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Expanding Labor Support Education to Nurses Caring for Women in Labor

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California State University, Northern California Consortium Doctor of Nursing Practice

EXPANDING LABOR SUPPORT EDUCATION TO NURSES CARING FOR WOMEN IN LABOR

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Dedicated

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EXPANDING LABOR SUPPORT EDUCATION TO NURSES CARING FOR WOMEN IN LABOR

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Doctor of Nursing Practice Program

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Abstract

The ability to provide emotional and physical support to a patient during one of the most significant moments of her life is a privilege afforded to intrapartum nurses who attend to laboring and delivering mothers. Labor support improves birth outcomes, reduces cesarean birth rates, and decreases anesthesia use. More labor support education needs to be made available to intrapartum nurses. Within the hospital context, this quality improvement (QI) project investigated the effects of educating intrapartum nurses about labor support and providing them with hands-on training. Surveys, including the Self-Efficacy Labor Support Scale, were as given pre- and post-education to evaluate and document knowledge acquisition. These surveys collected quantitative and qualitative data from participants. Project results encourage intrapartum nurses to be educated and trained in evidence-based labor support interventions for maintaining comfort during labor. In doing so, they can provide care that more effectively supports a mother's labor preference.

Keywords: labor support, physiologic birth, educational intervention, childbirth

Contents

Introduction

According to the World Health Organization (WHO, 2018), having a natural birth without medicalized interventions has been linked to a relatively pleasant birth experience for women during labor. Additionally, according to the Association of Women's Health, Obstetric, and Neonatal Nurses (2018), labor support from an intrapartum nurse is vital in achieving good delivery and birth outcomes. Cesarean sections can save lives when medically necessary, but they also represent a higher risk of harm to mothers and newborns than natural birth (Lagrew et al., 2018; Office of Disease Prevention and Health Promotion [ODPHP], n.d.; White VanGompel, 2018). For this reason, California's Healthy People 2030 goals for pregnancy and childbirth include reducing the number of cesarean sections performed on low-risk pregnant women (ODPHP, n.d.; White VanGompel, 2018).

Labor support is described as nonmedical care intended to help pregnant women accomplish their birth goals; it includes offering emotional and direct support to the women, listening to their needs, and permitting a companion to be present during the birth of a child (Bohren et al., 2017; Simpson & Lyndon, 2016; Wang et al., 2018). Various components of labor support, such as reduced medical interventions, birth experience, and the labor and delivery process, have been linked to women's satisfaction with their labor and delivery experience (Bohren et al., 2017; Heelan-Fancher & Edmonds, 2021; McNiven et al., 1992). For example, preparations made for a birth, a perspective on the birth environment, and, most importantly, support the mother receives from the labor and delivery nurse during the intrapartum period all contribute to improved outcomes for both the woman's birth experience and the newborn's health (Heelan-Fancher & Edmonds, 2021; Kiti et al., 2022; McNiven et al., 1992; Wang et al., 2018).

Background

Labor support has provided several distinct advantages. For example, with labor support, operational vaginal births (i.e., the use of vacuum or forceps), the use of opioids for pain, and the incidence of newborns with low Apgar scores at one and five minutes have declined overall. Meanwhile, women's satisfaction with their birth outcomes has significantly improved (Bohren et al., 2017; Heelan-Fancher & Edmonds, 2021; Hodnet, 1996; Kiti et al., 2022). Furthermore, many women find that childbirth assisted by labor support offers significant psychological benefits (Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2019). The higher the quality of labor support a pregnant woman receives, the more likely she will have a shorter labor phase and give birth vaginally without medical interventions (AWHONN, 2019; Davies & Hodnett, 2002; Hodnett, 1996; Hodnett et al., 2002; Plough et al., 2017).

Mother-infant contact behaviors like speaking and smiling are more common with mothers who receive labor support than those who do not (Hodnett, 1996; Lyndon et al., 2017; Kiti et al., 2022). Additionally, their newborns are more likely to be nursed solely and for more extended periods (Aschenbrenner et al., 2016; Hodnett et al., 2002; Lyndon et al., 2017; Plough et al., 2017). Likewise, newborns' general health outcomes are better when their mothers obtain labor support. These newborns also have fewer neonatal procedures (i.e., assisted ventilation, antibiotics to treat suspected cases of sepsis) and are less frequently referred to neonatal critical care units (Davies & Hodnett, 2002; Han et al., 2020; Heelan-Fancher & Edmonds, 2021; Hodnett et al., 2002; Wang et al., 2018).

Literature Review

Childbearing is a pivotal event in the lives of many women. When women are in labor, they rely on their own strengths and resources, as well as the assistance of others, to help them

cope with psychological and physical complexities during the birthing process (Afulani et al., 2018; Bohren et al., 2017; Prata et al., 2017). Studies have identified a correlation between labor support and various positive delivery outcomes for both mothers and newborns, including a decrease in the use of pain medication during labor, fewer unnecessary medical interventions, and more newborns with higher Apgar scores (Heelan-Fancher & Edmonds, 2021; Karaman & Ceylantekin, 2021; Simpson & Lyndon, 2016; WHO, 2018). In addition, intrapartum nurses can improve women's birth experiences by understanding their supportive role in the process (Page & Breman, 2021). However, for this to be the case, these nurses must know which labor support techniques benefit women most during labor (Bagley, 2015; Page & Breman, 2021). Therefore, they need specific education and professional development in labor support to understand and apply such practices (Bagley, 2015; Heelan-Fancher & Edmonds, 2021; Page & Breman, 2021; Simpson & Lyndon, 2016).

For this quality review (QI) project, a thorough literature review was conducted to determine the most effective interventions for educating intrapartum nurses on labor support. It was important to use electronic search databases, including the Cochran Database of Systematic Reviews, PubMed, the Cumulative Index to Nursing and Allied Health (CINAHL), and Google Scholar, to collect and select relevant articles for this project. A search was conducted for articles within 10 years, focusing on five years or less when possible. It included the following topic-specific keywords: continuous support, professional labor support, labor support, birth, labor and delivery nurses, intrapartum nurses, student midwives, physiologic birth, doulas, natural birth, labor support interventions, and nursing education. Among the papers gathered using the keyword searches, a handful of studies explored interventions to increase nurses' labor support

knowledge and skills, some of which focused on intrapartum nurses, midwifery students, medical residents, and nursing students (see Appendix A).

Intrapartum Nurses

Bagley (2015) applied a nursing theory and an evidence-based teaching program called Professional Labor Support (PLS). The study investigated self-efficacy for PLS, the emphasis placed on the material presented, the level of student engagement, and the likelihood that learned material would be applied to nursing practice. Although the researchers identified hurdles to PLS (i.e., external fetal monitoring, provider challenges, low staffing, minimal equipment, and familial influences), they found a significant increase in self-efficacy among the 31 intrapartum nurses participating in the study.

In Bagley's study, the participants attended a four-hour continuing education program. The program focused on the perceived value of content information, learner satisfaction, and translating the knowledge into nursing practice. Bagley's study concluded that nurses could be taught to implement evidence based PLS methods by increasing self-efficacy for PLS, the perceived value of content information, and learner satisfaction (Bagley, 2015).

Page and Breman's (2021) ongoing QI project included a pre- and post-practice implementation design that adopted the Promoting Comfort in Labor Safety (PCLS) bundle. The PCLS bundle included nurse training and education in labor support and changes to patient care documentation. It applied the Self-Efficacy Labor Support Scale to assess the nurses' confidence and capabilities throughout the research investigation. They found a significant increase in the nurse participants' (n=27) self-efficacy and confidence with labor support techniques. While the intervention enhanced the nurses' competence in labor support, the investigators found no

discernible impact on cesarean section rates. This study highlighted the advantages of intrapartum nurses self-evaluating their labor support experiences and views.

Murn (2019) conducted a Continuous Labor Support (CLS) pre-post-education program for perinatal nurses to improve clinical practice. The teaching component covered five CLS skills based on the most recent nursing-related evidence. Educational interventions included the benefits of nurses providing CLS, remaining present, leading teamwork and communication workshops, and protecting the woman's birth space. This study demonstrated a substantial increase in participants' knowledge of nurse provided CLS in the post-test (Murn, 2019). Murn's study also demonstrated the importance of promoting physiologic birth, improving outcomes for the birthing mother and her newborn, and saving costs in healthcare organizations by educating novice nurses on the physiologic standards of labor and birth (Murn, 2019).

Midwifery Students

Vasegh-Rahimparvar et al. (2019) performed a quasi-experimental study that recruited 70 midwifery students from an Iranian nursing and midwifery school. In the intervention group, 35 students were taught PLS. Part of this group's education covered the emotional, physical, and informational components of labor support, all of which were based on midwifery textbooks. Using a professional Labor Support Questionnaire (LSQ) for the students, the study showed positive results regarding labor support education in the intervention group. Furthermore, compared to the control group, patient satisfaction was significantly higher among those who gave birth under the supervision of the PLS-trained students.

This suggests that midwifery students must have highly specific knowledge and hands-on experience to offer proper care and perform their jobs well. It also demonstrated the importance of labor support education and competency in performing labor support tasks (Vasegh-

Rahimparvar et al., 2019). Intrapartum nurses who receive labor support training should also feel confident in their ability to perform labor support techniques.

Bolbol-Haghighi et al. (2016) conducted a randomized controlled trial of 100 expectant mothers, dividing them between two groups of midwifery students who cared for them. One of the student groups attended six one-hour labor support educational sessions; the other group did not. The skills taught in these sessions included mobility, position changes, massaging, aromatherapy, acupressure, and using a partogram. The investigators found that the mothers assisted by the group taught labor support skills had considerably shorter first-stage labor times than those whose group was not taught these skills. Also, these mothers' newborns had significantly increased Apgar scores at one and five minutes. Although this study showed no decrease in the cesarean section rate among the two groups of mothers, the researchers concluded that labor support education positively impacted the birth outcomes of both the women in labor and their newborns (Bolbol-Haghighi et al., 2016). This study strongly supports that when intrapartum nurses are educated on labor support skills, they can then readily apply those skills to their patients with beneficial outcomes.

In a qualitative study by Pilkenton et al. (2015), midwifery students did not receive conventional instruction on labor support skills. Instead, they developed an interprofessional simulation of labor support. This simulation included a standardized patient, a written scenario, an interprofessional team of nursing and midwifery students, faculty observations, and a reflective debriefing. Based on the research findings, the simulation allowed students to practice their labor support abilities in a regulated experiential setting without the stress of having to perform clinical management (Pilkenton et al., 2015). Using an interprofessional team that

included nursing students provided an additional benefit in the form of practicing good communication and teamwork.

Medical Residents

Shakartzi et al. (2018) conducted a qualitative study in which most preclinical medical education was delivered as lectures. Medical students had few to no opportunities to work directly with patients to provide labor support. By participating in seminars and receiving training to provide prenatal, labor, and postpartum assistance from doulas and midwives, the medical residents experienced enhanced contact, support, and advocacy for the patients in their care (Shakartzi et al., 2018). The outcomes of this study demonstrated statistically significant improvements in the students' levels of self-confidence in characterizing the medical benefits of labor support, as well as their views and suggestions on labor support (Shakartzi et al., 2018). Comparable outcomes may occur in future initiatives if labor support training is provided, as was done in this study. However, facilitating nurses' education and incorporating nurses as labor support resources necessitates establishing a structural framework, content, and materials that other perinatal units can replicate.

Nursing Students

Paterno et al. (2012) performed a secondary analysis of the Birth Companion Program (BCP). The BCP's educational component included 24 hours of training in labor support skills (i.e., hydrotherapy, double hip squeeze, labor ball, intake of fluids, massaging, breathing techniques, position changes, and hot and cold packs) and four hours of didactic instruction from a certified doula. After the training, students followed patients throughout their prenatal visits, attend the birth, and continue with a postpartum visit. While the BPC doula interventions

increased the labor support skills among the nursing students, Paterno et al. found no observed difference in the number of emotional or informational interventions used.

Analyzing the data, the researchers found a significant increase in at least one labor support intervention. They likewise found a concomitant decrease in epidural use and cesarean sections in the 648 women cared for by nursing students compared to a second group cared for by physicians. The study described how the nursing students' educational labor support bundle benefited the students' patients; the labor support strategies worked. Findings also indicated that it is worthwhile for hospitals to adopt educational bundles to train intrapartum nurses in labor support interventions.

The studies noted herein showed that intrapartum nurses who provide labor support do not currently have a standardized education program, even though there is evidence-based education available to educate intrapartum nurses on labor support and how to provide it effectively (Bagley, 2015; Bolgol-Haghighi et al., 2016; Murn, 2019; Page & Breman, 2021; Paterno et al., 2012; Payant et al., 2008; Pilkenton et al., 2015; Shakartzi et al., 2018; Vasegh-Rahimparvar et al., 2019). Developing and implementing a standardized labor support curriculum for labor and delivery nurses is essential for improving maternal and birth outcomes. Nurses must be educated not only with knowledge and facts but also with a practical awareness of how best to offer labor support to their patients. This especially applies to nurses whose education extends beyond the classroom and practicums to published research (Lehane et al., 2019).

Gaps in the Literature

In accordance with the findings of the above studies, education is clearly a critical component for successfully integrating nursing labor support for intrapartum patients in hospital

settings (Plough et al., 2017). However, further review of the relevant literature reveals a paucity of research on labor support education provided to nurses caring for these patients. Several limitations to these studies were also noted, including a need for more high-quality research using valid and reliable measures to evaluate outcomes related to labor support education.

There have been few studies on labor support education for intrapartum nurses, and further research needs to be conducted. It is evident that there are challenges to employing and implementing labor support interventions, and some studies have examined the positive outcomes of doing so (Bohren et al., 2017; Heelan-Fancher & Edmonds, 2021; Kiti et al., 2022; McNiven et al., 1992; Wang et al., 2018). The research gap includes a need for educational methods; only a few studies have specifically focused on educating nurses in labor support interventions (Bagley, 2015; Murn, 2019; Page and Breman, 2021).

Purpose of the Project

While labor support has many advantages, intrapartum nurses are constrained by conflicting demands on their time and attention. With recent technological advances, these nurses often focus on highly technical delivery or labor equipment with little emphasis on intrapartum labor support (Barret & Stark, 2010; Burgess, 2014; Lundsbert et al., 2017; McNiven et al., 1992). Furthermore, they must contend with several other issues that may affect their labor support practices (Payant et al., 2008). These include differing beliefs about labor normalcy and unwanted interventions resulting from obstetricians' thoughts on the labor and delivery process (Lundsbert et al., 2017; Shokry & Shabana, 2022). Consequently, despite its fundamental necessity, intrapartum nurses might see labor support as an exception rather than a

normalized care strategy for their patients (Bohren et al., 2017; Prosser et al., 2018; Shokry & Shabana, 2022).

It is even more important to acknowledge that while intrapartum nurses receive extensive training in labor and delivery, many lack formal training in labor support techniques (Davies & Hodnett, 2002; Gagnon & Waghorn, 1999; Shokry & Shabana, 2022). As a result, such nurses cannot assist women during childbirth or comfortably apply labor support interventions during the intrapartum period. Therefore, this project aimed to implement a combination of didactic and experiential learning to educate intrapartum nurses with hands-on labor support training. In doing so, it evaluated the effectiveness of improving nurses' knowledge and skills in this area.

Theoretical Framework

Intrapartum nurses are responsible for evaluating an incident or circumstance, identifying the most appropriate course of action, and ensuring the patient's needs and expectations are met. The Change Theory is one of the most effective approaches to guide change in complex systems requiring interprofessional collaboration to promote patient safety and quality of care (Creely et al., 2021; Crosby, 2020; Endrejat & Burnes, 2022; Have et al., 2019).

The nursing profession is unique and challenging since it is both rooted in the past and constantly evolving (Burnes, 2020). Even while nurses are aware that they need to advance their understanding of the field, changing how they perform their jobs is not always easy. Given this situation, it is essential to utilize the most appropriate theories during the process of implementing and managing change and analyzing its effectiveness—especially when educating nurses on new skills such as labor support (Ali, 2016; Endrejat & Burnes, 2022; Have et al., 2019).

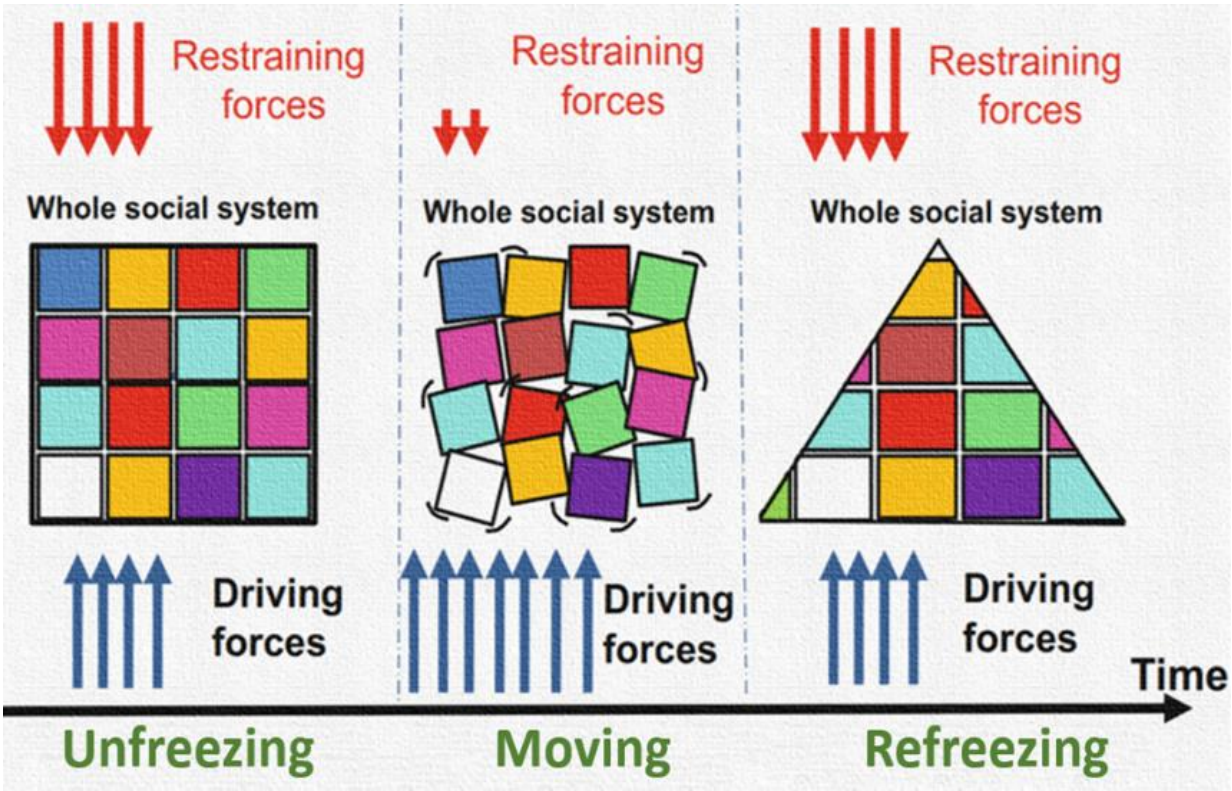
The educational program discussed here was intended to help intrapartum nurses incorporate current nursing knowledge and training into traditional practices (Have et al., 2019). Therefore, this project employed the Change Theory of Nursing, based on Kurt Lewin's change management model created in the 1940s (Burns, 2017). Lewin's model was the primary guide for this project's practice change plan.

To change the status quo, Lewin felt it necessary to disrupt the dynamic equilibrium between driving and restraining forces (Burns, 2017; Creely et al., 2021; Crosby, 2020). He believed a force field, defined as the various dynamic forces that comprise a particular social situation. These forces are positive and negative, driving and restraining, and ebb and flow over time (Crosby, 2020). An analysis of the force field at any one moment reveals the dynamic interplay between conflicting positive (facilitating) and negative (restrictive) forces. Analyzing the tension between these forces enables a change plan. As a result, change may be directed, managed, and controlled. Individuals or groups can overcome opposition through sound management and planned and effective leadership practices (Burns, 2017; Creely et al., 2021; Crosby, 2020).

Despite being portrayed as independent occurrences, three distinct stages directly impact the progress of the implemented change and determine whether it can successfully be integrated as the new norm (Bakari et al., 2017; Burns, 2017; Creely et al., 2021; Crosby, 2020; Endrejat & Burnes, 2022). Lewin's three-stage paradigm is illustrated below (Figure 1). Here we see the advancement of the three stages and the interplay between the driving and restraining forces.

Figure 1

Illustration of Kurt Lewin's Change Theory and Forces



Driving and Restraining Forces

This project took place in a hospital setting. Therefore, the first step was to identify the driving and restraining forces involved in implementing labor support education for intrapartum nurses in the labor and delivery unit.

In Lewin's Change Theory, driving forces facilitate change and produce a shift in the equilibrium (Burns, 2017; Endrejat & Burnes, 2022; Have et al., 2019). Leadership and intrapartum nurses involved in the intrapartum unit were part of its driving force. Therefore, it was important for them to work toward altering the unit's equilibrium and creating a shared vision among the intrapartum nurses (Burns, 2017). Other driving forces included educating these nurses on the benefits of changing traditional labor support methods, learning new ones, and improving patient satisfaction and communication (Ali, 2016; Crosby, 2020; Endrejat & Burnes, 2022; Have et al., 2019).

It was also necessary to identify potential restraining forces (Burns, 2017; Endrejat & Burnes, 2022). These included the nurses' possible opposition to change, disinterest in labor support education, or inadequate labor support equipment (Prosser et al., 2018). Additionally, nurses were limited by the amount of in-service training time available to fulfill the required in-person training.

After identifying the driving and restraining forces and completing the labor support training, the project leader could apply new solutions for sustaining labor support in the intrapartum unit (Endrejat & Burnes, 2022; Have et al., 2019).

Stages of Lewin's Change Theory: Unfreezing, Moving, and Refreezing

Lewin's Change Theory indicates three key steps in changing behavior: unfreezing, moving, and refreezing. These three steps were critical for the project (see Figure 2). For change to occur, intrapartum nurses had to be aware of a problem and motivated to change it (Ali, 2016; Creely et al., 2021; Crosby, 2020; Endrejat & Burnes, 2022; Have et al., 2019; Hussain et al., 2018).

Unfreezing is the first step toward producing practical, professional change. This step focuses on the concept that one must be mindful of the problem before change can occur (Creely et al., 2021; Crosby, 2020; Hussain et al., 2018). One must identify the issue, understand it, and consider the prospect of resolving it. In the project's first stage, this step was critical in raising the nurses' awareness and emphasizing that if the status quo did not change, maternal and newborn outcomes would not improve. Conversely, improved labor support would improve maternal and birth outcomes as measured by fewer cesarean sections (MacDorman & Declercq, 2019). Merely continuing the status quo labor support could hinder the unit's goal of providing patients with the safest and highest quality care during labor (Cummings et al., 2016; Curtis et

al., 2017). Overall, the nurses had to recognize outdated labor support practices, agree on changing them, and determine what changes needed to be made. At this stage, it was helpful to offer evidence-based material to the nurses to highlight advancements in nursing knowledge. It was also critical to have management's full support for the project.

Moving is the next step in the process. In this step, change becomes a reality, problems are identified, and goals are defined (Have et al., 2019; Hussain et al., 2018). During this stage, the intrapartum nurses transitioned to a new understanding of nursing practice in terms of labor support (Crosby, 2020). The nurses were urged to embrace the shift in equilibrium and to recognize the necessity of change (Crosby, 2020; Have et al., 2019). It was important to encourage each nurse to actively participate in the process and empower them to be proactive. The nurses had to modify how they thought, felt, and administered caregiving in their nursing practice, resulting in new values, attitudes, and behaviors (Bakari et al., 2017; Have et al., 2019).

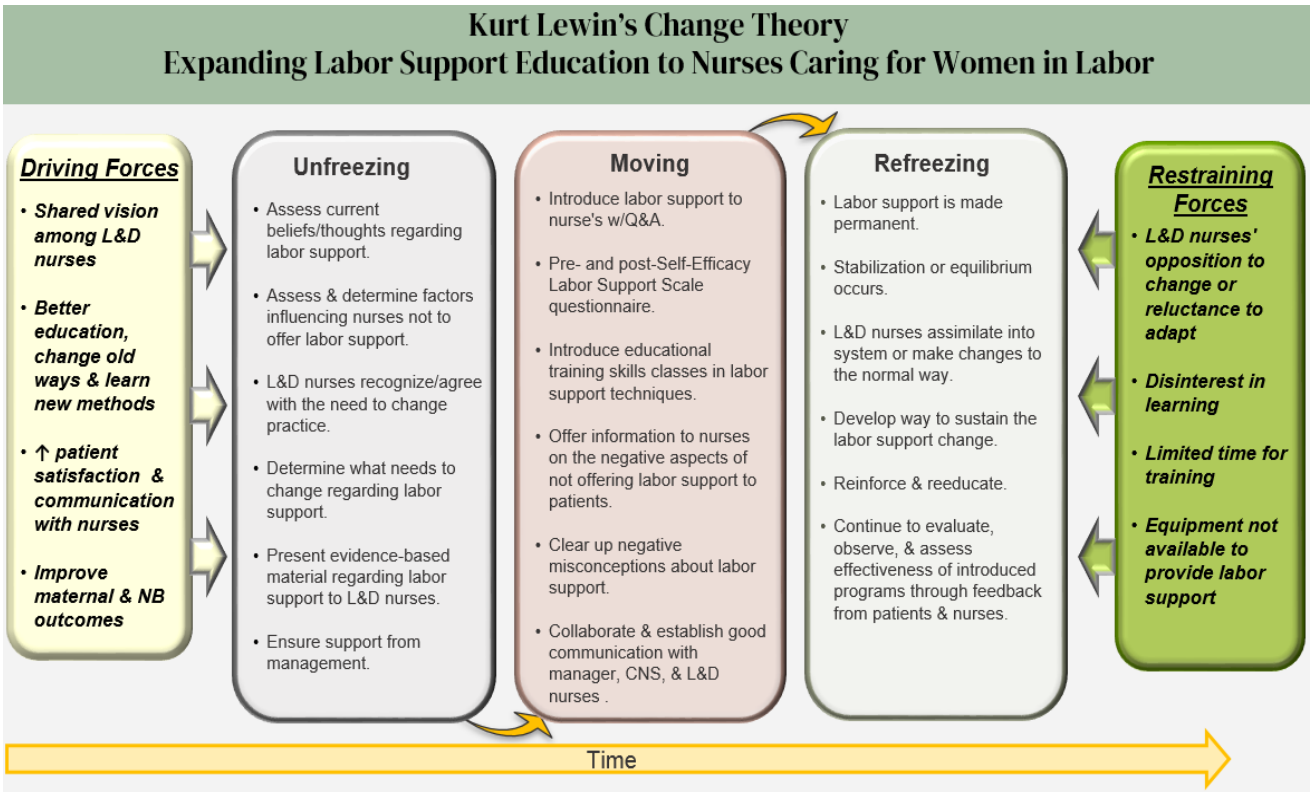
It was assumed by the project leader that the nurses would have difficulty adjusting to the new changes. It was critical to prevent potential restraining forces—such as resistance—from impacting this stage (Crosby, 2020; Have et al., 2019; Hussain et al., 2018). Therefore, while introducing the hands-on training and informing the nurses of the rationale for the new labor support practice, question-and-answer sessions were provided to clear up any misconceptions about the unit's latest implementation procedures.

Refreezing is the third and final stage. Refreezing is necessary to reinforce the new behaviors as the norm (Burns, 2017; Crosby, 2020; Hussain et al., 2018). In this project, it was crucial to reinforce the nurses' newly acquired knowledge in order to maintain the recent changes put in place. Specifically, the goal at this stage was to refreeze the new labor support skills and education so that the nurses would recognize them as the new norm (Have et al., 2019;

Hussain et al., 2018). This stage required assessing the impact of the hands-on labor support education using the pre- and post- Self-Efficacy Labor Support Scale (Davies & Hodnett, 2002). It was necessary to seek input from the nurses about their increased involvement and beliefs in labor support education. According to Lewin's Change Theory (Burns, 2017; Crosby, 2020; Have et al., 2019; Hussain et al., 2018), refreezing requires a great deal of collaboration. Thus, effective communication between the unit director, manager, clinical nurse specialist, and obstetricians was essential.

Figure 2

Diagram of Lewin's Change Theory and Forces as Applied to the Project



Methods

To evaluate the project's success, the methodology is outlined here and then discussed. Every element that could influence the project's outcome was considered: the educational design,

the support from leadership needed to carry out the project, and the intrapartum nurses' acceptance and adoption of the labor support interventions they learned during the hands-on skills training.

Project Design

This project aimed to assess the impact of an educational intervention by conducting a pre-test and post-test single-group design to evaluate nurses' knowledge following the intervention phase. The design has been demonstrated to accurately assess an intervention's effectiveness by measuring the changes that occur between the two tests (Alessandri et al., 2017; Polit & Beck, 2022).

Project Setting

The project took place in an urban hospital near Los Angeles, California. The medical organization running the hospital is an independent, nonprofit organization that provides quality healthcare services. The hospital is a Magnet-designated facility accredited by The Joint Commission (TJC) (U.S. News & World Report, 2021). It is licensed for 512 beds and employs over 3,400 people. The labor and delivery unit oversees approximately 2,000 births each year. The majority of women who deliver at the hospital have private insurance and use private obstetric (OB) providers for maternity care. The unit comprises 15 labor, delivery, recovery, and postpartum (LDRP) rooms, four triage rooms, three operating rooms (ORs), and five post-anesthesia care unit (PACU) beds. Approximately 35 obstetrics/gynecology (OB/GYN) medical physicians (MDs) have privileges at this facility. This healthcare organization employs about 55 intrapartum nurses, five certified surgical technicians, and six-unit secretaries. In addition, the hospital has approximately ten anesthesiologists on staff. These doctors have specialized training to offer pain treatment options to patients in the labor and delivery unit.

Population & Sample

The population of interest was intrapartum nurses who worked day and night shifts at the hospital described above. Approximately 52 intrapartum nurses work in the labor and delivery unit. These nurses had various educational backgrounds, with the majority possessing a bachelor's degree in nursing (BSN) and a small percentage holding an associate degree in nursing (ADN) or a degree in master of science in nursing (MSN).

All intrapartum nurses working full- or part-time in the labor and delivery unit were involved in this project, including those on day and night shifts. Additionally, exclusion criteria for the project included intrapartum nurses currently on a leave of absence (LOA) or those employed by another agency, such as traveling or registry nurses. Consent forms for this project were signed by all participants and obtained before participants agreed to participate. Individuals who did not want to answer the questionnaires could decline to participate at any time.

Data

The project's independent variables were collected in an initial demographic questionnaire (Table 1). The demographic data collected was used to identify the participants' characteristics and trends. The areas of interest included participants' age, race, highest education, work hours and shift (i.e., night, days, or other), number of years as a registered nurse, number of years working in the labor and delivery unit, and if they had their Registered Nurse Certified-Inpatient Obstetric Nursing (RNC-OB) certification.

The project's dependent variables (Table 2) were collected in terms of pre- and post-scores using the Self-Efficacy Labor Support Scale that measured the intrapartum nurses' labor support knowledge (Davies & Hodnett, 2002). In addition, participants were given three open-ended questions to respond to, allowing them to express their thoughts in narrative form.

Instruments

Demographic Questionnaire. A demographic questionnaire was devised to gather information regarding intrapartum nurses (see Appendix B). The characteristics collected included the following:

1. Please state your current age in years. _____
2. Please indicate your race:
    a. Asian (Asian Indian, Chinese, Japanese, Korean, Pilipino, etc.)
    b. African American
    c. Hispanic/Latino
    d. White
    e. Other (please specify): _____
    f. Decline to state.
3. Highest nursing education (please indicate the highest level):
    a. Associates Degree in Nursing (ADN)/Diploma
    b. Baccalaureate Degree in Nursing (BSN)
    c. Master of Science in Nursing (MSN)
    d. Masters Entry Degree in Nursing (MEPN)
    e. Doctorate (Ph.D./DNP)
4. Normal work shift (please indicate one):
    a. Days
    b. Nights
    c. Other
5. Number of years as a Registered Nurse: _____

6. Number of years working in the Labor and Delivery unit _____
7. Are you RNC-OB certified?
    a. Yes
    b. No
    c. Other

Self-Efficacy Labor Support Scale. The intrapartum nurses who participated in the educational intervention completed the Self-Efficacy Labor Support Scale (Davies & Hodnett, 2002) before and after the hands-on skills training (see Appendix C). The primary variable derived from the scale was whether labor support educational interventions increased nurses' knowledge (Davies & Hodnett, 2002). The scale was used after receiving explicit permission from Dr. Barbara Davies, one of its authors (see Appendix D).

In 2002, Davies and Hodnett developed and validated the Self-Efficacy Labor Support Scale. The scale is designed to assess nurses' confidence in labor support techniques and skills. It is scored on a 7-point Likert-type scale (1–7) with total scores ranging from 14 to 98 points. Increased scores indicate an increase in self-efficacy in performing labor support interventions (Davies & Hodnett, 2002):

1. How confident are you in your ability to use each of the following techniques for providing support to women in labor? Please circle the number that best reflects your answer:
    a. Review and discuss a woman's preferences (birth plans).
    b. Suggest alternate positions/movements.
    c. Provide specific backache relief measures.
    d. Know what to say and do for reassurance.

e. Be continually present with a woman in labor.

f. Assist partner/friend in providing labor support.

g. Assist with breathing/relaxation techniques.

h. Explain what is happening with labor progress.

i. Deal with distress and panic situations.

j. Use nonpharmacologic pain relief methods.

k. Accept a woman's behavior without judgment, even when unusual/upsetting.

2. Please rate your skill in the following labor support techniques:

    a. Physical comfort measures (backache relief measures, nonpharmacologic pain relief).

    b. Emotional support (presence, coping mechanisms for distress and panic situations).

    c. Information/advice (labor progress) (Davies & Hodnett, 2002).

Davies and Hodnett (2002) compared the Self-Efficacy Labor Support Scale's validity to similar surveys. They found that the internal consistency reliability for the total scale had a Cronbach's $\alpha = .98$, indicating good internal reliability. The test-retest correlation was 0.93, proving the scale's validity in assessing self-efficacy for labor support (Davies & Hodnett, 2002; Page et al., 2021).

Open-Ended Questions. Both the pre-and post-surveys included a brief follow-up section. This section comprised three open-ended questions requesting participants to respond with their thoughts and opinions on the following topics (see Appendix E) :

1. Are there things that prevent you from doing what you believe is labor support?

2. What labor support interventions would you recommend be included in the electronic medical record (EMR) documentation?
3. How has COVID-19 changed your labor support practices, and if so, in what way has it changed?

Procedures

The intrapartum nurses' educational plan incorporated several formal and informal components. First, it was critical to begin the project by raising awareness and publicizing it. Therefore, it was communicated to all intrapartum nurses in the labor and delivery unit using various methods. These included recruiting material via email (see Appendix F), speaking at staff meetings, and posting informational flyers (see Appendix G) throughout the unit.

Intrapartum nurses received emails on how to access the Self-Efficacy Labor Support Scale (Davies & Hodnett, 2002) via Qualtrics® by the designated deadline. Information regarding the hands-on training sessions was made available to all intrapartum nurses, which allowed them to plan accordingly and attend one session among the scheduled dates and times (Davies & Hodnett, 2002).

Gantt Chart

A successfully implemented project should be founded on a work plan. This plan was carried out using a Gantt chart (see Appendix H). The project was broken down from its beginning in August 2022 to its conclusion in May 2023. The Gantt chart provides an overview of the many overlapping activities completed during this project. These activities ranged from formulating the project's concept to its implementation and communication and concluded with disseminating the findings.

Demographic and Pre-Questionnaires

The project commenced following Internal Review Board (IRB) approval by the university and the clinical site organization (see Appendix I). Once intrapartum nurses consented to participate in the project via email (see Appendix J), they automatically took the demographic questionnaire and the pre-Self-Efficacy Labor Support Scale (Davies & Hodnett, 2002). Nurses were invited to complete both documents before participating in the mandatory labor support hands-on skills training.

Hands-On Skills

The project's primary component was for the intrapartum nurses to construct a link between content knowledge and hands-on experience (Bakeouei et al., 2017; Gazibara, 2020; Robbins, 2020; Short et al., 2019) while attending one of five mandatory (two paid) workday hours. Flyers were placed around the labor and delivery unit with the sessions' dates, times, and locations. The sessions were scheduled on different days and times over a selected month to accommodate participating nurses from both day and night shifts. The sessions were held—with permission from the labor and delivery manager—in a meeting room adjacent to the labor and delivery unit. The hands-on skills training was held in a labor, delivery, recovery and postpartum (LDRP) room.

The labor support educational program was delivered through a PowerPoint presentation, posterboards, videos, and hands-on skills training. Additionally, the nurses were allowed to practice with one another throughout the session and familiarize themselves with the equipment being discussed. During the hands-on sessions, the project leader demonstrated labor support strategies and provided the following content/agenda (see Appendix K):

1. Provide education and practice on positioning the intrapartum patient both in and out of the labor bed (Abdul-Sattar, 2018; Akin & Saydam, 2020; Azeem & Mohamady, 2019; Biana et al., 2021; Gams et al., 2019; Karaman & Yildiz, 2022).
2. Provide education on four breathing techniques to instruct and encourage the intrapartum patient (Baljon et al., 2020; Biana et al., 2021; Haseli et al., 2019; Karaman & Ceylantekin, 2021).
3. Teach how to use a rebozo (Cohen & Thomas, 2015; Iversen et al., 2017; Karaman & Yildiz, 2022; Ritter et al., 2020), birthing balls (Aktas et al., 2021; Biana et al., 2021; Delgado et al., 2019; Gallo et al., 2019; Mascarenhas et al., 2019), and peanut balls (Grenvik et al., 2019; Heim & Makuch, 2022; Hickey & Savage, 2019; Palladino et al., 2019) while the intrapartum patient is both in and out of the labor bed.
4. Provide instruction on the utilization of aromatherapy (Chen et al., 2019; Di Vito et al., 2021; Kazeminia et al., 2020; Liao et al., 2021; Scandurra et al., 2022; Tanvisut et al., 2018).
5. Provide education on and practice three massage techniques (Azeem & Mohamady, 2019; Baljon et al., 2020; Biana et al., 2021; Gallo et al., 2018; Haseli et al., 2019; Karaman & Ceylantekin, 2021).
6. Provide instruction on the utilization of cold (Taghlili et al., 2021) and warm compresses (Akbarzadeh et al., 2018; Aslamiyah & Kasiati, 2021; Goswami et al., 2022; Helti & Hayati, 2022; Kaur et al., 2020).
7. Provide education on hydrotherapy during the first stage of labor (Gallo et al., 2018; Heim & Makuch, 2022; Lee et al., 2013; Stark, 2017; Suganthi & Susila, 2018).

As indicated by the synthesis matrix (see Appendix L), all the labor support interventions were evidence-based and proven to bring about beneficial changes and outcomes for women in labor (ACOG, 2021; Alhafez & Berghella, 2020; Gimovsky & Berghella, 2022; Heelan-Fancher & Edmonds, 2021). Ultimately, the goal for each learner was to apply the information acquired during the session, practice what they learned, and reinforce that knowledge (Verloo et al., 2020).

Post-Questionnaire

The post-survey consisted of the same 14 (7-point Likert Scale) items used in the pre-intervention survey. After participating in the training, the post-survey measured the participants' knowledge. A post-Self-Efficacy Labor Support Scale was sent out to each nurse. They had four weeks to complete the post-questionnaire, after which they received a weekly email reminder encouraging them to complete it (Davies & Hodnett, 2002).

Analysis

The data collection for this project was carried out utilizing the Qualtrics® software hosted at San Jose State University. Qualtrics® is a secure, web-based survey development, collection, and analysis application that facilitates data collection. The project leader was responsible for importing all of the surveys into Qualtrics. Explicit instructions were provided for all surveys associated with the project to reduce the likelihood of measurement errors. Using this software allowed respondent anonymity to be maintained throughout the entire project.

All variables were summarized using descriptive methods of statistical analysis. Frequencies, percentages, means, standard deviations, and the identification of common themes were used to evaluate the data collected. The Self-Efficacy Labor Support Scale pre- and post-responses and the demographic data were distributed, collected, and stored using Qualtrics®. All

demographic and Self-Efficacy Labor Support Scale responses were analyzed using Intellectus Statistics™ software (Davies & Hodnett, 2002). The total summary scores used to reflect the pre-and post-Self-Efficacy Labor Support Scale were tested using the paired t-test, and the test results were analyzed (Davies & Hodnett, 2002; Knapp, 2017). The project's statistical significance was determined using an α of 0.05 (Greenhalgh et al., 2020; Heavey, 2019).

Risks

The likelihood of injury or harm resulting from involvement in this project was minimal. Although the information gathered from all participants was kept confidential and preserved in a safe and secure environment, there is always a possibility that confidentiality could be breached.

Benefits

This project directly benefited the participants. The findings provided intrapartum nurses with a good understanding of how the results served as a foundation for their readiness to successfully learn new skills, increase their knowledge, and promote and encourage labor support for their patients. In addition, all intrapartum nurses received two hours of workday pay. The hospital site authorized allocating two continuing education units (CEUs) to nurses who completed the hands-on labor support training.

This project demonstrated that labor support must begin during the intrapartum period; education is the only way for the laboring woman to make decisions in her best interest. An educated woman in labor is more likely to feel empowered and have a healthy mindset about her birth experience (Coates et al., 2021; Garpiel, 2018; Yuill et al., 2020). It also demonstrated the importance of educating intrapartum nurses in labor support. This positively affects the maternal-newborn triad and has been linked to improved outcomes, including fewer medical or surgical

interventions and health-related difficulties for women and neonates (Gamedze-Mshayisa et al., 2018).

Confidentiality

The completion of the demographic and pre- and post-questionnaires was entirely voluntary. At no time during this project was coercion or intimidation used to pressure subjects to participate or continue participating in the project. Participants were protected by not having any personally identifiable information collected; only their demographic information was gathered. The demographic and pre- and post-questionnaires were distributed to the participants using the Qualtrics® software. The demographic, pre-, and post-Self-Efficacy Labor Support Scale data had no personal identifiers. The Self-Efficacy Labor Support Scale (Davies & Hodnett, 2002) contained a unique code: the last four digits of each participant's phone number. This was used to match the pre-and post-questionnaires while maintaining privacy and confidentiality.

Each phase of the project was carried out with strict adherence to confidentiality. The data was stored in the project leader's institutional Google Drive at San Jose State University, which served as the repository for all the digital survey data associated with this project. The drive was password protected, and its backups were encrypted. The corresponding electronic records will be kept for a minimum of three years; when no longer required, they will all be deleted.

Cost

The hospital’s labor and delivery unit provided the main funding for this project. This compensation included funding the hands-on training sessions for the intrapartum nurses who received two hours of work pay as a component of their ongoing professional development. The

project also used items previously purchased by the labor and delivery unit (e.g., birthing balls, peanut balls, aromatherapy individual scents, pillows, hot and cold packs, and labor beds). The direct cost incurred by the project leader included all printed teaching and educational materials, large posters, and other project supplies in the estimated amount of $659.00 (see Appendix M).

Ethical Considerations

Over the course of this project, ensuring ethical protection was a top priority, and there were no ethical concerns during its implementation. Institutional Review Board (IRB) applications for the project were submitted to San Jose State University and the hospital site through their respective processes. Both institutions reviewed the project applications and deemed them process/quality improvement. The author reported no conflicts of interest and received no compensation for completing this project.

Results

Demographics

A total of 46 labor and delivery nurses completed the pre-intervention survey. Their demographic characteristics are summarized in Tables 1 and 2. The majority of the nurses were either White or Asian, and 84.7% had at least a bachelor's degree in nursing. The sample was evenly divided into those who worked day and night shifts and those who were or were not RNC-OB certified. The median age of the nurses was 41.5 years. The sample reported an average of 17.1 ± 10.7 years as an RN and 13.3 ± 10.0 years working in labor and delivery.

Table 1

Categorical demographic characteristics of the sample

Demographic	Category	Frequency	Percent
Race			
	White	21	45.7
	Asian	14	30.4

Hispanic	8	17.4
Hispanic & White	2	4.3
African American	1	2.2
Highest nursing education		
ADN	7	15.2
BSN	33	71.7
MEPN	2	4.3
MSN	4	8.7
Normal work shift		
Days	24	52.2
Nights	22	47.8
RNC-OB certification		
No	23	50.0
Yes	23	50.0

Table 2

Continuous demographic characteristics of the sample

Demographic	*Mean*	*SD*	*Median*
Years of age	43.85	10.70	41.5
Number of Years as an RN	17.07	10.71	15
Number of Years working in L&D	13.34	10.01	10

Self-Efficacy Labor Support Scale

Of the sample of 46 nurses who participated in the educational intervention, 33 (72%) completed the post-intervention survey. The Self-Efficacy Labor Support Scale was included in both the pre- and post-intervention surveys (Davies & Hodnett, 2002). A paired *t*-test was used to assess the educational intervention's effectiveness in improving the nurses' confidence in their labor support knowledge and skills. The results are presented in Table 3. As shown, the nurses' confidence in their labor support knowledge and skills significantly improved (t (32) = 14.48, p < .001). The mean post-self-efficacy scores were 93.3 out of a possible maximum of 98.

Table 3

Pre- to post-intervention improvement in self-efficacy (n = 33)

Self-Efficacy Labor Support Scale	*Mean*	*SD*	*t*	*df*	*p*
Pre-intervention	78.70	8.99	14.48	32	< .001
Post-intervention	93.33	5.03			
Paired differences	14.64	5.81			

Post Hoc Analysis

An additional analysis compared the current sample's pre-intervention responses with labor and delivery nurses' responses from the 2002 study by Davies and Hodnett. As shown in Table 4, an independent sample *t*-test revealed that, prior to the educational intervention, the current sample reported significantly lower labor support self-efficacy compared to the Davies and Hodnett study. In contrast, the average self-efficacy scores for the 72% who completed the post-intervention survey were closer to those in the Davies and Hodnett study (93.33 and 91.20, respectively).

Table 4

Comparison of labor support self-efficacy between the current sample and the Davies and Hodnett sample

Self-Efficacy Labor Support Scale	N	*Mean*	*SD*	*t*	*df*	*p*
Current sample	46	81.72	10.23	4.4	75	< .001
Davies and Hodnett sample	31	91.20	7.70			

Open-ended Responses

The intrapartum nurses provided narrative statements to three open-ended questions on their thoughts on the birthing practice. The responses to these questions were evaluated using theme analysis, which permitted the interpretation of reoccurring themes, words, and concepts. The nurses' responses to the three open-ended questions are summarized in Tables 5–7.

Table 5

Responses to Question 1: Are there things that prevent you from doing what you believe is labor support?

Response	*Frequency*	*Percent*
Unit too busy to spend time with patient/family	25	54.3
Lack of education regarding labor support interventions	19	41.3
Lack of nursing staff due to patient acuity	16	34.8
Acuity of nurse-to-patient ratio too high	15	32.6
Labor support supplies not available	10	21.7
Patient's birth plans	9	19.6
Approaching patient/family can be difficult	9	19.6
Patients' unrealistic expectations about their birth process	9	19.6
Family over-involvement/interference	8	17.4
Patients unable to move due to anesthesia from epidural	6	13.0
Buy-in from OB providers	5	10.9
None	*6*	13.0

Note: The nurses provided a total of 137 responses; percentages are based on the sample size (46).

Table 6

Responses to Question 2: What labor support interventions would you recommend be included in the electronic medical record (EMR) documentation?

Response	*Frequency*	*Percent*
Labor support interventions made available to chart	26	56.5
Equipment (i.e., peanut ball, birth ball, rebozo, aromatherapy, showering)	17	37.0
More position changes	15	32.6
Educating support person/family on labor support	6	13.0
None	*9*	19.6

Note: The nurses provided a total of 73 responses; percentages are based on the sample size (46).

Table 7

Responses to Question 3: How has COVID-19 changed your labor support practices, and if so, in what way has it changed?

Response	*Frequency*	*Percent*
Masks create barriers	14	30.4
Spending less time in patient's room and assisting patient with labor support techniques	12	26.1

Lack of partner/family support for patient due to visiting policy	8	17.4
COVID-19-positive patients and wearing PPE makes it hard to offer labor support	8	17.4
Improved due to less family/friends in room	7	15.2
Nurses fear being too close to patients	6	13.0
Calmer environment without all visitors	4	8.7
Patients unable to leave room (i.e., ambulate in hallway)	4	8.7
Lack of staff	3	6.5
Patient's emotional state due to COVID-19	2	4.3
It has not changed my labor support practices	*17*	37.0

Note: The nurses provided a total of 85 responses; percentages are based on the sample size (46).

After further examination, the most prominent themes—as determined by the highest combined totals in both the pre- and post-responses—were as follows:

1. Unit too busy to spend time with patient/family (25).
2. Labor support interventions made available to chart (26).
3. COVID-19 has not changed my labor support practices (17).

From the participants' responses to the open-ended questions, the most unexpected was that COVID-19 did not affect labor support practices. Despite the challenges of COVID-19 worldwide and for many healthcare professionals, it was enlightening to learn that many intrapartum nurses continued offering labor support practices during the pandemic's uncertain times (Joo & Liu, 2021).

Discussion

As this project evolved, the project leader identified gaps in the literature concerning the education of nurses in labor support interventions and the procedures that should be followed to achieve this. However, research on labor support education implemented in other sectors, such as midwifery students (Vasegh-Rahimparvar et al., 2019), medical residents (Shakartzi et al., 2018), and nursing students (Paterno et al., 2012), was utilized to examine closely related processes with similar aims and outcomes. Applying Lewin's Change Theory to the project increased the

intrapartum nurses' level of acceptance. It was also essential to address the restraining forces to promote acceptance and ensure the project's successful execution. The Change Theory enabled intrapartum nurses to change their current practices and refreeze their newly employed labor support practices (Crosby, 2020).

Findings

According to this project's findings, implementing an educational program for intrapartum nurses can potentially improve labor support practices. The primary outcome was an increase in the nurses' knowledge of labor support interventions; hence, the observed results of these interventions aligned with predictions and those found in other studies (Davies & Hodnett, 2002; Page et al., 2021). After the nurses attended the hands-on educational skills training and the data was collected and analyzed, the pre-and post-Self-Efficacy Labor Support Scale (Davies & Hodnett, 2022) results showed a statistically significant improvement in labor support knowledge among participants. The pre-intervention scores were 78.70, and the post-intervention scores were 93.33. Due to the non-submission of 13 post-questionnaires, the findings only included 33 of the 46 participants who completed the pre-questionnaire and hands-on skills training. Before starting this project, the project leader was somewhat apprehensive about the nurses' attitudes toward the labor support skills they would be learning. However, it was observed that the nurses were actively interested in the instructional sessions and willingly participated.

One important topic of discussion among the open-ended questions was integrating labor support interventions into the electronic medical record (EMR). This raised an important issue. With some exceptions, most labor support interventions are hand-typed—if at all—as intrapartum nurses utilize them. Nurses' ability to document labor support interventions

electronically could effectively alleviate time constraints and enhance care quality and patient safety. It could also increase work-time efficiency, resulting in nurses spending more time providing patient care, specifically labor support (McCarthy et al., 2019).

This project did not determine whether labor support improves maternal and birthing outcomes among participants; these were not components of the project, and the surveys only reflected self-reported practices. It is anticipated that labor support education and interventions like those presented in this project will reveal that intrapartum nurses recognize their capacity to impact such outcomes; however, additional research is needed.

The findings demonstrated that nursing practices are amenable to change and that providing evidence-based care is vital to nursing (Portela Dos Santos et al., 2022). Therefore, it was feasible to evaluate the labor support interventions' acceptability and whether they were cost- and time-efficient (ACOG, 2021; Greiner et al., 2019). In addition, increasing awareness of labor support allows intrapartum nurses to employ the best evidence-based methods when caring for women in labor (ACOG, 2021; Da Matta Machado Fernandes et al., 2021). It should also be emphasized that strong leadership support and engagement in this project greatly enhanced the efforts to implement change effectively.

Future Implications

In the future, a similar project might be conducted with more participants to gather additional data on the effects of labor support education. Future projects might also develop and standardize a labor support education curriculum for intrapartum nurses. An educational video demonstrating labor support interventions and training new nurses to give the highest quality patient care would be beneficial. In addition, incorporating labor support interventions into annual skills training would allow intrapartum nurses to refresh their skills and keep them up to

date. While training should be regularly updated if hospitals are to keep up with the rapidly evolving evidence of best practices, annual training is generally regarded as the gold standard (Yazdanparast et al., 2021).

Nursing managers can use this project's results to determine whether patient satisfaction and ratings on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) are related to labor support (Wei et al., 2020). Evidence shows that women who receive labor support, particularly in a labor and delivery unit, are more satisfied with their birthing experience (Jameei-Moghaddam & Mirghafourvand, 2022; Kempe & Vikström-Bolin, 2020). Therefore, patients given more autonomy over their birthing process are more likely to report an overall positive experience during their hospital stay (Sosa et al., 2018).

Evaluating the effects of quality improvement initiatives is crucial to the constantly expanding domain of improvement research, enabling the distinction between effective and ineffective strategies (Dagg et al., 2022). Opportunities to increase nurse education are constantly present, and the perinatal unit is no exception. Nursing is an ever-evolving discipline, which necessitates continual research to break down barriers to the implementation of evidence-based practice and to develop methods that improve awareness and knowledge (Berthelsen & Holge-Hazelton, 2021; Poveda-Moral et al., 2021). As a result, it is essential to keep measuring outcomes into the foreseeable future, particularly those associated with labor support interventions and the education of nurses in those areas.

Limitations

The project could be considered beneficial based on the data suggesting that hands-on skills training in labor support improved participants' knowledge. However, there were a few

limitations. One was the limited sample size (46) of participants in the labor and delivery unit. Also, the information derived from one location cannot be generalized.

Another limitation was time constraints. Participants had only four weeks between the conclusion of educational activities and the post-survey. This could have negatively impacted the results by not giving participants enough time to internalize and incorporate the newly learned behaviors into their everyday practice. The limited time also made it impossible to foresee whether participants would retain the knowledge over an extended period.

One final limitation was the number of participants who did not complete the post-survey. This prevented a direct link between the pre-and post-survey data measures, which would have determined a significant change in the participants. Only 33 participants (72%) completed the post-Self-Efficacy Labor Support Scale. As a result, the findings do not consider the perspectives of all participants. Completing the pre-survey and participating in the labor support hands-on skills training were two requisites for taking the post-survey. The project leader addressed this limitation in the data analysis by summarizing the overall data reflecting the participants' results.

Conclusion

As nursing evolves in response to new evidence, developing and implementing effective and efficient educational programs will benefit the perinatal nursing profession. Consequently, this project aimed to create an educational program providing intrapartum nurses with the knowledge, abilities, and resources needed to implement labor support interventions for patients. Many of the nurses who participated in the project indicated a considerable increase in knowledge as a direct result of the training. Despite the short timeline and other limitations, the findings demonstrated the education's short-term effects on improving the nurses' knowledge

about evidence-based labor support interventions. The nurses must continue to use this knowledge at the bedside. Additionally, follow-up research is needed to verify that the content reaches the intended patient population and to expand similar educational programs to other perinatal units.

Finally, it is hoped that the nurses will put their acquired knowledge into practice, helping them feel more confident and provide more effective, accurate, and evidence-based care. Their ability to efficiently disseminate and retain this knowledge will ultimately increase the benefits and application of labor support interventions.

In conclusion, this project aimed to develop an evidence-based education program to provide intrapartum nurses in a labor and delivery unit with the knowledge and resources to aid, educate, and guide their patients during the birthing process with labor support interventions. The program can promote individual nursing competency, encourage nursing research, improve patient outcomes, afford the recognition of other medical organizations, and, most notably, utilize labor support interventions.

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White VanGompel, Main, E. K., Tancredi, D., & Melnikow, J. (2018). Do provider birth attitudes influence cesarean delivery rate: a cross-sectional study. *BMC Pregnancy and Childbirth, 18*(1), 184–184. https://doi.org/10.1186/s12884-018-1756-7

World Health Organization. (2018). *WHO recommendations: intrapartum care for a positive childbirth experience.* Geneva: WHO.

Yazdanparast, E., Arasteh, A., Ghorbani, S., & Davoudi, M. (2021). The effectiveness of communication skills training on nurses' skills and participation in breaking bad news. *Iranian Journal of Nursing and Midwifery Research, 26*(4), 337–341. https://doi.org/10.4103/ijnmr.IJNMR_150_20.

Yuill, C., McCourt, C., Cheyne, H., & Leister, N. (2020). Women's experiences of decision-making and informed choice about pregnancy and birth care: A systematic review and meta-synthesis of qualitative research. *BMC Pregnancy and Childbirth, 20*(1), 343–364. https://doi.org/10.1186/s12884-020-03023-6

Table 1: Demographic and Options

Variable Name	Options
Participant Identifier	Last 4 digits of the participant's phone number
Age	Age in years
Race	a. Asian (Asian Indian, Chinese, Japanese, Korean, Pilipino, etc.) b. African American c. Hispanic/Latino d. White e. Other f. Decline to state.
Highest Nursing Education	a. Associate Degree in Nursing (ADN)/Diploma b. Baccalaureate Degree in Nursing (BSN) c. Master of Science in Nursing (MSN) d. Masters Entry Degree in Nursing (MEPN) e. Doctorate (PhD/DNP)
Normal Work Shift	a. Day shift b. Night shift c. Other
Number of Years as a Registered Nurse	In years
Number of Years Working in the Labor and Delivery Unit	In years
Are you RNC Certified?	a. Yes b. No

Table 2: Variables and Operational Definitions

Variable Name	Operational Definition	Aggregate or Individual data	Independent or Dependent	Level of Measurement
Nurse Labor Support Knowledge	Self-Efficacy Labor Support Scale (scores range 14-98).	Individual	Dependent	Continuous/ratio
Open Ended Questions: 1. Are there things that prevent you from doing what you believe is labor support? 2. What labor support interventions would you recommend be included in the electronic medical record (EMR) documentation? 3. How has COVID-19 changed your labor support practices?				

Appendix A

Literature Table							
Investigator	**Year**	**N**	**Educational Intervention or design**	**Study Design**	**Significant Outcomes**	**Study Location**	**Additional Considerations**
Bagley	2015	31 Nurses	Attended 4-hour Professional Labor Support Course (PLS)	Pretest/Post-Test Descriptive Design	Self-efficacy for PLS, scores high-significant difference t (30) = -7.92, p≤ .01, perceived value of content information revealed 90.3% nurses found information clinically relevant, learner satisfaction 80.6% learned new material, & 83.9% intended knowledge translation to nursing practice were all measured outcomes.	USA	• Although nurses indicated a desire to apply PLS, it is unknown whether this will occur in practice. It is beneficial to measure frequency of PLS after attendance. • The following were identified as significant barriers to PLS: continuous fetal monitoring, physician impediments, a lack of technology, staffing, & family influence.
Bolbol-Haghighi et al	2016	100 pregnant women	• A qualified midwife instructed the supportive group in six 60-minute sessions during labor. • Lessons on how to support a mother during labor included massaging her back, belly and legs, acupressure, and aromatherapy, encouraging pt., to move, & changing positions. • The students took a 2hr	Randomized Controlled Clinical Trial	•The results indicated that the supportive group had a considerably shorter duration of the first stage of labor than the non-supportive group ($p<0.001$). • Additionally, Apgar scores in the supportive group were substantially ↑ than those in the non-supporting group at minutes 1 & 5 ($p<0.001$ & $p = 0.04$, respectively).	Iran	The study's weaknesses included unnecessary interventions by doctors and midwives (i.e., amniotomy, vaginal exam, labor induction, episiotomy) and restricted maternity ward's space.

			workshop on using the partogram. • The non-supportive students (control group) attended the partogram workshop & received no supportive care training.				
Murn	2019	23 Nurses	↑ labor support knowledge by creating & implementing a bundle of interventions which included education, purchasing equipment & training in labor support.	Pretest/Post-Test	• ↑ in nurse knowledge regarding labor support. • Nurses demonstrated an awareness of the benefits of CLS, demonstrating a behavioral shift that was statistically significant (p =.005). • Nurses understood the role of birth doulas after intervention by 100% (p =.001).	USA	• Importance of providing labor support education to novice nurses & during orientation for new nurse.
Page et al	2021	Nursing Staff in March 2016 (n= 27), September 2017 (n=20), & June 2019 (n=24)	•The hospital updated policies, taught nurses, bought labor support equipment, & changed care documentation. • They also used the Self-Efficacy Labor Support Scale to examine nurse confidence and skill over four years.	Quality Improvement Project w/pre-post practice implementation design	• Nurses' self-efficacy scores rose from 76.67 in 2016 to 86.96 in 2019 (p<.001). It went from 4.38 percent (47/1,074) in January 2015 through March 2016 to 18.06 percent (82/454) in July through December 2019. • The rate of first-time cesarean births for nulliparous women with low-risk pregnancies stayed	USA	• Continuous labor support went above & beyond the goal as self-efficacy rose with the full bundle implementation. • In 2019, there was the most significant rise in continuous labor support.

					about the same from 2015 to 2019 at about 18%		
Paterno et al	2012	648 Birth Records	Birth Companions Program (BCP), Students acquire 24 hours of training, including 20 hours of teaching from a DONA International-certified educator and 4 hours of didactic education focusing on the doula's position on the health care team.	Secondary analysis of the BCP data was conducted using a convenience sample of records from the BCP database	• The study noted approximately one more intervention per labor with CNM clients than obstetricians. In multivariate analysis, the ↑ number of doula interventions was linked with ↓ odds of epidural (AOR 0.92; % CI 0.86-0.98) & cesarean birth (AOR 0.90; 95% CI, 0.85-0.95. • Examined individually, a greater number of physical interventions ↓ epidurals (AOR 0.85; 95% CI, 0.78-0.92) and cesarean births (AOR 0.80; 95% CI, 0.73-0.88) were related to fewer emotional/informational interventions.	USA	• The data's correctness is contingent upon meticulous documentation by each birth companion who attends a birth, as well as by student leaders who enter client records into the program's database. • Labor duration was not reported regularly enough to be analytically significant.
Pilkenton et al	2015	24 Midwifery student 12 Nursing Students	Created an interprofessional simulation on labor support that involves the use of a standardized patient, a written scenario, an interprofessional team of nursing	Qualitative Study	• Students' feedback emphasized the simulation as a formative experience that should precede exposure to clinical settings for labor support practice and interprofessional teamwork. • Students highlighted the importance of	USA	• Some drawbacks of students' complaints were a perceived lack of preparation, more instruction, prepared material, and labor assistance practice. • Others stated that they experienced insecurity in their contact with the nursing student and asked for additional training on communication and how to collaborate effectively as a group.

			and midwifery students, faculty observations, and a reflective debrief.		practicing labor support and communication without the pressures of the clinical management or getting ready for an obstetric emergency.		
Shakartzi et al	2018	8 Medical Students	Paired medical residents with community groups like DREAM, a labor-support service-learning program from Boston Medical Center, and Birth Sisters Program, an in-house multicultural labor support program for patients that meet required criteria. Medical residents received labor support training and shadowed a doula trained Birth sister for one prenatal visit, labor, and a postpartum visit.	Qualitative Study	• Student-generated participation surveys, experience reflections, learning, development attendance, and quality improvement indicators which demonstrated ↑ knowledge, as well as confidence in communication, advocacy, and support. • Labor support knowledge mean score for the knowledge-based questions pre-training was 5.00 points out of 16 points total. The mean score for the knowledge-based questions post training was 7.67 points out of 16 points total showing test scores improved by 2.67 points (95% CI, 0.21-5.12; p = .0383).	USA	• Challenges included meeting all departments' expectations for the program, including student training, and developing a role and reasonable expectations for medical students given time restrictions were significant hurdles in program development. • Other challenges included promoting effective communication between Birth Sisters and students to facilitate learning experiences
Vasegh-Rahimparvar	2019	70 Midwifery Students	• Professional Labor Support was taught in the physical, emotional, & informational fields, with Midwifery text-	Quasi-experimental study	There was a statistically significant difference between the Professional Labor Support provided by the midwifery students in the intervention group (t=-9.16;	Iran	Williams Obstetrics was the primary reference textbook for the course on pregnancy and childbirth for midwifery students, even though it appears to be a more suited textbook for obstetricians. The author of that book primarily discusses subjects relevant to obstetricians and provides

			books serving as the foundation. • The control group received traditional educational methods & materials. • Students' satisfaction with Professional Labor Support education was assessed using the Professional Labor Support Questionnaire (LSQ) & satisfaction with women who gave birth while under the supervision of these students (as measured by a modified version of LSQ).		P<0.001). On the other hand, the contentment of women who had given birth while being supervised by trained students was considerably higher than the satisfaction of women who had given birth while being supervised by the control group (P<0.001).		minimal information on Professional Labor Support. As a result, it was recommended that more emphasis be placed on teaching Professional Labor Support to midwifery students with appropriate textbooks.

Appendix B

PARTICIPANT SOCIODEMOGRAPHIC DATA

1. Please state your current age in years? _____
2. Please indicate your race:
    a. Asian (Asian Indian, Chinese, Japanese, Korean, Pilipino, etc.)
    b. African American
    c. Hispanic/Latino
    d. White
    e. Other (please specify): _____
    f. Decline to state
3. Highest nursing education (please indicate the highest level):
    a. Associates Degree in Nursing (ADN)/Diploma
    b. Baccalaureate Degree in Nursing (BSN)
    c. Master of Science in Nursing (MSN)
    d. Masters Entry Degree in Nursing (MEPN)
    e. Doctorate (PhD/DNP)
4. Normal work shift (please indicate one):
    a. Days
    b. Nights
    c. Other
5. Number of years as a Registered Nurse: _____
6. Number of years working in the Labor and Delivery unit? _____
7. Are you RNC-OB certified?
    a. Yes
    b. No
    c. Other

Appendix C

Last 4 digits of your phone number_____

Self-Efficacy Labor Support Scale (Davies, 2002)

How confident are you in your ability to use each of the following techniques for providing support to women in labor? Please circle the number that best reflects your answer.

	Strongly Disagree						Strongly Agree
1. Review and discuss a woman's preferences (birth plans).	1	2	3	4	5	6	7
2. Suggest alternate positions/movements.	1	2	3	4	5	6	7
3. Provide specific backache relief measures.	1	2	3	4	5	6	7
4. Know what to say and do for reassurance.	1	2	3	4	5	6	7
5. Be continually present with a woman in labor.	1	2	3	4	5	6	7
6. Assist partner/friend in providing labor support.	1	2	3	4	5	6	7
7. Assist with breathing/relaxation techniques.	1	2	3	4	5	6	7
8. Explain what is happening about labor progress.	1	2	3	4	5	6	7
9. Deal with distress and panic situations.	1	2	3	4	5	6	7
10. Use nonpharmacologic pain relief methods.	1	2	3	4	5	6	7
11. Accept a woman's behavior without judgement, even when unusual/upsetting.	1	2	3	4	5	6	7
Please rate your skill in the following labor support techniques:							
12. Physical comfort measures (backache relief measures, nonpharmacologic pain relief).	1	2	3	4	5	6	7
13. Emotional support (presence, coping mechanisms for distress and panic situations).	1	2	3	4	5	6	7
14. Information/advice (labor progress).	1	2	3	4	5	6	7

Appendix D

PERMISSION FROM AUTHOR

B

Barbara Davies

Dec 5, 2022, 10:26 AM

to me

Hi Ana Viera-Martinez

Yes, you have my permission to use the Self-Efficacy Labor Support Scale in your DNP program project. I have attached a few documents of interest.

Please do not hesitate to contact me with any questions.

All the best!

Barbara Davies RN PhD Professor Emeritus
University of Ottawa

Appendix E

OPEN-ENDED QUESTIONS

Last 4 digits of your phone number_____

1. Are there things that prevent you from doing what you believe is labor support? (Please provide your response below)

_____

_____

_____

_____

_____

_____

2. What labor support interventions would you recommend be included in the electronic medical record (EMR) documentation? (Please provide your response below)

_____

_____

_____

_____

_____

_____

3. How has COVID-19 changed your labor support practices, and if so, in what way has it changed? (Please provide your response below)

_____

_____

_____

_____

_____

_____

Appendix F

RECRUITING MATERIAL

Greetings,

I am Ana Viera-Martinez, a Doctor of Nursing Practice student at San Jose State University. I am conducting a quality improvement project involving labor support among nurses working with laboring women. Suppose you agree to participate. In that case, you will be asked to complete a demographic data survey (approximately 3–5 minutes) and the Self-Efficacy Labor Support Scale questionnaire twice at different intervals. The Self-Efficacy Labor Support Scale questionnaire will take about 10–15 minutes to complete, and a link will be sent via work email. The intervention includes a hands-on skills class to familiarize you with various labor support tools and techniques. The hands-on skills class will take approximately two hours to complete and will be held in the labor and delivery unit conference room. If you decide to refrain from participating, you do not need to respond to the questionnaires. Still, please be advised that management from labor and delivery at Torrance Memorial Medical Center has required completing the hands-on skills session. Thank you, and please know that your support is essential to improving maternal and newborn outcomes.

If you have any questions or concerns about this project, please contact me by email or phone . Thank you in advance for your assistance.

Sincerely,

Ana Viera-Martinez, MSN, CNS, RNC-OB, CLE
Doctor of Nursing Practice Student
San José State University

Appendix G

INFORMATIONAL FLYERS

Appendix H

GANTT CHART: TIMELINE

Activity	Aug. 2022	Sep. 2022	Oct. 2022	Nov. 2022	Dec. 2022	Jan. 2023	Feb. 2023	Mar. 2023	Ap. 2023	May 2023
DNP Project Proposal- Oral Defense with Project Chair & hospital site mentor										
Literature review & Writing										
Ongoing project Development										
Submission for IRB consideration at SJSU										
Submission for IRB Consideration at Clinical Site										
Consent letter to participants										
Email demographic survey & pre-Self-Efficacy Labor Support Scale to complete via Qualtrics										
Hands-on Labor Support Skills class approx. 2 hours-varies days of month w/weekly email reminders										
Email post-Self-Efficacy Labor Support Scale to complete via Qualtrics w/weekly email reminders										
Data Compilation, Analysis & Evaluation of DNP Project										
Submission of Manuscript to MCN Journal										
Oral DNP Defense w/SJSU Department Chairs										
Poster Presentation at SJSU										
SJSU Graduation										

Appendix I

IRB APPROVAL

SJSU SAN JOSÉ STATE UNIVERSITY
Office of Research
Division of
Research and Innovation
San José State University
One Washington Square
San José, CA 95192-0022
TEL: 408-924-2272
officeofresearch@sjsu.edu
sjsu.edu/research

SAN JOSE STATE UNIVERSITY
HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD

IRB Notice of Approval

Date of Approval: 12/15/2022

Study Title: Expanding Labor Support Education to Nurses Caring for Women

Principal Investigator (PI): Dr. Deepika Goyal

Other SJSU Team Members:

SJSU Student(s): Ana Viera-Martinez

Funding Source: None

IRB Protocol Tracking Number: 22206

Type of Review:

☒ Exempt Registration: Category of approval §46.104(d)(2ii)
☐ Expedited Review: Category of approval §46.110(a)()
☐ Full Review
☒ Modifications:

- Remove the online training Hands-on Understand and Demonstration of Labor Support (HUDLS) – due to the time intensive nature of this intervention. Keep labor support hands-on skills workshop as the sole intervention.

- Remove the 56 item Labor Support Questionnaire (LSQ) due to the time intensive nature of this long questionnaire. Replace with the shorter, 17-item Self-Efficacy Labor Support Scale.

☐ Continuing Review

Special Conditions :
☒ Waiver of signed consent approved
☐ Waiver of some or all elements of informed consent approved

☐ Risk determination for device:
☐ Other:

Continuing Review:
☒ Is not required. Principal Investigator must file a status report with the IRB one year from the approval date on this notice to communicate whether the research activity is ongoing. Failure to file a status report will result in closure of the protocol and destruction of the protocol file after three years.

☐ Is required. An annual continuing review renewal application must be submitted to IRB one year from the approval date on this notice. No human subjects research can occur after this date without continuing review and approval.

IRB Contact Information:
Alena Filip
Human Protections Analyst
Office of Research

IRB document submission address: irb@sjsu.edu

IRB Chair:
Dr. Areum K. Jensen
Department of Kinesiology

Institutional Official:
Dr. Richard Mocarski
Associate Vice President for Research

Primary Investigator Responsibilities:

- Any significant changes to the research must be submitted for review and approval prior to the implementation of the changes. The modification request form is posted on our website.
- Reports of unanticipated problems, injuries, or adverse events involving risks to participants must be submitted to the IRB within seven calendar days of the primary investigator's knowledge of the event. The incident report form is posted on our website.
- If the continuing review section of this notice indicates that continuing review is required, a request for continuing review must be submitted prior to the date the provided.

- Comply with an SJSU IRB or Institutional Official (IO) decision to suspend or withdraw approval for the study.

Approval Limitations:

- Although your study has been approved by the IRB, both the IRB and the Institutional Official (IO) for SJSU has the right to audit any approved study and withdraw approval.
- This approval is no longer valid once the SJSU PI is no longer affiliated with SJSU, unless the study is re-assigned to an SJSU-affiliated PI via a modification request.
- SJSU investigators may list external personnel in their applications. However, the SJSU IRB does not assume responsibility for the compliance of external personnel. Instead, external personnel should contact their IRB, either to coordinate a reliance agreement with the SJSU IRB as the IRB of record or to have their IRB conduct a separate review for their activities. External personnel who do not have the support of an external IRB and have not established a contract with SJSU should not receive access to individually identifying information about subjects. SJSU investigators are encouraged to be judicious about who they add as part of the study personnel, as responsibility for compliance rests with the SJSU PI in the event that external personnel do not have the support of an outside IRB.

TORRANCE MEMORIAL | An Affiliate of Cedars Sinai

January 18, 2023

Mary Hersh, PhD, RN
Ana Viera Martinez, RN
Nurse Researcher
Nursing Research Office/Clinical Education

Project Title: Expanding Labor Support Education to Nurses Caring for Women in Labor

Dear Dr. Hersh and Ms. Martinez,

Thank you for submitting the above-named study and requesting for exemption status by the Torrance Memorial Institutional Review Board (IRB). The IRB appreciates your work in completing this proposal summary. Your proposal was evaluated in light of the following federal regulations which govern the protection of human subjects:

45 CFR 46.104(d)(2)(ii) identifies studies that are exempt from IRB review to include:

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

The IRB has determined that this Quality Improvement project, which will include a voluntary completion of a Pre/Post Training survey, poses no more than minimal risk to participants. The IRB understands that the information will be obtained in such a way that any of the responses will not be linked to the participants' identity or that any identifying information will be maintained. Moreover, accidental disclosure of the participants' responses would not have the potential to harm the participant's reputation, employability, financial status, or legal standing. For these reasons, the Torrance Memorial Medical Center IRB has approved your proposal to exempt this study from IRB review and consideration.

A goal of the IRB is to minimize negative occurrences during any research study. However, the IRB understands that despite their best intentions, unforeseen negative circumstances or events may arise during research. If an unexpected occurrence or adverse event ensues during this study, please notify the Torrance Memorial IRB as soon as possible. Once notified, we will ask for a complete explanation of the problem and/or events and your responses. Other actions by the IRB may be required depending on the nature of the events.

Should you have additional questions or require clarification of the contents of this letter, please contact me.

Sincerely,

DocuSigned by:
John Blakey, M.D.
John Blakey, MD
Chairman, Institutional Review Board
Torrance Memorial Medical Center

Appendix J

CONSENT NOTICE

TITLE OF PROJECT: Expanding Labor Support Education to Perinatal Nurses Caring for Women in Labor

NAME OF PROJECT LEADER: Ana Viera-Martinez, MSN, CNS, RNC-OB, CLE, an employee at Torrance Memorial Medical Center.

PURPOSE: This project aims to determine if hands-on training skills will increase intrapartum nurses' knowledge of labor support. With this newfound knowledge, the objective is to encourage labor support for the population served.

INTERVENTIONS: The hands-on skills training in this project is a mandatory requirement imposed by the employer. All participants are required to take part in the hands-on skills training regardless of whether the project is conducted. The participant will be asked to fill out the Self-Efficacy Labor Support Scale questionnaires of their own free choice as part of the voluntary component of the project before and after the hands-on skills training on labor support interventions.

PROCEDURES: If you decide to participate in this project, you will be requested to provide information regarding your age, race, education, years spent in your occupation, job status, and Inpatient Obstetric Certification (RNC-OB). You will also be asked to complete a questionnaire, the Self-Efficacy Labor Support Scale by Barbara L. Davies, PhD. This survey is a component of my project on how education regarding labor support can influence the behavior of intrapartum nurses. Specifically, how do they evaluate the relevance of labor support and how do they intend to apply it to laboring women? It will take about 10–15 minutes to complete the questionnaire.

TIME COMMITMENT: The demographic data survey will take approximately 3–5 minutes, and the Self-Efficacy Labor Support Scale will take approximately 10–15 minutes to complete each time. The hands-on labor support skills class will take approximately two hours to complete.

LOCATION: The demographic data survey and Self-Efficacy Labor Support Scale questionnaires will be completed via Qualtrics, and a link will be emailed to all participants. The hands-on skills training class will be held in the conference room located near the labor and delivery unit at Torrance Memorial Medical Center (TMMC). Participants will be able to sign up for the hands-on skills training class via the online API-Healthcare Web Portal at TMMC.

COMPENSATION: There will be no payment forthcoming in exchange for your participation.

CONFIDENTIALITY: Any information provided, as well as any identifying documents, will be kept strictly confidential and stored in the project leader's office for at least three years in a password-protected computer file or locked file cabinet. We are mandated reporters, which means that under the law, we are compelled to report any instances of abuse, neglect, or the intention of a person to harm themselves or others to the relevant authorities. The findings of this project may be made public, and material cited in professional journals and meetings; however, the information obtained from this project will only be disclosed collectively and not individually.

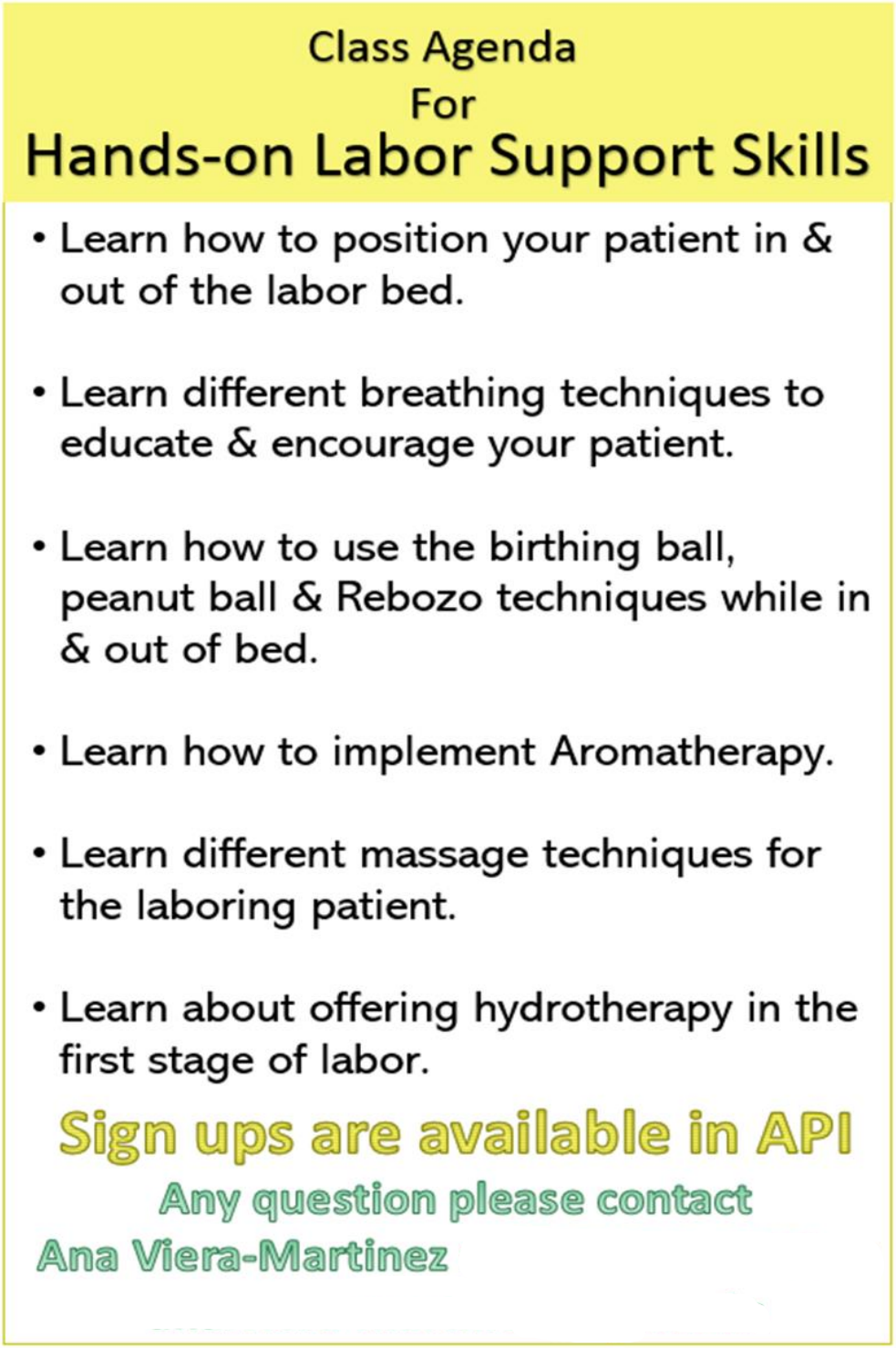
YOUR RIGHTS: Your participation in this survey is entirely voluntary. You are not required to do anything, and you have the option to decline to take part in the project in its entirety or any of its components. You can skip any questions you do not wish to respond to, should you so choose.

CONTACT INFORMATION: If you have any questions about this project now or in the future, you may contact Ana Viera-Martinez at the following phone number .

AGREEMENT TO PARTICIPATE: The completion of the project constitutes consent to participate.

Appendix K

LABOR SUPPORT CONTENT/AGENDA


Class Agenda
For
Hands-on Labor Support Skills
• Learn how to position your patient in & out of the labor bed.
• Learn different breathing techniques to educate & encourage your patient.
• Learn how to use the birthing ball, peanut ball & Rebozo techniques while in & out of bed.
• Learn how to implement Aromatherapy.
• Learn different massage techniques for the laboring patient.
• Learn about offering hydrotherapy in the first stage of labor.
Sign ups are available in API
Any question please contact
Ana Viera-Martinez

Appendix L

SYNTHESIS MATRIX

Clinical Practice Guidelines: Labor Support Interventions

Study	Positioning in & out of bed	Breathing Techniques	Birth/Peanut Ball or Rebozo	Aromatherapy	Massage Techniques	Cold & Warm Compresses	Hydrotherapy
Abdul-Sattar Khudhur et al., 2018	↓ labor pain	Ø	Ø	Ø	↓ labor pain	Ø	Ø
Akbarzadeh et al., 2018	Ø	Ø	Ø	Ø	Ø	↓ duration of labor in 2nd stage of labor w/ warm & cold compresses. No differences noted in duration of 1st stage of labor or Apgar scores.	Ø
Akin et al., 2020	↓ labor pain in VAS scores	Ø	Ø	Ø	Ø	Ø	Ø
Aktas et al., 2020	Ø	Ø	Birth ball ↓ labor pain in VAS scores.	Ø	Ø	Ø	Ø
Aslamiyah et al., 2021	Ø	Ø	Ø	Ø	Ø	Warm compresses ↓ labor pain.	Ø
Azeem et al., 2019	↑ cervical dilation ↓ use oxytocin ↑ Apgar scores	Ø	Ø	Ø	↑ cervical dilation ↓ use oxytocin ↑ Apgar scores	Ø	Ø
Baljon et al., 2020	Ø	↓ labor pain using BRM	Ø	Ø	Ø	Ø	Ø
Biana et al., 2021	↓ labor pain ↓ labor duration ↓ anxiety ↑ incidence of vaginal delivery	↓ labor pain & duration of labor. ↓ anxiety during labor.	Birth ball ↓ labor pain & duration of labor. ↑ confidence in relation to labor. ↑ frequency of ucs.	Ø	↓ labor pain & anxiety. ↓ use anesthesia ↑ satisfaction w/ childbirth. ↑ rate of vaginal deliveries.	Ø	Ø
Chen et al., 2019	Ø	Ø	Ø	↓ labor pain in transition & active phases of labor. No influence on emergency c/s, spont., onset labor & membrane rupture.	Ø	Ø	Ø
Delgado at al., 2019	Ø	Ø	Birth ball ↓ labor pain.	Ø	Ø	Ø	Ø
Di Vito et al., 2020	Ø	Ø	Ø	↓ labor pain in VAS scores. ↓ nausea/vomiting.	Ø	Ø	Ø
Gams et al., 2019	↑ labor in upright position. ↓ in cesarean births. ↓ in use of epidurals.	Ø	Ø	Ø	Ø	Ø	Ø
Goswami et al., 2022	Ø	Ø	Ø	Ø	Ø	Ø	↓ labor pain, intensity & shortens duration & 1st stage of labor.
Grenvik et al., 2019	Ø	Ø	Peanut ball ↑ spont., vaginal deliveries & ↓ incidence of c/s No change in total length of labor	Ø	Ø	Ø	Ø
Hasell et al., 2019	Ø	Did not enhance effect of massage.	Ø	Ø	↓ length of active phase on labor.	Ø	Ø

Clinical Practice Guidelines: Labor Support Interventions (cont.,)

Study	Positioning in & out of bed	Breathing Techniques	Birth/Peanut Ball or Rebozo	Aromatherapy	Massage Techniques	Cold & Warm Compresses	Hydrotherapy
Heim et al., 2022	Ø	↑ women's knowledge.	Peanut ball ↑ women's knowledge to use during labor.	Ø	Ø	Ø	↑ women's knowledge using showers for pain.
Hickey et al., 2019	Ø	Ø	Peanut ball women 50% less likely to have c/s	Ø	Ø	Ø	Ø
Karaman & Ceylantekin, 2021	Ø	↓ postpartum pain & fear of birth. ↑ positive birth experiences.	Ø	Ø	↓ postpartum pain & ↑ positive birth experiences.	Ø	Ø
Kaur et al., 2020	Ø	Ø	Ø	Ø	Ø	↓ labor pain immediately after 1st, 2nd & 3rd application warm compresses. No difference in labor outcome or type of delivery.	Ø
Kazeminia et al., 2020	Ø	Ø	Ø	↓ labor pain w/ use of lavender scent.	Ø	Ø	Ø
Liao et al., 2021	Ø	Ø	Ø	↓ labor pain & anxiety in 1st stage of labor.	Ø	Ø	Ø
Mascarenhas et al., 2019	Ø	↓ levels of anxiety & promote relaxation.	Birth ball ↓ labor pain.	↑ relaxation & ↓ levels of anxiety.	Ø	↑ influence w/ local analgesia.	↑ relaxation & ↓ levels of anxiety.
Palladino et al., 2019			Peanut ball ↓ c/s after 6 months from 38% to 32%				
Ritter et al., 2020	Ø	Ø	Rebozo with ↑ use from 10% in 2013 to 26% in 2016 ↓ medical interventions	Ø	Ø	Ø	Ø
Scandurra et al., 2022	Ø	Ø	Ø	Help relieve anxiety & pain in women during all stages of labor.	Ø	Ø	Ø
Taghlili et al., 2021	Ø	Ø	Ø	Ø	Ø	↓ labor pain 1st stage w/warm & cold compresses. ↑ women labor satisfaction.	Ø
Tanvisut et al., 2018	Ø	Ø	Ø	↓ labor pain in latent & early active phase of labor.	Ø	Ø	Ø

Legend: ↓=decrease; ↑=increase; Ø=not discussed in study; BRM=Breathing exercises, c/s= cesarean section; foot reflexology and back massage; SAI=State Anxiety Inventory; VAS=Visual Analogue Scale.

Appendix M

PROJECT BUDGET

One-Time Costs	Project	Funded/Credit
• Hands-on labor support skills training class	2 hours educational pay	L&D cost-center
• Room used for hands-on labor support skills training	Reserved for 4 hours	Free/no cost
Labor Support Equipment:		
• Birthing balls	L&D unit previously purchased. -2 extra birth balls $28.00/unit	L&D cost-center -DNP project leader
• Peanut balls	L&D unit previously purchased. -1 extra peanut ball $30.00/unit	L&D cost-center -DNP project leader
• Aromatherapy	4 unit(s) @ $180.00/each	L&D cost-center
• Rebozos	1 unit(s) @ $28.00/each	DNP project leader
Project Supply Cost:		
• Flyers "save the date"	10 flyers-$1.00/each	DNP project leader
• Position poster-boards	6 poster-boards $36.00/each	DNP project leader
• Snacks/cups/napkins	6 boxes of donuts $18:00/each	DNP project leader
	6 brewed coffee boxes $27.00/each	DNP project leader
	4 packs of coffee cups $6.25/each	DNP project leader
	6 Large coffee creamers $5.76/each	DNP project leader
	2 Large packs of paper towels $14.00/each	DNP project leader