In February of 2020, Dr. Sadulski and Dr. Russo conducted in-country research in Colombia as a guest of the Colombia National Police. This research included interviews and presentations from the leadership of INTERPOL and the Colombia National Police Criminal Investigative Directorate in Colombia, which oversee combating human trafficking in Colombia. It was discovered that characteristics in recruitment and coercion are different in Colombia compared to other countries. In particular, the proactive approach of the Colombian government that focuses on five modalities of human trafficking was discovered during this research. These modalities include sexual exploitation, homeless exploitation,

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marriage for asylum, organ trafficking, and labor exploitation. During this research, the leadership of INTERPOL and the Criminal Investigative Directorate identified the trafficker profiles that are used by the Colombia National Police to identify those engaged in human trafficking. Global implications of human trafficking in Colombia and the international partnerships with 18 countries that have formed an alliance against human trafficking with Colombia discovered in this research. The in-country research provided firsthand insight into Colombia's approach to combating human trafficking, which will be assessed in this qualitative multiple case study.

Keywords: human trafficking, sexual exploitation, Colombia National Police, INTERPOL, recruitment

Introduction

Human trafficking in Colombia occurs in many different forms. It involves sex trafficking, forced labor, and domestic servitude; and commonly involve victims who are exploited and mistreated (Hurtado, Iranzo, & Gómez-Hernández, 2018). Child recruitment into human trafficking in Colombia is common and many victims are forced into the ongoing armed conflicts as women and child soldiers (Hurtadoet al., 2018; Villacampa & Flórez, 2017). The national strategy to combat human trafficking in Colombia is facilitated by National Police of Colombia through the Directorate of Criminal Investigation and INTERPOL (Beltrán & Alberto, 2018). The National Police of Colombia through the Directorate of Criminal Investigation and INTERPOL utilize investigators, collaboration with human trafficking prosecutors, and provide victim services to combat human trafficking in Colombia (Beltrán & Alberto, 2018).

The co-authors in this qualitative study conducted in-country research in Colombia as a guest of the National Police of Colombia through the Directorate of Criminal Investigation and

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INTERPOL Colombia, which is staffed by investigators and researchers that seek to mitigate human trafficking in Colombia. This in-country research took place in February of 2020. As a multiple case study, qualitative interviews were conducted with staff from the Directorate of Criminal Investigation and INTERPOL referred to as DIJIN in Colombia at the National Police of Colombia headquarters. Research was also conducted through the General Prosecution Office of Colombia in Bogota. Research questions guided the inquiry for this study.

Research Questions

RQ1. What are current trends and scope of human trafficking in Colombia?

RQ2. In what manner does the National Police of Colombia through the Directorate of Criminal Investigation and INTERPOL mitigate human trafficking in Colombia?

RQ3. How does the Colombian government work with the international community to combat human trafficking?

Thematic analysis was used to analyze data collected from the multiple case study interviews to answer the research questions. Participant interviews revealed that human trafficking in Colombia is consistent with the global problem of human trafficking with some exceptions; which include an organ harvesting and a homelessness component of human trafficking in Colombia that is different than other regions of the world. Participant interviews identified that comprehensive trafficker profiles are maintained by INTERPOL and the National Police of Colombia to identify and prosecute traffickers. Participants posited that successes in Colombia's anti-trafficking strategies include partnerships with 18 other countries to combat trafficking through Colombia on an international level and that Colombia uses specialized investigators and prosecutors to address human trafficking. It was discovered that the largest market for human trafficking victims from Colombia is Asia. Therefore, steps are being taken to

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mitigate the risks of Colombian victims being kidnapped or coerced into human trafficking in Asia.

Literature Review

Even though national and international initiatives to mitigate human trafficking have been put into place, Colombia continues to have some of the highest instances of human trafficking in the Western Hemisphere (Wilcox, 2015). Various factors exist that contribute to the human trafficking problem in Colombia. Those factors include internal turmoil and violence within Colombia, narcotics trafficking, widespread corruption, and ineffective government services to combat human trafficking (Wilcox, 2015). Colombia has had a history of utilizing anti-human trafficking programs that lack proper funding, are poorly implemented, and are quickly abandoned by Colombia government officials (Wilcox, 2015). Colombia has experienced challenges in mitigating human trafficking, prosecuting those responsible for human trafficking, and providing protections and services for human trafficking victims (Wilcox, 2015). Prostitution is legal in Colombia and has a nexus to human trafficking. Human trafficking occurs in Colombia when a sex worker is forced to engage in commercial sex acts due to coercion or being forced into the sex trade (Restrepo-Saldarriaga, 2020). Researchers estimate that around 70,000 annual victims of human trafficking are located within Colombia (Wilcox, 2015).

Victims of human trafficking in Colombia include women, men, and children from all regions within Colombia (Jiménez-Rojas & Figueredo-Medina, 2017). In addition to sex trafficking and forced labor, Colombia experiences human trafficking in the form of criminal exploitation in armed conflicts (Villacampa & Flórez, 2017). Colombia has experienced over 50 years of armed conflict that has involved the involuntary recruitment of minors as child soldiers

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(Nagle, 2013; Villacampa & Flórez, 2017). Organized crime groups are commonly responsible for human trafficking in Colombia (Hurtado et al., 2018).

Steps Colombia is Taking to Combat Human Trafficking

Colombia has taken steps to mitigate human trafficking that has resulted in Colombia being recognized as a Tier 1 country according to the Trafficking Victims Protection Act (Wilcox, 2015). The Trafficking Victims Protection Act rates countries based on criteria used to determine whether governments are taking necessary steps to combat human trafficking (Department of State, 2021). Tier 1 countries are those whose governments are in full compliance with the Trafficking Victims Protection Act's minimum standards to combat human trafficking (Department of State, 2021). There continues to be a need for administrative, judicial, legislative, and other measures to increase human trafficking investigations and prosecutions (Jiménez-Rojas & Figueredo-Medina, 2017). To effectively mitigate human trafficking, Colombia should continue to adopt and apply policies from the United Nations Convention against Transnational Crime to combat human trafficking and should train law enforcement to understand and respond to human trafficking (Jiménez-Rojas & Figueredo-Medina, 2017).

Furthermore, measures are needed in migration and border control to mitigate human trafficking in and out of Colombia (Jiménez-Rojas & Figueredo-Medina, 2017). Women fighters have also been exploited in the armed conflict in Colombia (Villacampa & Flórez, 2017). Villacampa and Flórez (2017) conducted a study involving interviews of women soldiers in armed conflict following the disbanding of some paramilitary groups in Colombia where participants were asked interview questions about how they joined the armed groups. The results of this study reflected that 80% of the women recruited in the armed group were victims of human trafficking and 70% were forced into the armed group as children through coercion or

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threat (Villacampa & Flórez, 2017). Villacampa and Flórez (2017) posited that recruitment of both male and female children into warring guerrilla groups is common practice in Colombia and children are forced into being child soldiers as young as 10 years old.

Methodology

The purpose of this qualitative research study was to apply a case study design to gain a deeper understanding of the problem of human trafficking in Colombia and to gain a deeper understanding of the government strategies that are being implemented to mitigate human trafficking in Colombia. This study provided an analysis of participants' experiences in combating human trafficking and their perspectives regarding the scope of human trafficking in Colombia. Interviews provided the opportunity to collect data through multiple case studies. Framing questions in multiple case studies can have an impact on the study itself and the ability to generalize findings (Yin, 2013). A multiple case study design was most appropriate, and as data was collected, multiple perspectives were obtained, providing a complete picture of the human trafficking situation in Colombia (Houghton, Casey, Shaw, & Murphy, 2013). Discovery and theory development can be found in multiple case studies, and multiple case studies were used as the research method in the present study (Yin, 2013).

Sample

The sample used in this study included Colombia National Police agents, investigators, research analysts, and INTERPOL personnel that are experts in the field of human trafficking in Colombia. Colombia National Police and INTERPOL personnel that were interviewed had a range of experience from a couple of years in counter-human trafficking to nearly fifteen years in counter-human trafficking operations. The sample provided external validity as participants had varying roles and backgrounds in combating human trafficking. Participants had a deep

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understanding of the trends associated with human trafficking in Colombia. The sample were recognized as experts in the field of human trafficking in Colombia.

Instruments Used

Instruments used in this qualitative study included interviews. Opened ended questions were provided to participants who provided responses that were transcribed by the researchers. Participants also provided data that reflected the current trends in human trafficking in Colombia. External validity can help to draw inferences from the sample to other persons or situations (Creswell, 2014). Therefore, comparison of human trafficking in Colombia to other countries in Latin America and the United States was made. In this study, data was triangulated between participant interviews and the literature to increase the study's reliability and validity.

Design of Study

Interviews were the primary instrument used to collect data in this qualitative study. Open ended interview questions were used to elicit responses that helped the researchers gain a deeper understanding of what sets human trafficking in Colombia apart from other areas of the world. Interview questions provided participants with the opportunity to share what they have learned about human trafficking in Colombia throughout their careers. Participants also provided presentations to the researchers on human trafficking in Colombia.

Datasets Collected

Data were collected and transcribed during in-person interviews. Identification of themes and primary strategies in the government's response to combating human trafficking was documented from the interviews. Agreements and contradictions between interview participant data and literature were used to emphasize data triangulation. Identification of the themes involving current trends in human trafficking in Colombia and its global implications were based

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on triangulation of the themes through the different data sources and perspectives of participants as they provided data on effectively mitigating human trafficking, which added validity to the study (Creswell, 2014).

Participants provided data from Colombia's Criminal Analysis Centers that work to mitigate human trafficking. These Criminal Analysis Centers research major criminal organizations associated with human trafficking, and they document their characteristics and operations. Personnel work together in these centers to develop trafficking intelligence while specialized attorneys dedicated solely to human trafficking cases prosecute the offenders. This is an important part of Colombia's strategy to combat human trafficking because these prosecutors become experts in human trafficking criminal cases.

Table 1

Themes

Research Questions	Themes
Q1. What are current trends and scope of human trafficking in Colombia?	1. Specific modalities of human trafficking
	2. Victims trafficked both internationally and domestically
Q2. In what manner does the National Police of Colombia through the Directorate of Criminal Investigation and INTERPOL mitigate human trafficking in Colombia?	3. Specialized investigators and training
	4. Trafficker profile development and analysis
Q3. How does the Colombian government work with the international community to combat human trafficking?	5. Anti-trafficking legislation
	6. Memoranda of understanding with international community to combat human trafficking

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Results

Participant interviews revealed that Colombia defines human trafficking in terms of transnational human trafficking and internal trafficking. Participant interviews revealed the following themes in human trafficking modalities in Colombia:

- Sex trafficking
- Homeless exploitation
- Marriage for asylum
- Organ trafficking
- Labor exploitation

Participants posited that since 2013, a total of 516 women and 109 men have come forward and been identified as victims of human trafficking by the Interior Ministry of Colombia. This is substantially low in light of estimates of more than 70,000 people who are trafficked within Colombia each year (Nagle, 2013). Various physical and mental methods of control are used in Colombia to exploit and force victims into human trafficking. These methods include intimidation and the threat of violence, emotional abuse where victims are humiliated and mistreated, isolation, and victim blaming (Nagle, 2013). Participants posited that traffickers abuse and exploit their victims.

Participants identified trafficker profiles that include the following characteristics:

- Traffickers who remain constantly with the victim
- Control all expenditures associated with the victim
- Traffickers who collect fines imposed on human trafficking victims
- Traffickers who monitor and control the victim's time and money
- Traffickers manage visa renewals for victims

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- Manage victims' trips and documentation when they are taken out of the country or to another department within Colombia

Human trafficking victims in Colombia are typically low-income women, women who are the head of the household, have little education, or a need to make money. Triangulation was used to validate these findings from literature. Boone (2014) and Nagle (2013) posited that women who live in poverty are especially vulnerable to human trafficking. Women are especially at risk of being trafficked when they are displaced from their homes and are commonly forced to become prostitutes in the domestic sex tourism industry that is fueled by foreign visitors (Nagle, 2013).

Participants identified Asia as the region with the highest number of Colombian human trafficking victims. Mexico and other countries in South America are also trafficking destinations for victims of human trafficking in Colombia. Transnational transportation of human trafficking across country borders is common (Kacowicz et al., 2020). Although the United States is not a major destination, most of the human trafficking cases from Colombia in the U.S. involve forced labor. The below map reflects the transnational routes of victims of human trafficking from Colombia.

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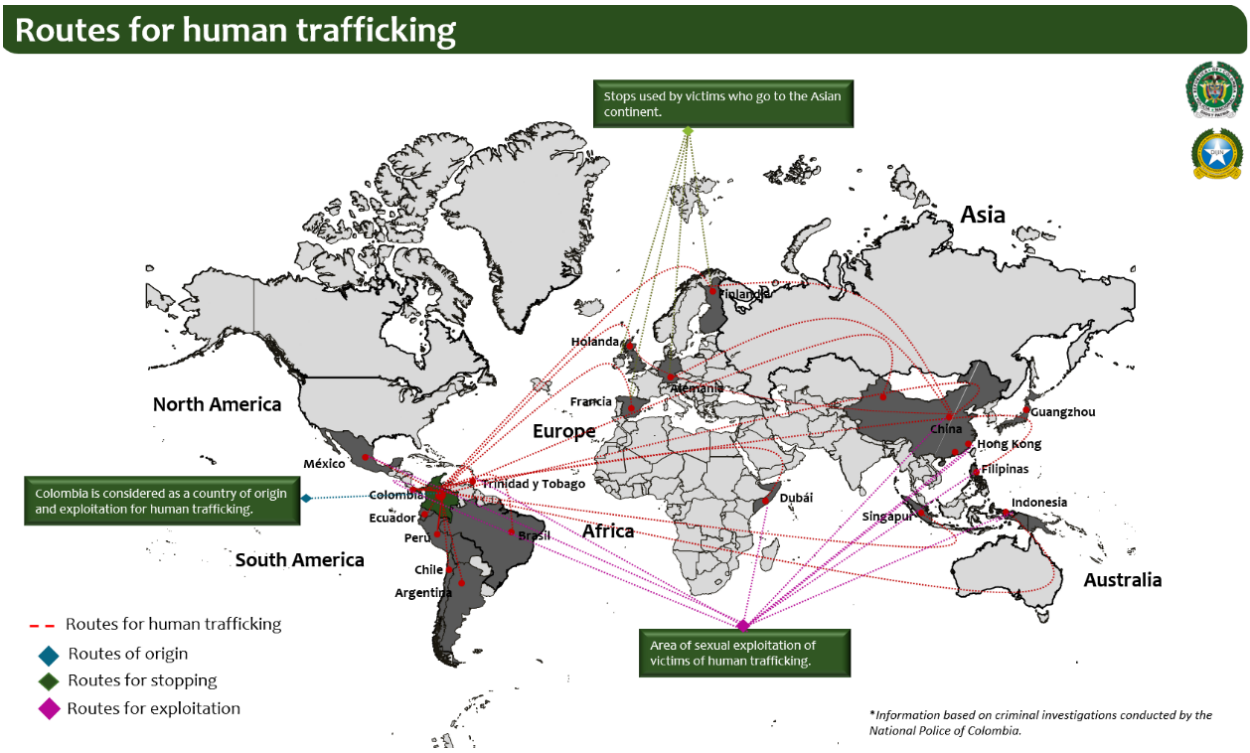

(Photo credit: Map provided by the Colombian National Police – Criminal Investigation Directorate)

Colombia is addressing human trafficking from an international perspective by partnering with other countries. Colombia's approach to combat human trafficking includes anti-human trafficking agreements with 18 countries. For example, the Colombian government has a memorandum of understanding to combat human trafficking with countries throughout South America and Central America. These agreements are in place with countries that include with Ecuador, Chile, Argentina, Honduras, El Salvador, Costa Rica, and Peru. Prison sentences for those convicted of human trafficking typically range from 13 to 23 years. In addition, Colombia is continuously training additional prosecutors and investigators in their strategy to combat human trafficking.

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Conclusions

Participants reflected upon many important factors associated with human trafficking in Colombia and provided valuable insight into the Colombian government's strategy to mitigate human trafficking. Interviews provided valuable insight into human trafficking and contributed to literature by delivering new knowledge on the problem of human trafficking in Colombia and the government initiatives to mitigate human trafficking. It became evident through the data collected in the interviews that the National Police of Colombia Criminal Investigation Directorate and INTERPOL are taking a proactive stance to combat human trafficking. This includes specialized training for human trafficking investigators and prosecutors, personnel dedicated to combating human trafficking, and the collaboration of 18 other countries to combat human trafficking. The National Police of Colombia Criminal Investigation Directorate and INTERPOL have identified trends within human trafficking in Colombia and have identified countries that Colombian trafficking victims are often transported to. This has international implications in mitigating human trafficking and should foster international collaboration to stop human trafficking between Colombia and the countries that Colombian victims are often trafficked to.

An analysis conducted by the National Police of Colombia Criminal Investigation Directorate and INTERPOL into the areas in Colombia where human trafficking is most prevalent found that Antioquia, Cundinamarca, Norte de Santander, Risaralda, and Valle del Cauca were the most vulnerable regions due to the victims' circumstances and financial vulnerability. This finding is consistent with existing literature. Boone (2014) posited that Valle de Cauca, Risaralda, and Antioquia are very common areas in Colombia for human trafficking and that gangs exploit victims in these regions through violence. Some of the factors that impact

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human trafficking in these regions is the limitations of law enforcement services in those regions, coupled with the influence of armed insurgent groups and various criminal organizations that exist in these regions. Drug trafficking organizations are also involved in human trafficking. Interviews revealed that there are now over 2,000 drug trafficking organizations throughout Colombia. Some regions in Colombia are very remote with limited road access. This severely limits law enforcement's ability to provide adequate law enforcement services in some of these regions. These aid criminal organizations in their operations because they are concealed in remote and jungle regions within Colombia. Criminal organizations exert a significant amount of control in Colombia.

Further research should study different categories of human trafficking that was identified in Colombia, which included sexual exploitation, homeless exploitation, marriage for asylum, organ trafficking, and labor exploitation. Except for sexual exploitation and labor trafficking, the other forms of trafficking in Colombia differ than common trends in human trafficking in the United States. Further analysis could examine differences in trafficking methods and differences in trafficking investigations between Colombia and the United States.

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