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Increasing Knowledge, Motivation and Self-Efficacy of NICU Nurses on Family Integrated Care

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Executive Summary

Problem. Can an education session on the family-integrated care model increase NICU nurses' knowledge, motivation and self-efficacy to implement the role transitions needed to practice within a FIC model?

Purpose. Measure if an educational training session would increase knowledge, motivation and self-efficacy of nurses to work in a FIC model of care NICU.

Goal/Objectives. Following an online educational training, NICU staff will demonstrate, through self-report instrument, an increase in: Knowledge of benefits of FIC, knowledge of role transition required, motivation to adapt role change and belief in the ability to implement role change.

Plan. Descriptive pre-test post-test design using a convenience sample technique with a multiple- choice self-report instrument tool.

Results. The study identified the significance of an online educational program in increasing the knowledge, motivation and self-efficacy of NICU nurses about FIC.

Recommendations. Ongoing periodical educational intervention can result in improved buy in on FIC hence efforts should be made to educate nurses on the benefits of FIC occasionally.

Acknowledgement

It is with the deepest gratitude I recognize Dr. Lynn Wimett, my Capstone Chair, in helping me finish my Doctorate on Nursing Practice program at Regis University. She has been my mentor, my guide, and above all, my companion encouraging and empowering me to stay focused throughout this program. I extend my heartfelt gratefulness to all the faculty members who gave me knowledge and wisdom during various courses. With their respectful critiques and suggestions during class discussions, my classmates have helped me acquire a new framework of thinking about life.

I am grateful to my wife, Giney Sebastian, for her encouragement and patience, allowing me to fulfill my lifelong wish to attain a doctoral degree. I acknowledge my sons, Dylan and Githu, for understanding all my shortcomings as a father and as a student simultaneously. I recognize my Dad and my Mom, who taught me the value of education since childhood.

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Increasing Motivation and Self-Efficacy in Nurses ability to Implement an Integrated Care Model through an Educational Session

Problem Recognition and Definition

Every year more than half a million babies are born prematurely in the United States (Centers for Disease Control and Prevention, 2016) and it is estimated 15 million infants are born prematurity in the world (World Health Organization, 2018). The survival of these premature infants increases as medicine advances, but not without a price. Preterm infants can cause anxious and stressful parents, often require prolonged hospitalization due to the need for innovative, cutting edge interventions, the use of highly complex equipment and technology and necessitates collaboration among medical experts and the parents to maximize outcomes for the infants and their families. The need for and the use of these highly advanced and complicated interventions requires expert professionally trained medical and nursing staff in the very specialized and controlled environment of the Neonatal Intensive Care Unit (NICU) but that may generate feeling of lack of control, hopelessness and even anger in the parents. Parents of premature infants receiving care in the NICU have higher rates of depression, coping difficulties, anger, hopelessness, feeling of not truly being parents, lower rates of breast-feeding, decreased confidence in their role and altered parenting skills (Benzies et al., 2017,2016; Bracht, O'Leary, Lee, and O'Brien, 2013; Busse, Stromgren, Thorngate, and Thomas, 2013; Gooding et al., 2011; Kelly, 2018; Lee and O'Brien, 2018; O'Brien et al., 2018).

FIC a care model that enables parents to be active caregivers for their infants even while their infants are still in the NICU. The FIC model has a strong positive influence on infants and parents' experience and infant outcomes (Lee & O'Brien, 2018). In the FIC, there

is shared responsibility and partnership in the care of the infant with the common goal being an improved outcome for the infants and their parents (Mann, 2016). Infant outcomes include reduced mortality and infection rate, and decreased length of time needed in the NICU; while, for the parents decreased stress is seen with improved breastfeeding efficacy and increased parental confidence in caring for their infants resulting in whole family health (Beebe et al., 2018; Benzies, 2016; Benzies et al., 2017; Brockway, Benzies, Carr, & Aziz, 2018; Busse, Stromgren, Thorngate, & Thomas, 2013; Lee & O'Brien, 2018; O'Brien et al., 2018)

Despite this evidence, implementing the FIC model of care is not without challenges including staff engagement and commitment to this model (Patel, Ballantyne, Bowker, Weightman, & Weightman, 2018). FIC requires a role transition for care providers form being the direct care provider to becoming the mentor and teacher for direct care by the parents. This can be very difficult transition and is not well accepted by many NICU nurses. They have concerns about patient safety, legal responsibility, lack of enough time to teach and mentor rather than “just do” the care and lack of additional resources so they have the extra time needed to mentor and teach rather than do (Brodsgaard, Pedersen, Larsen, & Weis, 2018; Broom, Parsons, Carlisle, & Kecskes, 2017; He et al., 2018; Patel, Ballantyne, Bowker, Weightman, & Weightman, 2018; Thebaud, Lecorguille, Roue, & Sizun, 2017). This lack of full staff support of a newly instituted FIC model in 2018 was identified as a possible quality problem in a NICU located in a community hospital in Denver, Colorado. Further assessment found that while nurses participated in a training session about the model, nurses had not participated in any training on the FIC model and how it has potential to improve quality of care for infants and improved quality of parenting skills for their parents.

Purpose

The purpose of this quality improvement project was to measure if an educational training session would increase knowledge, motivation and self-efficacy of nurses to work in a FIC model of care NICU.

PICO question. Can an education session on the family-integrated care model increase NICU nurses' knowledge, motivation and self-efficacy to practice within a FIC model?

Population. All NICU nurses who deliver direct patient care

Intervention. Educational session

Comparison. Pre-intervention and post intervention difference in self-perception of knowledge, motivation and self-efficacy for working in a FIC model of care NICU.

Outcome. Improved self-perception of knowledge, motivation and self-efficacy to work in a FIC model of care NICU.

Project Significance, Scope and Rationale

The NICU can be very stressful for parents and infants and act as a barrier for physical and emotional bonding. Lack of adequate emotional bonding leads to a sequence of problems like poor long-term outcomes, behavioral problems, decreased weight gain, poor breast feeding and increased parental stress (Frank & Alexin, 2013; Frank, McNulty, & Alderdice, 2017; Kelly, 2018). Family Integrated Care has been shown to decrease the stress for infants and their parents, but without staff buy in for the required role transitions to implement the FIC model, successful implementation is very difficult to impossible. An educations program for NICU nurses has the potential to increase the motivation to embrace the role transition a belief that needed role transition is possible. Although beyond the scope of this study, there is potential for successful

implementation of the FIC model with the newly empowered staff believing in the model and in their ability to role transition (Broom, Parsons, Carlisle, & Kecskes, 2017; Galarza-Winton, Dicky, O'Leary, Lee, & O'Brien, 2013).

Foundational Theories that Supports the Project

Theory of Attachment

Bowlby's Theory of Attachment (1969) was based on the foundation that emotional attachment formed early in life has a tremendous impact in life. John Bowlby was a British psychologist and psychoanalyst who believed that children are born with a biologically programmed tendency to seek and remain close to attachment figures. This biological need is interrupted when an infant is admitted to the NICU. Attachment refers to the special emotional relationship an infant form to his or her parents or primary caregivers (Bowlby, 1969). As this attachment has impact on life care givers play a vital role in enhancing this feeling of attachment to promote emotional and mental wellbeing of the infant in the NICU. Supporting the early relationship is vital in creating a positive parent-infant relationship. According to Twohig et al. (2016), NICU staff members are integral to the facilitation of early parent-infant relationship. Although education for staff on attachment is crucial it seems inadequate. Family Integrated Care model advocates and supports this attachment by involving parents are active care providers.

Transformative Learning Theory

Adult learners are self-directed, uses their own life experiences as medium of learning, are active in learning process, views the teacher or the instructor as a facilitator versus a gatekeeper of knowledge (Chen, 2014). It is also important to remember that adult learning is transformative and applies critical reflection and wants direct application to a problem (Chen, 2014). Applying adult learning principles when developing an educational program for adults is

critical. Transformative Learning Theory (TLT) by Mezirow (1991) explained the process of using one's own experience. The TLT for a fundamental transformation in the ideas and knowledge in the minds and actions of the learner (Sahin & Dogantay, 2018). An essential element of this theory is critical reflection to form a new frame of thinking. In the settings of developing an educational program for nurses on FIC this theory is applicable as it calls for critical reflection. Reflection around the purpose of FIC, framework for FIC and ultimately to reflect what these parents are experiencing would promote a new framework to embrace the new FIC model.

McClelland's Human Motivation Theory

Motivation is the process that determines the energization and direction of behavior (Guss, Burger, & Dorner, 2017). McClelland's Human Motivation Theory (1953) argued that human motivation is a response to changes in affective states (McClelland, 1985). A change in the affective states caused an imbalance in a person and this leads one to take actions to either maintain the state or to avoid or discontinue the state. McClelland noted that the three needs that drive the degree of motivation are power, affiliation and achievement. Perception of the situation and the adaptive abilities are the two factors that determined the degree of motivation. When an individual was driven by positive motivation that person continued to work through hurdles to achieve the goal while if that same person was not motivated to reach the goal, when faced with any hurdle the goal was likely to be abandoned not perceived as worth the effort to achieve it. The theory further stated that although most people were motivated by power, affiliation and achievement, not all are motivated at the same level for each need. In other words, if a person has a strong need for power (the ability to influence), that person would be strongly motivated

when that opportunity was available to influence others; while the individual for a strong need for affiliation might ignore influencing another if he or she felt that might damage the relationship and so on. Individuals work harder to fulfill the needs most important to him or her (Rybnicek, Bergner, & Gutschelhofer, 2019). Helping individual recognize their strongest needs and how that might impact their actions can be helpful. The educational intervention will include content on recognizing individual needs and how to maximize meeting those needs (motivation) as a care provider working in a FIC environment. This approach will generate positive move from the employees and will embrace FIC

Literature Review

A literature review was conducted utilizing the databases; Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL), MEDLINE, Google Scholar, PubMed and Cochrane Library. Key words used were Family Integrated Care, NICU, Family Centered Care, Care partnership in NICU, Family Support in NICU, Family Delivered Care, Family Nurture Intervention, and Parents Perspective for Neonatal Care. The initial literature search produced 2,079746 articles. The search was narrowed by adding ‘NICU’ resulting in 3642 articles and further narrowed limiting to only articles published between 2011-2020 in English and included references. This resulted in 444 articles. A total of 63 of these articles were reviewed resulting in 39 relevant articles. Of these articles 11 were Randomized Controlled trials (Level one), three articles were Quasi-Experimental (Level two), 10 were Non-Experimental qualitative (Level three) and two were Clinical Practice Guidelines, consensus on position statements (Level four) as defined by Spruce, Wan Wicklin and Wood (2016). Following themes were identified while reviewing the articles.

Identified Themes

Role Transition. The FIC model requires a change in the roles for nurses as well as for the parents of infants requiring NICU care. Nurses' move from the traditional role of providing expert care for the infant to educating and empower parents to provide expert car for their infants and parents move from being visitors to care providers administering medications and intravenous fluids, and reporting updated on their infants' status to the medical team (O'Brien et al., 2018). This transition not only strengthen the bond with their infants but gave parents confidence they could provide care when the infant was ready to leave the NICU (Warre, O'Brien, & Lee, 2014).

Partnership. Effective communication between nursing staff and parents are integral to the success of FIC model to nourish the partnership between families and professional care providers and build the strong relationships needed for shared decision (O'Brien et al., 2018). FIC enabled parents to gain knowledge and confidence through training and coaching by the nurses on such things as how to present their infant during medical rounds, share vital information to the medical staff or even performing simple tasks like changing diapers or doing daily weights (Banerjee, Aloysius, Platonos, & Deierl, 2018). Sharing common goal and eliminating hierarchical relationships improved collaboration between healthcare providers and families, built respect and moved clients toward true family centered care building parents' confidence to care for their infants after discharged from the NICU (Mann, 2016).

Improved Clinical Outcomes. FIC improved clinical outcomes for their infants for their parent decreasing parental stress, increasing parenting competence, and confidence (Mann, 2016; Broom, Parsons, Carlisle, & Kecskes, 2017) while decreasing parental anxiety, depression and improved parental roles such as breast-feeding sessions and bonding between the mother and the

infant (Cheng et al., 2019). According to Busse, Stromgren, Thorngate, and Thomas (2013), stress and anxiety affects parental behavior, which can eventually negatively affect an infant's cognitive and emotional outcome. A study by O'Brien et al. (2013), showed better weight gain, increased rate of breast-feeding, decreased incidence of retinopathy of prematurity (ROP), and decreased nosocomial infection when FIC was applied in the NICU. A randomized control study by Ortenstrand et al. (2010) summarized that FIC showed lower incidence of chronic lung disease, less mechanical ventilation days and improved sleep pattern for infants. Finally, NICUs that utilized FIC model had shortened length of stay for their patients leading to decreased healthcare expense.

Training. Staff engagement was identified as the greatest challenge in implementing FIC model in a NICU (Patel, Ballantyne, Bowker, Weightman, & Weightman, 2018). It was suggested that education on the model and the benefits it brought to infants and their parents helped nurses to embrace the FIC model (Trajkovski, Schmied, Vickers, & Jackson, 2012; Warre, O'Brien, & Lee, 2014). Successful educational sessions embraced the philosophy of engaging staff and families in all aspects of planning and implementation through clarification of the role of staff and their responsibilities and the clarification of the role and responsibilities of the parents (Broom, Parsons, Carlisle, & Kecskes, 2017). FIC philosophy emphasized that in the parent infant dyad, the parent was the only caregiver that provided total care that supported the infant's psychological and physiological growth; therefore, the nursing curriculum framework should focus on understanding parents' perspectives, understanding parent's psychological challenges, recognizing the challenges of therapeutic relationships, providing therapeutic care and acknowledging its impact on infant and finally supporting parental competency (Trajkovski,

Schmied, Vickers, & Jackson, 2012). Most nurses that participated in the above study also reiterated that there was a need for refresher courses to fully support FIC in a NICU setting.

Summary of Key Articles

A qualitative focus group study conducted in an Australian NICU that was part of an international multicenter cluster randomized controlled trial to evaluate the efficacy of FIC showed benefits of FIC in three major areas; improvement of parent confidence, improved communications between parent-staff and parent-parent (Broom, Parsons, Carlisle, & Kecskes, 2017). This study utilized qualitative methodology to evaluate the perceptions of parents and staff on FIC. This study was conducted in a level III NICU that cared for about 750 neonates yearly for infants of 23 weeks gestational age and up. A total of 16 families and 80 nurses took part in the new care model; FIC. Participants were educated on the new care model with the use of a FICare folder. The FICare folder explained the role of staff and their responsibilities in addition to covering the responsibilities of the parents. Parents were also trained on how to take part in medical rounds and be an active presenter during rounds. Families were expected to spend a minimum of six hours in the unit with their infants to be part of this study. Parents were also expected to attend group education sessions periodically. Clinical coordinators in the NICU periodically supported the families. All of the participants of this care model; parents and staff, were invited to take part in the focus group after six months of the implementation of FIC to explore the efficacy of the program, using open ended questions. The focus group concluded that FIC was very beneficial. Staff highlighted the benefits that FIC enabled families to know better about their infants. The frequent educational sessions were seen as beneficial to staff as it provided a framework for staff and parents to work together. The focus group noted that FIC model improved parental confidence and improved knowledge of neonatal care. Staff noted that

the implementation of FIC enabled parents to take ownership and improved bonding with their infants. In addition to noticing the benefit in improved communication between parents and staff this study also noted that staff observed the change in role from a care giver to that of an educator and mentor.

A study to develop, implement and evaluate a nursing education program to support FIC in a Canadian NICU stated that nurses are vital in nurturing the parent infant relationship and FIC can facilitate this. As part of this study a pilot study was conducted by a steering committee for a year. The pilot study showed many positive effects of FIC like; less parental stress, improved parental confidence, improved weight gain of the infants and decreased nosocomial infection. This pilot study pointed out the importance of nurses' knowledge and skills to promote integration of parents into medical care. This finding led the steering committee to develop, implement and evaluate the effect of this nursing curriculum. A workgroup consisted of nursing, parents and other ancillary staff developed a nursing curriculum based on the findings from the literature. The new curriculum was based on the assumption that in the parent infant dyad the parent is the only caregiver that can provide a total care that supports the infant's physical, psychological and physiological growth. The nursing curriculum framework had five areas of focus; understanding parents' perspectives, understanding parents' psychological challenges, recognizing the challenges of therapeutic relationships, providing therapeutic care and acknowledging its impact on infants and finally supporting parental competency. A nursing survey was done based on the five elements of the curriculum. The results of the survey pointed the need for nursing education to embrace FIC. After the new nursing curriculum was implemented, nurses were interviewed one on one six months later. The interviewers also interviewed a small group of nurses who did not take part in the curriculum to gather some ideas

about the impact of FIC described elsewhere. The thematic analysis of the interview transcribed into how nurses' anxiety was decreased after attending the educational workshop. The nurses reported that the workshop gave them clear expectations and gave them a deeper knowledge about parental experience in the NICU. Most nurses also reiterated the need for refresher courses to fully support FIC in a NICU setting. It was noted that nursing curriculum on FIC enabled them to be educators and facilitators versus care givers.

Warre, O'Brien, and Lee (2014) reviewed the development and theory of the care by parent model and published the benefits and challenges to this model in their article titled *Parents as the primary caregivers for their infant in the NICU: Benefits and challenges*. The authors stated the benefit of this care model like improved neonatal outcomes like decreased length of stay, decreased hospital readmissions, decreased need for nasogastric tube feeing, improved parental confidence and decreased rate of depression. Improved breastfeeding sessions were also noted as a benefit to the family integrated care model. Although this article was similar to the previous articles listed they also pinpointed out some challenges. The importance of education for both parents and nursing staff was highlighted in this article. Nursing role transition should happen for the successful integration of the program to be of an agent to reconnect parents and infants. Task oriented patient care is a thing of the past; the future is all about creating a therapeutic environment where parents are primary care givers and nurses are aids to help parents to get there. The paper addressed the importance of financial cost in implementing this new care model and emphasized the key factor in the successful transition of this care model was to have buy-in from all disciplines. Enabling and coaching parents to be primary care providers gives the nurses more time caring for the sickest infants and more efficient clinical decisions.

Lessons learned in implementing FIC model on the transformative effect on families and staff is discussed by Patel, Ballantyne, Bowker, Weightman, and Weightman (2018) in the paper titled *Family Integrated Care; Changing the culture in the neonatal unit*. The authors pointed out that staff engagement is the greatest challenge in implementing FIC model in a NICU. The study was done in the largest NICU in Scotland with approximately 1000 admissions yearly and over 200 staff nurses. Due to acuity and workload present staff felt they were overworked and had poor enthusiasm towards this new idea. Although some staff felt lack of confidence others were concerned about legal liabilities for the actions parents would do. Barriers like overwhelmed parents with poor infrastructural support stood up as restraints. Parents that had language barrier did not feel confident in this new approach. By embracing the philosophy of engaging staff and families in all aspects of planning and implementation by taking a 'ground up' approach this unit was successful in implementing FIC model. Listening, empowering and innovation guided them to successfully integrate FIC. Utilizing an innovative idea of step wise approach in gaining staff support showed the change of staff acceptance of the program gradually. To evaluate the effect of the implementation of the new care model structured interview and surveys were sent out and showed a culture shift that showed common sense of purpose, collaboration and cohesion.

Market and Risk Analysis

Family integrated care in the NICU offers many advantages to parents, patients and staff bur is not without challenges that seemed to be primarily due to the need for a cultural change from the more traditional cultures currently being practiced in many NICUs. A comprehensive educational program designed for NICU nurses that included emphasis on role transitions needed in order to drive that culture change needed for success in implementing the FIC model was needed. Like any change, there is risk that there will be resistance to this change.

Strengths, Weakness, Opportunities, and Threats

Strengths. Nurses and parents want evidence-based best care for the infants. There is evidence that the FIC model is consistent with best outcomes for both infants and their parents. There are published articles that include content that should be included when preparing an educational session designed for NICU nurses transitioning to a FIC care culture.

Weaknesses. Implementing the FIC model of care requires a cultural change that includes changing roles for both parents and care providers. Fear or making these changes is evident for both. This fear could result in experienced nurses leaving the NICU clinic to work elsewhere or never fully embracing the FIC model.

Opportunities. Although beyond this study, there are possible future opportunities with additional research. The clinic could publicize their NICU is a FIC care model that has better outcomes for infants and parents, supports the CMS strategy for better care at lower cost and the quadruple aim to help healthcare systems to deliver excellent quality of car at optimized cost while improving population health and decreasing stress in care providers which could increase the client base and attract staff that are familiar with the model (Bodenheirmer & Sinsky, 2014).

Threats. Covid-19 pandemic 2020 may have skewed data collection.

Driving Forces

Driving forces for this quality improvement project are the benefits of FIC for patients, families, staff and the organization as a whole and recourses available for little cost. Nurses want to provide highest evidence based quality care to maximize outcomes so providing them with the benefits of FIC can increase their motivation to embrace an implement this mode. There are resources available to teach the model.

Restraining Forces

The biggest restraining forces for this project is the lack of buy-in for NICU nurses to accept the new culture based on fear that they may no longer be comfortable and perceived as the best care providers excellent in their roles and a fear of losing authority and control of the care for the infants.

Stakeholders and Project Team

Primary stakeholders are nursing staff at a community hospital NICU, located in Denver Colorado. The project team includes Manojkumar Sebastian, a Neonatal Nurse Practitioner and PI for the study, Dr. Ann Ryan, the medical director at the clinic; Dr. Alfonso Pantoja, clinical mentor; Shannon Brinker, an occupational therapist; and Dr. Lynn Wimett, Capstone Chair for this project.

Cost and Benefit Analysis

Costs

The cost to replicate the study would be about 3485 dollars; however, because much of the needed resources were provided free of charge so the actual cost for the project was 1456 dollars (see Appendix B for cost details).

Benefits

The benefits of implementing FIC model are unquantifiable in dollar amount as it has potential to offer short and long-term benefits to patients, families, the unit, the hospital, insurance companies and healthcare in general.

Project Objectives

Mission

The mission for this project was for staff nurses working in a NICU to understand the benefits to infants and parents of a FIC model of care, the role transition necessary to implement

a FIC model of care and for NICU nurses to gain motivation and self-efficacy to make the role transitions needed for successful implementation of a FIC model of care.

Vision

Successfully transition NICUs to implementation of the FIC model of care practice.

Objectives

Following a learning activity designed for NICU staff working in a NICU that has implemented a FIC model care, NICU staff will demonstrate, through self-report instrument, an increase in:

- Knowledge of benefits to infants and parents when a FIC model of care is implemented
- Knowledge of roles transitions required by staff working in a NICU that has implemented a FIC model of care
- Motivation to adapt to role changes required when working in a NICU that has implemented a FIC model of care
- Belief in ability to implement role changes when working in a NICU that has implemented a FIC model of care

Methodology and Evaluation Plan

This quality improvement project used a descriptive pre-test post-test design using a convenience sample technique. It will not generalize beyond the study population.

Level Three NICU

This study was conducted at a community Level III NICU, located in Denver, Colorado. A level three NICU is a neonatal intensive care unit capable of caring for premature, very small or very sick newborns infants. They are required to have a wide variety of staff including

neonatologist, neonatal nurses and respiratory therapists who are available 24 hours a day. The total bed capacity is 51 with an average daily census of 36 patients. Majority of the patients in this NICU are premature infants and the average length of stay is 46 days.

Population

Inclusion: All registered nurses (full time, part time, PRN, and travel nurses)

Exclusion: Any staff nurse who is a current NICU parent

Intervention

An online educational session of 30 minutes. Educational format was provided in the form of voice over power points. The contents included benefits of FIC, testimonials from previous NICU parents, expert opinion from Neonatologists and an occupational therapist.

Tool

A multiple choice self-report survey was developed and used to measure perceptions of knowledge, motivation and self-efficacy prior to the intervention and after the intervention of an online education program. The survey consisted of a total of 14 questions, six on knowledge, three on motivation, three on self-efficacy and two on demographic information. Although the survey included two qualitative questions, no participants provided qualitative data. The same survey was used before and after the intervention (see Appendix C for a copy of the survey). All data was presented in aggregate form only. No identifying information was collected on surveys the surveys.

Reliability and Validity

Face validity was established for the survey by three subject matter experts that were not part of the study. Reliability was not tested following the study for internal consistency because only mean scores (not raw data) were reported by the data collecting tool.

Data Collection and Treatment Procedure/Protocol

Data was collected using Survey monkey. Pre-test and post-tests were sent via the link to survey monkey. Subjects were also sent the link to YouTube to watch the online educational video.

Analysis

Paired t-test to measure differences between pre and post tests were conducted. Since survey monkey only provided the mean scores of all the questions, not the raw data, mean of the mean scores were used to analyze the data. IBM SPSS software was used to analyze the data using a paired simple *t*-test. Percentage change between the means of pre and post-test was also done. No qualitative data was received.

Project Findings and Results

Data Collection

A total of 14 pre-intervention survey answers were compared with a total of 14 post survey answers. The question analysis was split by knowledge (six questions), motivation (three questions), and self-efficacy (three questions) to measure differences between the mean score for pre and post intervention surveys. The two demographic questions were aimed at identifying how long most participants worked with FIC and what aspects of FIC contributed to the job satisfaction. Because of the limitation of no raw data reported by survey monkey only mean of the mean were computed. A percentage change between the means of the pre and the post intervention was also completed.

Demographic Data

Most participants worked with FIC. Only 15% of the participants worked with FIC less than a year. Majority of the participants, 51% worked with FIC between one and two years. Only

2% worked more than five years (see Appendix A). This may be one of the reasons why the measure of knowledge did not notice a large increase of the mean scores on the post survey.

Table 2A

Job satisfaction

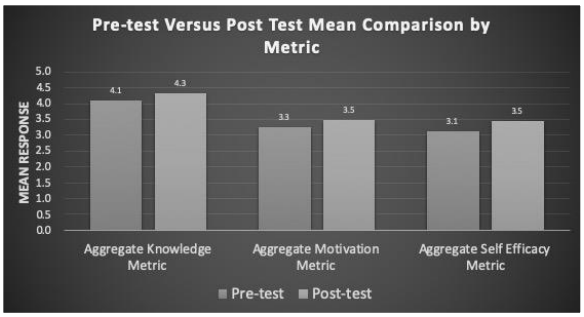
What aspects of FIC have contributed to job satisfaction?		
Pre Survey Mean	**Post Survey Mean**	**Percentage Change**
2.8	3.4	21.40%

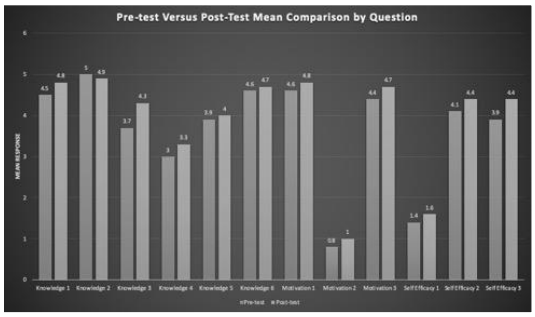
When participants were asked what contributed to their job satisfaction 38 participants selected improved family satisfaction, 37 selected improved patient outcomes, 31 picked improved job satisfaction, and 28 favored being a mentor. Subjects had the option to select as many choices as they wanted to. Because subjects did not prioritize their selections it was difficult to conclude what contributed most to their job satisfaction before or after the intervention.

Enquiring about what aspects of FIC contributed to job satisfaction showed an increase in the mean score from 2.8 to 3.3, which was an increase of 21.4% indicating that the online education was effective. Most participants identified improved family satisfaction as a factor that influenced job satisfaction.

Figure 1

Aggregate change between pre and post- test





There was a slight increase in knowledge, motivation and self-efficacy following the intervention for all but one knowledge question (question two) following the intervention. Question two was: What are some of the benefits of Family Integrated Care for families? Perhaps, it was due to the majority of the subjects reporting previous experience working in FIC. However, the overall aggregate knowledge difference between the means showed an increase from 4.1 to 4.3 following the intervention.

All three questions for motivation showed a positive change between the pre and the intervention surveys. For motivation, the aggregate change was from 3.3 to 3.5 between the pre and the post-surveys. For self-efficacy, the aggregate change was from 3.1 to 3.5 between the pre and the post-surveys.

Knowledge

Table 3 A

Knowledge change between pre and post-test

		Paired Samples Test							
		Paired Differences					t	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std.Error Mean	95% Confidence Lower	95% Confidence Upper			
Knowledge	pre-post	-0.21667	0.24014	0.09804	-0.46868	0.03534	-2.210	5	0.078

Table 3B

Knowledge change in percentage

Measure	Pre-Test Mean	Post Test Mean	% Change
Knowledge	4.1	4.4	5.26

The difference in the means for knowledge was plus 0.3 or a percent change of 5.26; although this showed a trend toward increased knowledge following he educational intervention, it was not statistically significant (p=0.078). However, the standard deviation was low (SD=0.240), indicating there was not a great deal of difference between the data scores, indicating there was a trend toward significance which could be clinically significant when also considering the very small sample size and possibility of type 2 error.

Motivation

Table 4A

Motivation change between pre and post-test

		Paired Samples Test							
		Paired Differences					t	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std.Error Mean	95% Confidence Lower	95% Confidence Upper			
Motivation	pre-post	-0.23333	0.05774	0.03333	-0.37676	-0.08991	-7.000	2	0.020

Table 4B

Motivation change in percentage

Measure	Pre-Test Mean	Post-Test Mean	% Change
Motivation	3.3	3.5	7.14

The difference in the means for the motivation questions was plus 0.2 with a percent change of 7.14, which was statistically significant (p=0.02) even considering the very small sample size (N=14). The standard deviation was also low (SD=0. 05774) for this question.

Self-Efficacy

Table 5A

Self-Efficacy change between pre and post-test

		Paired Samples Test							
		Paired Differences					t	df	Sig.(2-tailed)
		Mean	Std. Deviation	Std.Error Mean	95% Confidence Lower	95% Confidence Upper			
Self - Efficacy	pre-post	-0.33300	0.15275	0.08819	-0.71279	0.04612	-3.780	2	0.063

Table 5B

Self-Efficacy change in percentage

Measure	**Pre-Test Mean**	**Post-Test Mean**	**% Change**
Self-Efficacy	3.1	3.5	10.64

The difference in the means for the self-efficacy questions was plus 0.2 or a percent change of 10.64; although, this showed a trend toward increased self-efficacy following the educational intervention, it did not meet statistical significant (p=0.63). Again, a low standard deviation (SD=0.15275) could indicate a clinically significant difference considering the very small sample size (N=14) and measured by only three questions (n= 22) and a possibility of type 2 error.

Limitations

The small sample size (N=39), the limited number of questions to measure change (12 total; six for knowledge, three for motivation and three for self-efficacy, lack of qualitative data and lack of raw data limited any conclusions as to the effectiveness of the educational session on the family-integrated care model to increase knowledge, motivation, and self-efficacy to implement the role transitions needed to practice within a FIC model.

Recommendations

Repeat the study with a larger sample, a modified tool that increases the number of questions for each variable and encourages qualitative responses. Use a platform that reports raw data as well as means.

Implications for Change

Continuing to gather evidence that supports positive impacts on the care and outcomes for infants, families, nurses for the organization practicing within a FIC model will help drive this change. Because staff motivation and staff self-efficacy are vital for the success of the model, the educational session will continue to be available and evaluated for success in increasing knowledge, motivation and self-efficacy of staff practicing within a FIC model of care.

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Appendix A

Participants' years of experience with FIC

Demographic Data		
Years of experience	**Number of respondents**	**Percentage**
Less than one year	6	15%
1-2 years	20	51%
3-5 years	12	32%
Longer than 5 years	1	2%
	Total number of respondents= 39	

Appendix B

Itemized Project Cost

Materials	**Quantity**	**Cost**	**Projected Cost**
Printing	0.11/page	48.4	0
Time spent on power point @56 dollars/hr.	6 hours	392	392
Time spent on creating pretest	6 hours	392	392
Time spent on creating post test	6 hours	392	392
Data analyzing	5 hours	280	280
Cost of staff taking the 30-minute course @30 dollars average	66 hours	1335	0
Survey Monkey Cost	2 months subscription	10	0
Total Cost		**2849.40**	**1456.00**

Appendix C

Survey Questions

1. What are some of the benefits of Family Integrated Care (FIC) **for infants**?
   (**Select all that apply)**

- ☐ Weight gain
- ☐ Improved breast-feeding sessions
- ☐ Lower respirator support days
- ☐ Decreased length of stay
- ☐ Decreased infection rates

2. What are some of the benefits of Family Integrated Care **for families**?
   (**Select all that apply)**

- ☐ Less stress and anxiety
- ☐ Enhanced parental confidence
- ☐ Improved emotional bonding
- ☐ Shared responsibility and partnership
- ☐ Increased breastfeeding efficacy

3. What are some of the benefits of Family Integrated Care **for nurses?**
   (**Select all that apply)**

- ☐ Improved job satisfaction
- ☐ Improved communication and trust
- ☐ More time to perform critical nursing role
- ☐ Nurses will have less to do
- ☐ Empowering parents

4. What are some of the hurdles that could impede full utilization of FIC?
   (**Select all that apply)**

- ☐ Parents' lack of interest
- ☐ Overly critical parents
- ☐ Lack of consistency among nurses on how FIC is practiced
- ☐ Lack of time in a 12-hour shift
- ☐ It is too overwhelming

5. The FIC model includes
   (**Select all that apply)**

- ☐ Parents are passive care givers
- ☐ Nurses are teachers and coaches
- ☐ Parents do more bedside cares

- ☐ Parents present at medical rounds
- ☐ Therapeutic relationship between nurses and families

6. How much do you believe that FIC can be an effective care model to improve **patient outcomes?**

- ☐ Very strongly
- ☐ Strongly
- ☐ Maybe
- ☐ Not sure
- ☐ Not at all

7. How strongly do you believe that FIC can be an effective care model to improve **family outcomes?**

- ☐ Very strongly
- ☐ Strongly
- ☐ Maybe
- ☐ Not sure
- ☐ Not at all

8. Do you believe that if a family takes part in FIC model their infants receive better care?

- ☐ Yes
- ☐ No

9. How motivated are you to embrace the FIC model?

- ☐ Very strongly
- ☐ Strongly
- ☐ Maybe
- ☐ Not sure
- ☐ Not at all

10. What factors might discourage you to embrace FIC model?
(Select all that apply)

- ☐ Fear of loss of control
- ☐ Fear of role transition
- ☐ Fear of liability
- ☐ Increased stress to coach and train parents
- ☐ Other _____

11. How confident are you that you could embrace the role of a teacher in FIC?

- ☐ Extremely confident
- ☐ Very confident
- ☐ Somewhat confident
- ☐ Not so confident
- ☐ Not at all confident

12. How confident are you that you could embrace the role of a mentor?

- ☐ Extremely confident
- ☐ Very confident
- ☐ Somewhat confident
- ☐ Not so confident
- ☐ Not at all confident

13. How long have you worked with FIC?

- ☐ Less than one year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ Longer than 5 years

14. What aspects of FIC have contributed to your job satisfaction
(Select all that apply)

- ☐ Improved family satisfaction
- ☐ Improved patient outcomes
- ☐ Improved job satisfaction
- ☐ Being a mentor
- ☐ Other _____

Appendix D

Logic Model

RESOURCES	CONSTRAINTS	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACT
In order to accomplish the goal, the following resources are needed	Limitations for the success of the proposed project	In order to achieve the goals, the following activities will be performed	The activities will produce the following evidence	The activities will lead to the following changes	The long-term impacts are listed below
Computers Educational video Office supplies Financial support from the organization Support of nursing staff, NPs and MDs Regis DNP Mentor	Lack of time Financial limitations Lack of motivation Fear of nurses of losing role identity Lack of confidence	Training Educating and coaching. Performing pre-post tests Analyzing data Evaluating the need for further training and coaching	Parents presenting during rounds Increased visibility of parents Increased motivation of nurses Less fear from nurses Improved self-efficacy of nurses	Improved family satisfaction Decreased readmission rates Decreased ED visits Improved referrals from families Improved parent self-efficacy Improved staff efficacy Improved parent staff communication Decreased parent stress	Decreased healthcare cost for both hospital and insurance companies Increased staff retention Increased patient satisfaction Improved health outcomes Improved staff satisfaction

Appendix E

IRB Approval Letter

REGIS UNIVERSITY

REGIS.EDU

Institutional Review Board

DATE:	May 20, 2020
TO:	Manojkumar Sebastian, MS
FROM:	Regis University Human Subjects IRB
PROJECT TITLE:	[1602862-1] Increasing Knowledge, Motivation and Self-Efficacy in Nurses ability to Implement an Integrated Care Model through an Educational Session
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF NOT RESEARCH
DECISION DATE:	May 20, 2020

Thank you for your submission of New Project materials for this project. The Regis University Human Subjects IRB has determined this project does not meet the definition of human subject research under the purview of the IRB according to federal regulations.

This QI project may proceed as written.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the Institutional Review Board at irb@regis.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Regis University Human Subjects IRB's records.

Appendix F

Agency Letter to Support to Complete the Project

SCL Health
SAINT JOSEPH

April 10, 2020

Manojkumar Sebastian
2274 S Isabell St
Lakewood, CO 80228

Re: Quality Improvement Project; Increasing Motivation, Knowledge and Self-Efficacy in Nurses ability to Implement an Integrated Care Model through an Educational Session

Dear Mr. Sebastian,

This letter will serve as confirmation that your quality improvement project entitled 'Increasing Motivation, Knowledge and Self-Efficacy in Nurses ability to Implement an Integrated Care Model through an Educational Session' in the NICU at St. Joseph's Hospital Denver is approved. You may begin your project.

Should you wish to make changes to your project approval must be obtained prior to being instituted.

Sincerely,

Ann Ryan, MD
Medical Director, Neonatal Intensive Care Unit
St. Joseph's Hospital
Denver , Colorado

SAINT JOSEPH HOSPITAL
1375 E. 19th Avenue, Denver, CO 80218 P 303-812-2000 saintjosephdenver.org

Appendix G

Time Line