THE EFFECTS OF HIGH-FIDELITY BEREAVEMENT SIMULATION ON PERINATAL NURSE ATTITUDE AND COMFORT WITH PROVIDING BEREAVEMENT CARE FOR PATIENTS EXPERIENCING PERINATAL LOSS

by

Victoria Jule Johnson

Liberty University

A Dissertation Presented in Partial Fulfillment

of the Requirements for the Degree of

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ABSTRACT

Perinatal loss is a global phenomenon that requires holistic and individualized care of patients. Nurses are responsible for providing most bereavement care after the loss of a pregnancy or infant; however, nurses commonly experience a lack of education and exposure to ways to promote high-quality bereavement care, leading to nurse discomfort providing perinatal bereavement care. The purpose of the study is to examine if high-fidelity perinatal bereavement simulation is an effective method to increase nurse comfort and improve nurse attitudes toward providing perinatal bereavement care. Data was collected using a quantitative quasi-experimental one-group pretest-posttest research design using a sample of perinatal nurses (n=20) from the same healthcare network who have access to the same bereavement education opportunities and apply the same perinatal bereavement protocols. Data collection was completed through Qualtrics using the BEACONNS instrument (Engler et al., 2004; see Appendix A). SPSS 29.0 was used for data analysis and paired-samples *t*-tests were completed for both perinatal nurse attitudes and nurse comfort providing perinatal bereavement care. A statistically significant increase in both perinatal nurse attitudes ($p < .001$) and comfort ($p < .001$) levels was found after participation in a high-fidelity perinatal bereavement simulation. The results of the study led to the conclusion that high-fidelity perinatal bereavement simulation can be an effective educational method to increase perinatal nurse comfort and attitudes toward providing perinatal bereavement care. Recommendations for future research include studying a larger sample of perinatal nurses and the application of high-fidelity simulation to other rare medical events.

Keywords: bereavement, high-fidelity, simulation, perinatal loss, attitudes, comfort

Dedication

This dissertation is dedicated to all the parents who have experienced perinatal loss and the strong, caring perinatal nurses who provide bereavement care with dignity and endearment.

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List of Abbreviations

World Health Organization (WHO)

High Fidelity Simulation (HFS)

Perinatal Palliative Care (PPC)

Post-Traumatic Stress Disorder (PTSD)

Cognitive Behavioral Therapy (CBT)

The Bereavement/End-of-Life Attitudes about Care: Neonatal Nurses Scale (BEACONNS)

Late Termination of Pregnancy (LTOP)

Labor and Delivery, Recovery, and Postpartum (LDRP)

International Nursing Association for Clinical and Simulation Learning (INACSL)

Post Traumatic Growth (PTG)

End of Life (EOL)

Health Care Provider (HCP)

Dilation and Curettage (D&C)

Situational Awareness (SA)

National League for Nursing (NLN)

CHAPTER ONE: INTRODUCTION

Overview

Perinatal bereavement education is lacking in many healthcare organizations, leaving nursing staff at risk for discomfort and negative attitudes about providing bereavement care. Education commonly presented is ambiguous when compared to other examples of bereavement care for older patients and often does not include multiple medical disciplines (Qian et al., 2021). Much like the patients they care for, nurses commonly report their own experiences with sadness, sorrow, pain, and grief associated with providing perinatal bereavement care (Yenal et al., 2021). The event of fetal or newborn demise creates a difficult socio-economic environment for healthcare providers and their patients that can create feelings unexhibited in any other medical scenario (Zelop et al., 2019). Typically, obstetric care is joyful and a celebration of new life; however, stillbirth, miscarriage, and infant death causes life and loss to interconnect in a unique and difficult way. Continued research is required for more effective perinatal bereavement education that promotes nurse comfort and improved attitudes toward providing bereavement care. This study evaluates whether high-fidelity perinatal bereavement simulation can be applied as an effective learning method to improve perinatal nurse comfort and attitudes when providing bereavement care in the event of fetal or newborn death.

Background

Perinatal loss is a global phenomenon that requires healthcare professionals to provide high quality care that encompasses more than just physical wellness, but also includes mental and emotional support that guides bereaved parents through the grief process. Perinatal loss is the unintended death of a fetus at any stage of development through the loss of a newborn from birth to the 28th day of life (Qian et al., 2021). Perinatal nurses must be equipped with education

that promotes self-awareness and coping skills to develop comfort while giving bereavement care and promote positive attitudes when bereavement care is required. Perinatal nurses can experience trauma providing bereavement care which can have lasting physical, emotional, and spiritual consequences; however, through healthy coping, those perinatal nurses can become more grounded in their beliefs and become stronger resources for future parents who experience perinatal loss (Gilart et al., 2021).

Theoretical Background

Post Traumatic Growth (PTG) Theory describes how people who experience trauma can evolve and gain personal growth as the result of traumatic events (Tedeshi et al., 2018). This theory will guide the research questions of the study by focusing on the attributes of perinatal nurses that can be negatively affected by the trauma of perinatal loss, nurse attitudes, and comfort providing bereavement care. Psychological challenges resulting from traumatic events experienced while providing nursing care can have lifelong negative effects, including internal crises and questioning one's own beliefs about life (Tedeshi et al., 2018).

PTG Theory does not focus on trauma itself, but instead on the healing and changes after the event that can create stronger coping and deeper personal beliefs (Lyon et al., 2021). These long-term changes are the result of instinctual progression through the steps of PTG theory that occur over months or years, through the growth of personal resilience and recovery. PTG theory is a strong framework for this study because nurses have been shown to experience secondary traumatic stress, which occurs when a nurse is exposed to a traumatic event while providing patient care (Kelly, 2020). Sadly, secondary trauma is often considered an occupational hazard of working in healthcare and caring for other people. Secondary trauma is a leading cause of burnout, which has been shown to have negative physical and psychosocial effects on nurses and

negative effects on patient outcomes and satisfaction. Studies examining nurse growth after experiencing trauma, like this one, are important because secondary trauma is often underestimated and commonly unacknowledged by healthcare professionals (Kelly, 2020). Although research into nurse trauma cannot typically prevent traumatic experiences, studies could support nurse healing and promote coping skills which could prevent long-term negative effects resulting from the experienced trauma.

Historical Background

Historically, patients were commonly separated from their stillborn infant or infant who was considered not compatible with life at the time of birth. Parents were not supported in creating memories or mementos for the future because it was believed it would increase the parents' trauma (Tovey & Turner, 2020). A cultural shift has occurred since the 1970's that supports bereaved patients and families to bond with their baby after death and to create keepsakes for the future. Much of the bonding support and creation of keepsakes falls to perinatal nursing staff (Tovey & Turner, 2020). One published study found that 10 out of 22 female participants who experienced a stillbirth had seen their baby, while 12 participants were not given to opportunity (Lovell, 1983). Lovell (1983) also found that it was often the healthcare providers who would decide if a mother was able to hold their infant after delivery in accordance with what was considered acceptable for mothers at their facilities. Acknowledgement of perinatal loss and bereavement grew exponentially between 1970 and 1990, with an emphasis on providing holistic care and working to support families through the loss of their child (Hughes & Goodall, 2013). Palliative care in perinatal nursing has become a more common concept as cultural beliefs about perinatal death have shifted to include palliative care efforts for parents who were historically only offered the options of termination of pregnancy or delivering a baby

and allowing rigorous medical interventions (Kuebelbeck, 2020). Despite changes in the care provided during perinatal bereavement over time, improvements can still be made to assist nurses in better supporting families suffering from stillbirth or infant and pregnancy loss. Stanley and Simmons (2011) examined neonatal nurses' experiences with work-based learning, a standard learning style for maternal-newborn education. One of the major results of this study was a common theme of lack of time for learning and reflection when nursing staff were expected to learn skills on real patients. Historically, rare events, like perinatal bereavement, required real-world education, creating barriers for nursing staff to gain the skills, knowledge, and confidence needed to provide high-quality, holistic bereavement care.

Societal Background

Perinatal loss is not uncommon. It is estimated that 20 percent of pregnancies end in miscarriage and six in every 1,000 live births end in neonatal death (Cox, 2021; Richardson & Schiller, 2021). Perinatal loss is a global phenomenon that affects millions of families worldwide each year. Differences in global miscarriage percentage rates reported in the current literature could be the result of increasing miscarriage rates over time, or a lack of reporting of early miscarriages by women. Approximately 2.6 million babies are stillborn each year, with another 2.6 million dying shortly after birth (Farrales et al., 2020). The United States stillbirth rate in 2013 was 5.96 of every 1000 births after 20 weeks gestation, accounting for approximately 26,000 stillbirths that year (Zelop et al., 2019). Worldwide, around 8,000 babies are stillborn daily with 98% of stillbirths occurring in low- and middle-income countries: around two percent of total deliveries. The WHO (2016) reported in 2016 that over 300,000 neonates die within the first month of life annually due to congenital abnormalities. Race disparities continue to occur amongst pregnant women experiencing perinatal loss with the fetal mortality rate for black

women (non-Hispanic) being double the rate as white women (non-Hispanic) (Zelop et al., 2019). With so many perinatal losses occurring worldwide, it is imperative that perinatal nurses are provided the needed education to deliver high-quality, compassionate bereavement care and understand the disparities that occur amongst women who experience perinatal loss.

The Effect of Perinatal Loss on Nurses

Providing perinatal bereavement care can be exceedingly difficult for perinatal nursing staff. Nurses commonly stated approaching patients or families experiencing perinatal loss was difficult and that enhanced mentoring or training in bereavement care is needed to improve these interactions (Yenal et al., 2021). Nurses require proper training to gain the skills necessary to be comfortable providing bereavement care and to have an accepting attitude toward their role in caring for bereaved parents. Often, however, the management of the care of parents and the infant's body after perinatal loss feels out of the range of comfort for nursing professionals (Zelop et al., 2019).

Research into perinatal bereavement is becoming more common as conversations about perinatal loss become less taboo and care of perinatal loss has shifted from minimizing pain to promoting healing. Yenal et al. (2021) found that most nurse participants in their study felt their knowledge of perinatal bereavement care was lacking and negatively affected the care they were able to provide to patients and families who had lost a pregnancy or newborn. It was also found that bereavement education was an important intervention to improve nurse comfort with communicating with patients who have had a perinatal loss, and it reduced nurse fears of saying something triggering or wrong to the patients. Yenal et al. (2021) concluded that nurse discomfort when providing perinatal bereavement care was caused by nurses not knowing what to do for the patients, not having experienced many perinatal losses previously, not knowing the

right things to say to grieving parents, and having to navigate their own emotions and grief while providing care. The study by Yenal et al. (2021) supports the need for improved bereavement education. This study builds off previous findings to see if high-fidelity perinatal bereavement simulation can be implemented as a learning method to improve perinatal nurse comfort and attitudes.

The trauma associated with perinatal loss is not limited to the patients and their families. Healthcare workers can experience trauma when providing bereavement care, especially in the event of newborn or pediatric death (Salgado et al., 2021). Parental bereavement is complicated and requires perinatal nurses who have unique skills to support the parents with coping and navigating the complex traumatic experience (Cassaday, 2018). Parents, their families, and healthcare workers typically do not expect a pregnancy to end in loss, which can make perinatal death especially difficult. In 2016, 2.6 million stillbirths occurred globally (Salgado et al., 2021). Perinatal nurses, specifically, are exposed to additional stress when caring for bereaved patients because they provide most of the bedside care to both parents and the infant. Perinatal nurses need high-quality education, support from their institutions, and the ability to debrief after each demise to become comfortable with providing bereavement care and to maintain positive attitudes about perinatal bereavement care. The nurse must understand their role as the caregiver of grieving parents and must understand the importance of their involvement with bereaved patients and families.

Communication when providing bereavement care is especially difficult for inexperienced and under educated perinatal nurses. Atienza-Carrasco et al. (2018) found that a lack of knowledge of therapeutic communication and acceptable social competences when perinatal loss occurs can cause difficulties for nurses attempting to provide high-quality perinatal

bereavement care, making their role as the nurse difficult. Education that teaches effective communication skills that include not only patients, but also their families and other support people, would be well implemented through role-playing, participation in debriefs, and possibly employee counseling. This study provided education with both a role-playing simulation and participation in a debriefing session with the goal of improved nurse comfort and attitudes in applying the learned bereavement skills to actual bereaved patients.

Several studies have shown the importance of simulation in the learning experiences of healthcare professionals. Bragard et al. (2019) examined the use of high-fidelity simulation (HFS) with debriefing as a learning method in rare emergency pediatric situations. Their results showed that HFS improved participant satisfaction with learned skills, decreased perceived stress in future similar situations with real patients, and improved collaborative skills like communication, management of nursing tasks, and teamwork. Ratislavova et al. (2019) examined perinatal palliative care (PPC) education and found that role-play simulations can be used to help participants acquire skills, problem solve, and analyze situations that can be applied to real-life patients. Although end-of-life (EOL) simulations are not commonly applied to nursing care, simulation was found as a safe and effective learning method for nursing professionals and can be applied to challenging situations that may include rare events, such as perinatal loss. This study applied the work of Bragard et al. (2019) with the inclusion of HFS that includes debriefing and the work of Ratislavova et al. (2019) with the addition of palliative care and perinatal loss education.

Problem Statement

Perinatal bereavement is mentally and emotionally difficult for healthcare providers. Nurses commonly report feelings of helplessness, grief, weariness, petulance, and being overly

judgmental of others after caring for dying newborns or a perinatal demise (Engler et al., 2004). Perinatal nurses must be provided educational opportunities to improve their attitudes and comfort while providing bereavement care to parents who have lost their baby.

There is substantial room for improvement in bereavement care through continuing research. Horey et al. (2021) discussed the importance of continuing research that examines the use of different trainings and technologies to improve patient outcomes related to bereavement. Simulation-based education has been shown as an effective learning method for healthcare professionals; however, there are no current studies that examine HFS as a learning method to improve perinatal bereavement education or nursing outcomes. Studies have shown that simulation is effective for improving technical and non-technical nursing skills, but according to Bragard et al. (2019) more studies are necessary to examine the effect of simulation-based learning in a high-fidelity environment. Also, due to the finite amount of time for bereavement care and the lifelong trauma that can result from insensitive staff interactions, more research must be conducted that promotes learning methods to create healthcare professionals who are well-educated about patient healing and compassionate care associated with bereavement (Farrales et al., 2020). Atkins et al. (2022) demonstrated a desperate need for ways to eliminate traumatic care after perinatal bereavement through the implementation of provider training; however, there is a lack of literature that examines HFS as a form of provider training for bereavement care.

Due to the trauma experienced by nursing staff who provide perinatal bereavement care, more research is necessary to find ways to minimize the traumatic effects of perinatal loss. Healthcare professionals can experience pain and suffering after the death of a patient, supporting the need for continued research into different theories and methodologies that could

be applied to the prevention of nursing trauma and grief; this includes the application of Post Traumatic Growth Theory (Gilart et al., 2021; Tedeshi et al., 2018). This study addressed these gaps in the current literature which have not been studied at this time or require further research to support existing findings. The problem this study addressed is the need to determine if high-fidelity simulation education can be implemented as a learning method for perinatal bereavement care.

Purpose Statement

The purpose of this study was to examine whether high-fidelity bereavement simulation can be implemented as a method for improved attitudes and level of comfort when providing perinatal bereavement care. A quasi-experimental one-group pretest-posttest design was applied to the study, and the instrument administered was the Bereavement/End-of-Life Attitudes about Care: Neonatal Nurses Scale (BEACONNS) tool. The BEACONNS tool is a five-point Likert scale published by Engler et al. (2004) and it was used to measure the dependent variables of the study. The independent variable was participation in a standardized high-fidelity perinatal bereavement simulation. The dependent variables are the perinatal nurse attitudes and comfort levels providing bereavement care in the event of perinatal bereavement after participation in a high-fidelity perinatal bereavement simulation. The BEACONNS tool has been validated in measuring nurse attitudes toward providing bereavement care in the event of perinatal loss and has a subscale within the instrument that has been validated to measure perinatal nurse comfort. The study sample included perinatal nurses with varying levels of experience providing perinatal bereavement care within the same hospital network.

Significance of the Study

The significance of the study is the potential application of high-fidelity bereavement simulation as a learning tool for perinatal nurses to improve their comfort and attitudes toward providing bereavement care to future patients experiencing perinatal loss. If high-fidelity perinatal bereavement simulation is found as an effective method to improve comfort and nurse attitudes, the future results could improve nurse and patient outcomes. Currently, research supports the use of simulation as a learning method and supports the need for high-quality bereavement care by nurses comfortable with perinatal loss care.

Contributions will be made to the current knowledge base theoretically by expanding upon Post Traumatic Growth Theory and applying some of the major concepts of this theory to simulated learning. Simulation could be used to create a learning process that will help perinatal nurses to process the trauma of providing perinatal bereavement care in a safe, controlled environment. Perinatal loss is a global phenomenon that was not commonly discussed, not to mention studied, until the 1970's (Tovey & Turner, 2020). There continue to be several gaps in perinatal bereavement research. The application of simulation-based learning as a tool to improve nurse attitudes and comfort is one example of how research could be done to contribute to the current knowledge base empirically. For a person to successfully restore previous beliefs or baseline wellness, they must cognitively engage in rumination; learning through simulation could replicate traumatic events in a safe environment and promote rumination through debriefing (Freedle & Kashubeck-West, 2021). A written simulation that can be repeated would allow for safe replication of traumatic events, providing a learning environment that could create the needed atmosphere for rumination.

This study could contribute to the discipline of nursing by providing evidence that high-fidelity perinatal bereavement simulation can be used as a learning method to improve perinatal nurse attitudes and comfort while providing bereavement care. If this study is successful, perinatal bereavement simulation may be applied as a common learning process for perinatal nurses and other maternal-newborn professionals. Due to the difficult nature of perinatal bereavement care, improved attitudes and comfort of perinatal nurses providing bereavement care would be expected to improve patient care and outcomes. This study also contributes to the discipline of nursing theoretically by applying PTG Theory to nurses who experience perinatal bereavement trauma, rather than just the trauma experienced by the bereaved parents. Research shows that providing perinatal bereavement care can be traumatic for nursing staff; being able to mimic PTG through simulation and debriefing could improve long-term outcomes for perinatal staff who provide bereavement care (Broden & Uveges, 2018). The promotion of positive long-term outcomes for perinatal nurses could have a positive effect globally on bereavement care and, as a result, patient long-term outcomes.

Research Questions

RQ1: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' overall attitude scores on the BEACONNS tool for providing perinatal bereavement care?

RQ2: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' comfort scores on the BEACONNS tool for providing perinatal bereavement care?

Definitions

1. *Perinatal Bereavement*- The phase that comes after a miscarriage, stillbirth, or death of a newborn (Fenstermacher & Hupcey, 2013)
2. *Mourning*- A time-limited conferment of bereavement that is unique for each person and has varying periods of time. It is affected by a person's culture and includes an outward expression of the loss experienced (Fenstermacher & Hupcey, 2013)
3. *Grief*- One symptom of bereavement that includes the emotional response that results from the loss of a loved one (Fenstermacher & Hupcey, 2013)
4. *Attachment*- a basic human instinct to be connected to others (Fenstermacher & Hupcey, 2013)
5. *Spirituality*- A person's meaning in life, what allows someone to find their purpose and have a belief in the purpose of life (Sadeghi et al., 2016)
6. *Spiritual Distress*- When a person begins to question their original beliefs about the meaning of life after a loss because of grief (Sadeghi et al., 2016)
7. *Perinatal*- This period includes any pregnancy from 22 weeks gestation to seven days after the birth of an infant (Rondinelli et al., 2015)
8. *Perinatal Loss*- Any live born newborn who dies within the first seven days of life or the loss of any pregnancy through miscarriage or stillbirth (Rondinelli et al., 2015)
9. *Trauma*- The result of an experience that causes beliefs, assumptions, and feelings of safety to be challenged (Spelvins et al., 2009)
10. *Growth*- An instinctive desire to adjust to new information and advance toward one's own capabilities and contentment (Spelvins et al., 2009)

11. *Prenatal Palliative Care (PPC)*- Care that begins during pregnancy and ends at the time of death for the infant; focuses on pain and symptom management rather than extension of life (Ratislavova et al., 2019)

CHAPTER TWO: LITERATURE REVIEW

Overview

In current healthcare environments, nurses and other healthcare professionals are provided minimal bereavement education. Education is often vague and rarely includes best practices (Qian et al., 2021; Engler et al., 2004). The most provided methods of bereavement education are workshops involving multidisciplinary perinatal teams, bereavement educational programs, and team debriefs after real-world patient bereavement events (Qian et al., 2021). High-fidelity perinatal simulation is not a common bereavement educational method, despite research support for improved learning using a simulation approach. Domagalla et al. (2022) found that participants who experienced perinatal loss noted they felt a lack of support for their psychological, social, and spiritual needs. Participants commonly felt their care was mostly clinical and failed to acknowledge emotional loss. Perinatal loss has been described as an 'amputation' where part of oneself is lost; however, life continues to go on, but the loss will never return (Markman & Tushnova, 2021, p. 2). Each patient's psychological needs are unique, and nurses without proper bereavement training may not have the skills necessary to personalize the plan of care for each bereaved parent (Qian et al., 2021). Holistic perinatal care that promotes life-long healing requires meeting the individualized needs of each unique patient.

Due to the long-term effects of bereavement secondary to perinatal loss, it is imperative that nursing staff have the skills to provide bereavement care competently and comfortably after the loss of a pregnancy or newborn. Patients who suffer perinatal loss experience higher levels of emotional distress, psychological and physical ailments, mortality rates, and even higher rates of divorce (Vig et al., 2021). These effects support the idea that perinatal bereavement can affect the minds, bodies, and souls of patients and require a high level of care to promote healthy

healing. This evolution of oneself after perinatal loss can support positive transformation, as upheld by the Post Traumatic Growth Theory, and can be applied to both patient and perinatal nurses who experience their own trauma and growth after providing bereavement care.

Theoretical Framework

Post Traumatic Grief (PTG) Theory was first published by Tedeschi and Calhoun in 1995 and focuses on the natural processes of healing and growth after experiencing a traumatic event (Tedeschi et al., 2018). Caring for critically-ill patients can lead nurses to experience severe emotional responses and healthcare professional grief. Providing end of life care has been shown to be more extensive and long-lasting than traditional grief (Broden & Uveges, 2018). Providing end of life care has been shown as traumatic for nursing professionals and can lead to moral distress, burnout, emotional fatigue, depersonalization, contempt, detachment from patients or their support people, and questioning their value as a healthcare professional (Broden & Uveges, 2018). PTG Theory supports the idea that experiencing trauma can promote a positive transformation due to psychological evolution that can increase a nurse's compassion, awareness of traumatic situations, improved patient relationships and quality of care. PTG can be considered a positive outcome of work-related grief and can result in improved nursing resilience when providing end of life care and can minimize distress (Broden & Uveges, 2018). Spelvins et al. (2009) examined the application of PTG Theory in different cultures and found there are five universal factors for growth after experiencing trauma: personal strength, relating to others, new possibilities, spiritual change, and appreciation of life. PTG Theory facilitates nursing growth and transformation for providing future bereavement and end of life care for parents experiencing perinatal loss.

There have been several revisions to PTG Theory; however, the main concepts have remained the same. There are nine components of the PTG Theory (Tedeschi et al., 2018). The first concept is who the nurse is before experiencing the traumatic event, including coping style, cognitive style, previous traumatic experiences, and support systems. The second concept is the traumatic event and the personalized experience of the nursing professional. The third concept includes the challenges the nurse experiences, like questioning their own beliefs, moral distress, and discomfort providing bereavement care. The fourth concept is automatic rumination. Rumination is reflection on the events that occurred; automatic rumination is uncontrolled by the nurse and occurs naturally as the traumatic event is processed mentally by the professional.

The fifth concept of PTG Theory is successful coping. As the nurse ruminates through the experienced traumatic event, successful coping comes from accepting that their changes in beliefs and personal goals may have been unwarranted and they will begin to effectively manage their emotions resulting from the traumatic event. The sixth concept is rumination, again. This step in PTG is a deliberate rumination, where the nurse guides their own reflection in a constructive way to change the narrative of the event to promote growth and healing. The seventh concept is social support that results in adapted coping behaviors and new sources of comfort in future traumatic events. The eighth concept of the PTG Theory is Post Traumatic Growth. PTG creates personal strength in the nurse, wisdom in future traumatic events, better understanding of their role as the nurse, improved patient relationships, evolution of spiritual beliefs, and appreciation of life. Finally, the ninth concept is inevitable enduring distress from the experienced trauma. Although PTG can be life-affirming and healing, most professionals will still have some level of trauma from their experienced event; however, focus for the future can be on healing and continued growth.

Post Traumatic Growth is both a process and outcome resulting from experienced trauma. Several studies have expanded on the concept of PTG and have applied it to human and healthcare healing. Pat-Horenczyk et al. (2015) found that PTG has lasting healing effects; it includes improved future coping when growth is constructive and includes all nine theory concepts. Lahav et al. (2016) found that PTG has lasting effects and has been shown as a process that leads to successful processing of traumatic events. Blackie et al. (2015) found that PTG is an evident and verifiable phenomenon that can be applied to several different kinds of traumatic events. One meta-analysis by Sawyer et al. (2010) found that PTG is associated with positive mental health outcomes, reductions of negative mental health outcomes, and an overall positive impact on physical health of the subjects. Given the results presented by previous studies, PTG theory appears to be applicable to perinatal nurse trauma resulting from bereavement care, and more research should be conducted to examine the application of PTG to perinatal bereavement.

PTG Theory has also led to the creation and evolution of several other theories related to trauma and healing that can be applied to healthcare workers and patients. Resnick & Rosenheck (2006) presented the recovery model which focuses on helping people heal in the presence of mental illness and is supported by the PTG Theory, as many mental illnesses are associated with traumatic events (Tedeschi et al., 2018). Turner & Maschi (2015) published the Empowerment Theory which references persons who are marginalized or oppressed to increase personal and political power. The Empowerment Theory was supported and guided by PTG Theory through overlap in the empowerment and growth processes. People often struggle to make sense of experienced trauma but may begin to experience some elements of empowerment as they process the event and experience PTG. Finally, Garland et al. (2015) have presented Mindfulness to Meaning Theory, which states how the practice of mindfulness after trauma can distance a

person from the stresses experienced because of the traumatic event. Negative intrusive thoughts and inflexibility in healing behavior can be prevented through a mindful awareness for the needs and processes required for traumatic healing. Mindfulness and Meaning Theory overlaps with PTG Theory as a people transition from initial rumination in concept four to deliberate rumination in concept six (Tedeschi et al., 2018). Empowerment Theory and Mindfulness to Meaning Theory have been used in research previously to support bereavement practices in perinatal health, further supporting the use of PTG to guide future research into perinatal loss.

Perinatal bereavement care can be traumatic for perinatal nurses, and appropriate growth and healing is necessary for a nurse to provide high-quality compassionate care for future perinatal losses. Cozzolino et al. (2004) suggests that PTG is the result of a person facing their own mortality when experiencing trauma associated with death (this would include the trauma associated with perinatal loss). PTG Theory applies to this research because there is a cognitive struggle experienced after traumatic events that requires an ability to process the trauma and continue to provide perinatal bereavement care (Tedeschi et al., 2018). Participation in a high-fidelity perinatal bereavement simulation will mirror the trauma of perinatal loss and bereavement in a controlled environment, and PTG will be simulated through the debrief process and open communication about resources available for nurses to improve comfort and attitudes associated with perinatal bereavement care. Each of the nine components of PTG Theory will be included in the simulated learning experience through prebriefing, simulation participation, and the debriefing session (Tedeschi et al., 2018). PTG Theory promotes reflection by nursing staff and positive transformations that will be reproduced safely through participation in an HFS.

This study has the potential to expand upon the PTG Theory through simulating the PTG process in a safe learning environment and allowing for nursing professionals to better prepare to

give perinatal bereavement care for future patients. This study examines nurse attitudes and comfort providing bereavement care after participation in a high-fidelity perinatal bereavement simulation, and the debrief process will allow for simulated PTG, including education on support resources for perinatal staff after real-world perinatal loss events.

Related Literature

Bereavement education often falls under the responsibility of the nursing educators for maternity units. Although few hospitals have specific guidelines for bereavement care after perinatal loss, research into best practices now present a broad range of approaches to support bereaved parents (Paloma-Castro, 2020). Bereavement education should include a full range of information from prenatal palliative care to services available after discharge to allow for patient support through the whole bereavement process, not just during their time in the hospital.

The desire for bereavement education is strong in perinatal professionals. One study examined 750 healthcare providers (HCPs) who give bereavement care to patients experiencing perinatal loss. The study showed that 89.4% (n = 671) of participants agreed with the need for bereavement practice guidelines (Ravaldi et al., 2018). The researchers also found that 90.2% (n = 667) of HCPs were interested in professional bereavement education sessions and 83.1% (n = 624) agree that perinatal bereavement education would improve the care they provided to bereaved patients and families. Nurse education for perinatal bereavement gives participants the psychosocial support needed to minimize common bereavement care obstacles such as feelings of inadequacy, fear of one's own feelings of sadness, and lack of quality time for patient care (Yenal et al., 2021; De Roose et al., 2018). Academic education for nurses on the topic of perinatal bereavement communication and counseling was almost completely absent according to the work by Atienza-Carrasco et al. (2018). It was also found in this study that most perinatal

professionals stated they had to teach themselves perinatal bereavement care through observation of their colleagues and by witnessing which actions and communication worked best with patients. HCPs who provide perinatal bereavement care must be given the opportunity to learn skills that promote a therapeutic healing relationship with patients experiencing perinatal loss.

In addition to bereavement education that includes post-mortem care, perinatal nurses must also be educated on palliative care of the newborn, as this often integrates into bereavement care. When given a lethal diagnosis for their infant, many parents choose to continue a pregnancy rather than terminate (Akyempon & Aladangady, 2020). Palliative care programs that implement evidence-based practices can improve the time parents have with their newborn before the infant passes away. Nursing professionals have a responsibility to their patients to understand newborn palliative care and how to support parents through this difficult emotional process. Likewise, parents who choose to terminate their pregnancy after a fetal abnormality diagnosis will require physical and emotional support to prevent overwhelming psychological trauma (Akeyempon & Aladangady, 2020). The National Association of Neonatal Nurses (2015) supports neonatal palliative and EOL care as an essential element for the care of infants and their families (Ratislavova et al., 2019). Perinatal nurses must be knowledgeable about prenatal palliative care to support parents in making EOL decisions for their child in a situation where difficult decisions must be made in a short, finite amount of time.

As technology improves, fetal abnormalities are more commonly discovered before birth, putting parents in the difficult position of choosing whether to terminate or continue a pregnancy that will end in fetal or newborn death. Fetal abnormalities are typically diagnosed between weeks 13 and 27 of pregnancy, leaving expecting parents with difficult choices on how to move forward in their pregnancy (Hendriks et al., 2022). Palliative care allows families to create

memories with their child while minimizing intervention by medical staff. A lot of palliative care education includes what patients can anticipate experiencing as they near or experience the death of their child. Anticipation includes concepts like anticipatory grief, anticipatory regret, and anticipatory acceptance while accompaniment includes what support will be available for the expectant parents to prevent feelings of abandonment (Moore et al., 2019). Part of the role of the nurse is to inform parents about community resources after the death of their child or end of the pregnancy as soon as a life-limiting diagnosis is made (Price et al., 2019). Formal education of healthcare professionals about palliative care practices before and after birth have been shown to improve understanding of palliative care philosophies and increases timely referrals to palliative care resources for parents (Price et al., 2019). Nursing professionals must have palliative care knowledge to better support their patients and to minimize traumas for all involved with perinatal loss.

Simulation

Simulation-based education is recommended for team-based learning to better learn skills for patient safety and is an increasingly common educational process globally. Both technical skills and non-technical skills are required to improve clinical outcomes (Bragard et al., 2019). Simulation is used for nursing education because of educators' abilities to evaluate competence in a safe learning environment that cannot easily be achieved in bedside nursing alone (Qian et al., 2021). Since simulation requires participants take part in life-like learning, it is possible to improve problem solving skills, gain new knowledge, and analyze uncommon healthcare situations in a way that promotes the development of more confidence and competence (Ratislavova et al., 2019). Simulation has been shown as an effective learning approach that facilitates the learner's transition from novice to expert (Alconero-Camarero et al., 2021).

Specific to bereavement care, simulation is an effective learning method to improve language and communication skills, especially in difficult situations like the loss of a baby (Ratislavova et al., 2019). Nursing education commonly uses technology to simulate emergency situations with a high degree of authenticity while maintaining a safe learning environment (Ward & Hober, 2020). Simulation allows for continuity of education through repetition of uncommon events, allowing educators to provide the same or similar learning experiences for participants.

A successful simulation includes five standard steps: briefing, communication, live simulation, debriefing, and the nursing staff applying the information learned into patient care. These simulation standards are presented by the International Nursing Association for Clinical Simulation and Learning (INACSL); the most updated Standards of Best Practice were published in 2021 and include: "Professional Development, Prebriefing: Preparation and Briefing, Simulation Design, Facilitation, The Debriefing Process, Operations, Outcomes and Objectives, Professional Integrity, Sim-Enhanced IPE, Evaluation of Learning and Performance, and Simulation Glossary" (INACSL Standards Committee, 2021a, p.1). Standards are proposed guidelines for the creation and implementation of simulation as a learning method and are supported as best practices to advance simulation-based learning experiences in clinical practices and academia. End of life content should be incorporated into learning from the beginning of nursing programs and throughout all levels of nursing education (Engler et al., 2004). Bereavement simulation could be an effective learning approach throughout the nurse learning experience from university to bedside care and could allow nurses to learn bereavement best practices in a safe, controlled environment.

Standardized High Fidelity Simulation

High quality bereavement care requires continuous education for perinatal nurses and comprehensive platforms. HFS presents scenarios that can be standardized and can include rare situations that can require specialized skills to be performed (Qian et al., 2021). Simulation that maintains a high level of fidelity or realism is an important learning method that helps nurses to improve their analysis skills and provides hands-on learning opportunities with minimal risk to participants (Ward & Hober, 2020). High fidelity education can apply either high-physical-fidelity or high-psychological-fidelity, mimicking real-world patient situations. Both technical skills (knowledge and skill related to medical expertise) and non-technical skills (communication and leadership) can be presented through HFS (Bragard et al., 2019). Childbirth simulators can be used to simulate maternal-newborn emergencies, such as perinatal loss, to mimic patients who have experienced traumatic births. Simulation has been shown to create strong links between nursing practices and the information being taught (Bragard et al., 2019). Varying levels of complexity can be applied, and typically realistic scenarios are included with several variables that mimic real-life situations (Alconero-Camarero et al., 2021). HFS provides continuity of learning by maintaining a learning environment with minimal or no interventions from the facilitator and can be repeated through a detailed simulation scenario.

Perinatal Loss

Perinatal loss is a broad term. Research shows that perinatal loss ranges from early miscarriage to infant death within the first 28 days of life (Setubal et al., 2020). Women have become more vocal about the suffering that accompanies perinatal loss, and technological advances have shown the development of the infant, humanizing the fetus from earlier gestational ages. As the child begins to develop in the mother, an emotional bond is created with

both mothers and fathers (Paloma-Castro, 2020). Perinatal loss is most often caused by preterm deliveries, serious maternal or newborn infections present at the time of birth, and asphyxia due to birth trauma (Paraiso Pueyo et al., 2021). Perinatal loss is a unique medical phenomenon because it includes both a physical and symbolic loss; the loss of the physical baby and the loss of who the baby would have become (Markman & Tushnova, 2021). Parents who experience perinatal loss also lose their hopes and dreams for their child and sometimes lose their identity as a parent, especially if they do not have any other living children (Guclu et al., 2021). Perinatal loss is a unique phenomenon that was minimized, for most of history, as a lessor loss than that of other family members; however, perinatal loss has become less taboo of a subject globally, as more research is being completed about the physical and mental effects of pregnancy losses.

Severe distress can occur after the loss of pregnancy or a newborn. Despite perinatal loss being traumatic for everyone involved, typically the parents are the most likely to experience severe distress (Paraiso Pueyo et al., 2021). Mothers and fathers were found to grieve the loss of a pregnancy or newborn differently. Fathers more commonly refrained from expressing grief to others and had an increased incidence of isolation, distancing themselves from spiritual beliefs, and were less likely to participate in hands-on care with the remains of the infant (Vig et al., 2021). Mothers were also found by Vig et al. (2021) to have higher rates of depression, present with more physical ailments after the loss, and often required more time to recover from their perinatal loss experience. No matter the bereavement process, both mothers and fathers must be supported and encouraged to validate their sense of loss; parents should be encouraged to express the pain they feel and validate the void the loss of their child has left in their lives (Paloma-Castro, 2020). The role of the perinatal nurse includes supporting both mothers and fathers

individually through their grief and including both parents in the decision-making processes that accompany bereavement.

Bereavement

The bereavement process is different for each person. Bereavement is influenced by internal and external factors including personality, attitudes toward death and dying, value systems, spirituality, religious beliefs, personal culture, and both physical and emotional health (Vig et al., 2021). The definition of bereavement is the period after the death of a loved one where the person experiences grief and a period of mourning (De Stefano et al., 2020). Situational modifiers for perinatal bereavement include personal situations like the presence of other living children and having a surviving twin. Internal modifiers include internalized factors like gender or attachment to pregnancy. Finally, external modifiers include factors like the patient's culture and bereavement support. PTG Theory is applicable to different cultures and beliefs because almost all cultures accept the meta-concept that individuals naturally are motivated to grow and heal after experiencing trauma (Spelvins et al., 2009). Environment is an important external modifier and includes the interactions of the parents with the perinatal staff providing care to mother and infant (Paraiso Pueyo et al., 2021). Perinatal nurses must understand the different modifiers that could affect a patient's processing of perinatal loss and their own modifiers that could help or hinder the care they provide and their own mental health.

Perinatal Bereavement

Perinatal bereavement is a complicated global phenomenon. High quality bereavement care has a massive impact on parents' abilities to cope with loss while poor bereavement care has been shown to increase the length of time for recovery and is directly connected to bedside care from nursing staff (Qian et al., 2021). Perinatal death impacts the mental health of parents, their

families, and health care staff (Paraiso Pueyo et al., 2021). Perinatal nurses are victims to the trauma of miscarriage, stillbirth, and newborn death, not just the parents and families who lose the child. Being required to provide bereavement care after the loss of a newborn or pregnancy is often intensely emotional to the nursing professional. Perinatal nurses can lose expectations of their role as a nurse, assumptions of their worldviews due to the loss of a child and can question their own spiritual beliefs (Broden & Uveges, 2018). Perinatal bereavement can activate depression, anxiety, and Post Traumatic Stress Disorder (PTSD).

Perinatal loss has been shown to increase patient risk for suicide, panic attacks, and new onset phobias. The timeline for grieving after perinatal loss is often unpredictable and can affect different areas of a person's life, both private and social (Salgado et al., 2021). Research has shown that perinatal bereavement can last the person's entire lifetime, with decreasing intensity occurring around 12 months after the loss (Paraiso Pueyo et al., 2021). Due to the severity of clinically significant symptoms after perinatal loss, including life-altering PTSD on occasion, perinatal bereavement must be studied and better understood to support patients suffering from perinatal loss and improve nurse involvement with perinatal bereavement care (Cox, 2021; Richardson & Schiller, 2021). Nurses who care for patients experiencing perinatal loss can experience professional traumatic grief resulting from the emotional trauma of caring for parents who have lost their child. Grief is a "shared emotional experience" between nurses and their patients (Broden & Uveges, 2018, p. 7). Nurses are intimately involved in the bereavement process and have their own unique grief experiences that can be complicated and traumatic. Gilart et al. (2022) created and published an instrument to measure Professional Traumatic Grief because previous studies had found that medical professionals who experience death in the

workplace have manifested symptoms of PTSD. Perinatal bereavement is complicated for both parents and professionals, and the lifelong effects can be detrimental.

Grieving

Grief is the primary expression of perinatal bereavement. Grief presents as an emotional reaction to the loss of pregnancy or infant (De Stefano et al., 2020). Grief can be complex and requires individualized care for each patient due to the unpredictable nature of perinatal grief. Research shows that grief after fetal loss is immediate, intense, and often disenfranchised (Domogalla et al., 2022). Initial grief reactions by expectant parents in the event of perinatal loss are often shock and disbelief (Cassaday, 2018). The initial shock of a perinatal loss diagnosis can make information absorption difficult, leading patients to shut down and have difficulty processing the news. Perinatal nurse participants in one study included a group of perinatal nurses who provide bereavement care in the event of perinatal loss. Participants were able to easily identify common patient reactions to bad news including demanding more information, requesting professional guidance in decision making, and requesting psychosocial support (Atienza-Carrasco et al., 2018). Despite grief manifesting with negative expressions like sadness, anger, crying, irritability, and yearning, grief is a normal part of bereavement and should be supported by healthcare professionals.

Previous research studies have shown that patients who experience perinatal loss often experience major psychological shock. When a neonate dies, the parents can often experience "negation, incredulity, confusion, shock, anger, sadness, longing, desperation, guilt and shame" (Paraiso Pueyo et al., 2021, p. 123). A cross-sectional study by Kokou-Kpolou et al. (2018) examined 98 bereaved mothers and showed an increase in depressive symptoms in mothers when their child dies, either before or after birth. Self-blame was more present in mothers who did not

know the cause of their child's death, leading mothers to question whether they were directly responsible for the loss. A hierarchical regression analysis was able to predict the variance of depression and grief reactions among parents and included variables like type of death, whether the parents had other children, and their personal beliefs and cognitions (Kokou-Kpolou et al., 2018). Parents will need support from educated nurses to process these major psychological processes.

A normal grieving process is transitional. A grieving patient typically transitions through different phases with severe psychological changes. Grief is influenced by each person's character, relationships, personal situation, and culture (Richardson & Schiller, 2021). Several factors that can affect the grieving process are religious beliefs of the patients, whether the parents have any other living children, the gestational age of the fetus, any history of fertility difficulties, and fulfillment in their marriage (Fernandez Ordonez et al., 2018). In an unplanned pregnancy, grief may be more complicated and associated with increased feelings of guilt (Cox, 2021). Parental grief after perinatal loss lasts longer than other types of grief and can result in a fear of losing another child for years in the future (Markman & Tushnova, 2021). When a patient experiences a life experience that is dominated by loss, such as a miscarriage or stillbirth, it can be difficult for patients to transition through grief. Assisting patients in the transition through grief requires support for nurses and nursing care through grief has been shown to have a direct effect on the patient's mental health and wellbeing (Madsen et al., 2019; Marcussen et al., 2019). A required competence of nurses is to recognize the difficulty of transitioning through grief and anticipating a patient's struggles (Madsen et al., 2022, 2023). Perinatal nurses must understand the uniqueness of grief transition and how to provide personalized support to their patients.

Complicated Grief

Grief can become complicated after the loss of a child. When grief becomes persistent, lasts longer than six months, or impairs the physical or psychological functioning of the parent who experiences perinatal loss, this can be diagnostic of complicated grief. According to several published literature reviews, between 10% and 15% of people who lose a loved one will experience complicated grief, and it is most common in patients who have experienced perinatal loss (Gilart et al., 2022; Cox, 2021; Richardson & Schiller, 2021). Mothers experiencing perinatal loss have been found to have maladaptive views about life, the future, and the world as a result of complicated grief (Kokou-Kpolou et al., 2018). Complicated grief can be characterized by severe emotional distress, physical functional impairment, preoccupation with the loved one who died, and even premature death (Gilart et al., 2022; Wilson et al., 2021). Grief after perinatal loss can become especially complicated when the pregnancy was unplanned because parents who lose an unplanned pregnancy often experience a mix of emotions that include both feelings of relief and guilt (Cox, 2021; Richardson & Schiller, 2021). Nurses are essential for providing interventions that provide parents with strategies and resources aimed at preventing complicated grief (Paraiso Pueyo et al., 2021). Complicated grief can have lifelong effects on the parent experiencing perinatal loss which, as a result, can affect the people and organizations around them. Wilson et al. (2021) found that 11.3% (n = 34) of the professional organizations in their study who had employees take bereavement leave within the last year noticed a negative change in the employee once they returned to work. The authors noted crying, being easily distracted, frequently being upset, and difficulty focusing as major concerns for their employees once they returned.

Mourning

Mourning, like grief, is also a transitional process that is unique for each patient. Mourning after perinatal loss mirrors the healing process after experiencing major trauma; patient cognition may be impaired and may result in patients being hyperalert or exaggerated in their actions and decisions (Guclu et al., 2021). Mourning is affected by a person's culture and beliefs, and often includes rituals that are driven by spirituality or religion (De Stefano et al., 2020). Funerals are often thought of as a time of mourning where the families and friends of the deceased gather for a culturally-individualized service that celebrates the life of the deceased; however, not all families who experience perinatal loss can or do have a funeral for their baby (Fuller & Kuberska, 2022). Mourning can be difficult for parents who have limited time with their infant or experience a pregnancy loss because of the lack of memories with their child. Nurses who can properly assist parents through their perinatal loss and provide support from the moment care begins can minimize negative emotions in the parents through the mourning process (Ravaldi et al., 2018). The emotions parents experience early in the mourning process can be a predictor of healthy or complicated grieving (Markman & Tushnova, 2021). Perinatal nurses must understand the physical and emotional processes associated with mourning and how to guide parents through the mourning process.

Spirituality and Spiritual Distress

Spirituality can provide bereaved parents with strength and answers after their loss or can be an area for questioning and dissociation during the grieving process. For parents who have experienced a perinatal loss, their spirituality may be negatively affected, and, in severe cases, they may experience spiritual distress, where they question their predeveloped beliefs (Akyemopon & Aladangady, 2020). Some research has shown that the spiritual burden resulting

from perinatal loss is commonly undervalued (Ramirez et al., 2019). Spirituality has been shown to have a direct connection to the outcome of difficult discussions for infant EOL care, especially discussion on the withdrawal of life-saving therapies (Akyemopon & Aladangady, 2020). Spiritual differences have also been shown as a barrier between perinatal nurses and bereaved patients who have differing spiritual beliefs as the nursing staff (Yenal et al., 2021). Perinatal nurses must examine their own spirituality to prevent personal bias against patients with differing spiritual beliefs.

Parental Coping

Parental coping is the patients' ability to process their perinatal loss. Parental coping is influenced by the attachment between parent and baby, the circumstances surrounding their perinatal loss, and the consequences of the loss (Vig et al., 2021). Patients who have experienced perinatal loss are more likely to experience anxiety and depression with future pregnancies. Parental coping is not confined to the perinatal and postpartum periods, but can include future life events (Cox, 2021; Richardson & Schiller, 2021). Positive parental coping has been shown to promote personal growth, strength, understanding of a person's own needs, investment in self-care, and a stronger spiritual understanding of the meaning of life (Vig et al., 2021). Parents should be encouraged by nursing staff to verbalize their feelings and be given honest guidance on the bereavement process that includes reliable, empathetic, and individualized education to minimize patient grief and improve parental coping (Vig et al., 2021). Parental coping can be directly impacted by the care they receive from healthcare professionals at their time of bereavement.

Healing After Perinatal Loss

The result of perinatal bereavement is wholeness within the person including wellness physically, emotionally, psychosocially, and spiritually. Human connections help patients process their loss and often include families, friends, spiritual leaders, support groups, and healthcare providers. The path to healing is different for each person, so perinatal bereavement care must be individualized to the healing needs of each patient (Paraiso Pueyo et al., 2021). A patient's response to their own perinatal loss can influence who they become as a person and their understanding of self (Dyer et al., 2019). It is not uncommon for patients who have experienced perinatal loss to have a change in life goals (Dyer et al., 2019). One study found that participants who had experienced perinatal loss felt that care from medical professionals, such as perinatal nurses, was the most necessary type of assistance needed to promote healing outcomes (Markman & Tushnova, 2021). Without high-quality nursing care, patient outcomes can suffer after perinatal bereavement.

Several published studies have examined the importance and types of therapies that can improve patient healing after perinatal loss. Martin and Reid (2022) completed a scoping review to examine therapies available to treat the psychological trauma experienced during perinatal bereavement. Some therapies that have been shown to be effective in treating post-bereavement trauma while promoting parental healing are cognitive behavioral therapy (CBT), counseling, expressive writing, and yoga. Virtual CBT over a five-week period was found to minimize the intensity of patients' grief, and levels of grief continued to decrease over the first three months of therapy (Dolan et al., 2022). Perinatal nurse staff must be aware of what therapies are available for patients after discharge to promote healing away from the hospital setting.

Bereavement Care: Historically

The way societies and parents view perinatal loss has changed dramatically. In the 1970's it was common for mothers experiencing a stillbirth to be anaesthetized to prevent trauma and the baby would be taken away quickly: many parents never saw their baby (Steen, 2015). Parents were encouraged to forget their loss because the true trauma of perinatal grief was not understood (Setubal et al., 2020). Over time, more research was completed on perinatal bereavement, and a deeper understanding of perinatal grief and loss was discovered. Several studies published instruments to measure and quantify grief. The Mourning Scale was published in 1982 by LaRoche et al.1982 and identifies grief reactions resulting from perinatal loss. Perinatal grief became more measurable and, therefore, more predictable. Globally, there was little acknowledgement of the trauma experienced by mothers who had a perinatal loss, even though attachment begins during early pregnancy.

Historically, stillborn infants were not allowed in cemeteries in the United States; they also could not be baptized or buried near family (Charrier & Clavandier, 2019). Currently, many cemeteries have zoned areas for fetal and infant burial where all remains from perinatal loss, no matter the gestation, can be buried and remembered. Hospitals commonly offer chaplain services for bereaved parents, including infant baptisms before or after death. Parents have become more influential in healthcare, and research shows that spending time with their baby and being completely present at the time of birth improved the grieving process of parents. "Seeing and holding or being allowed to touch and hold helps the bereaved person adapt to the loss and say goodbye" (Vig et al., 2021, p. 8). Nursing care has evolved with the publication of new evidence-based bereavement care practices, which require continued education for perinatal

nursing staff to ensure these practices are implemented in healthcare to promote improved patient healing.

The procedures in place for fetal remains differ between facilities; however, a cultural shift has occurred globally where fetal remains are more accessible to parents for bonding after death and burial has become an important part of the grieving and mourning processes. During the 20th century, maternal newborn bonding rarely occurred at the time of birth since often the newborn was taken away to a nursery for care and assessment (Paraiso Pueyo et al., 2021). If parents experienced a stillbirth, the baby was taken to avoid pain and suffering; however, current research shows that the maternal newborn bond begins during pregnancy, and removing the stillborn at birth can have a massive negative impact of parental healing (Palmer & Murphy-Oikonen, 2019). Perinatal nurses must treat the remains of perinatal loss with dignity and must continue to recognize the importance of these lives: they are not simply medical waste (Charrier & Clavandier, 2019). Parents should be encouraged to interact with the remains of their child to build memories that cannot be built later: the time with their child is finite, and all parent requests to spend time with their infant should be supported by nursing staff.

Palliative Care

When parents are given a diagnosis that will result in fetal loss or infant death soon after birth, it is important to begin planning palliative care for the baby. Palliative care ensures comfort for the child during the EOL, and this approach to care should be initiated without delay at the time of diagnosis, not the time of birth (Akyempon & Aladangady, 2020). Palliative care planning requires open communication with families about their options to improve quality of life before the death of their child. At the time of diagnosis, parents commonly experience shock, denial, avoidance, or self-punishing thinking (Qian et al., 2020). It is important for healthcare

professionals to be aware that parents may not be mentally ready to discuss palliative care, yet their options should still be presented as soon as possible. Palliative care is appropriate for infants who are incompatible for life after birth, who have a significant risk for death after birth, or have a diagnosis that will likely cause suffering. Parents should be educated by HCPs that palliative care does not promote a quicker death but helps families to create memories and bonding while minimizing medical interventions that would disrupt these experiences (Moore et al., 2019). Healthcare staff have been shown to have a strong influence on parents' responses to the death of their infant or loss of pregnancy (Ratislavova et al., 2019). The support and care from HCPs who are knowledgeable about palliative care processes and who communicate respect for the family improves the prevalence of appropriate palliative care initiation (Price et al., 2019). Nurses are important team members for palliative care initiation and can improve patient outcomes by remaining knowledgeable about palliative care options for infants who are incompatible with life.

Palliative care should be considered when a fatal diagnosis is discovered during fetal ultrasound or neonatal testing. Fetal incompatibility with life is a devastating diagnosis for parents to receive, resulting in many difficult conversations and decisions. A qualitative study published by Korzeniewska-Eksterowicz et al. (2021) examined experiences of patients who were given a diagnosis of fetal incompatibility with life in the second trimester of pregnancy. One participant described how she was originally only given the options of pregnancy termination or continuation of her pregnancy with medical interventions to extend the newborn's life, despite incompatibility with life. Termination of pregnancy was against her spiritual beliefs, but she did not want the short time she had with her child to be filled with medical interventions. Eventually, a palliative care plan was chosen by the patient and her partner which included

prebirth counseling and birth planning, much like any other delivery. Abortion is still the immediate suggested intervention when a diagnosis is discovered where the fetus will either die before or shortly after birth; however, palliative care allows parents to embrace the life of their child no matter the length of time (Kuebelbeck, 2020). Nurses who are knowledgeable in palliative care can support patients who choose life for their child, knowing that their life will be short; a short life can still be full of love and memories that will stay with the parents.

Bereavement Programs

Formal programs and procedures in healthcare facilities can be used to guide the practices of perinatal nurses who provide bereavement care. According to research published by Paraiso Pueyo et al. (2021), many healthcare facilities have bereavement programs in place to support healthcare professionals in guiding patients through the perinatal bereavement process. Useful methods should be given to healthcare staff to ensure each patient is provided high quality bereavement education and have access to the same community resources after discharge (Paraiso Pueyo et al., 2021). The research by Paraiso Pueyo et al. (2021) also shows that bereavement programs typically include follow up procedures with patients including telephone calls though the first year after the loss and inclusion in support groups for bereaved parents. Follow-up phone calls through the first year of bereavement assist parents in their grief processes and reinforce that the healthcare providers genuinely care about the patients' well-being.

Legacy Creation

Legacy creation can help families through the bereavement process by applying the education from healthcare professionals to promote family participation in caring for the infant before and after death. Legacy creation can help parents feel a sense of control in their own bereavement process and typically includes physical, spiritual, and emotional care (Paraiso

Pueyo et al., 2021). Legacy creation was found to help parents find meaning and comfort after their loss through the creation of memories and connections to the child.

Parents should be offered the opportunity to hold, dress, and bathe their infant and should be encouraged to spend time with their child. Even after death, infant hands-on care is important for healing after perinatal loss (Akyempon & Aladangady, 2020). Seeing and holding their infant after perinatal loss allows parents to adjust to their loss and to bid their infant farewell (Vig et al., 2021). Salgado et al. (2021) found that parents commonly mentioned the desire to hold their child close and that the parents' pain was diminished by taking time to bond with their child. Perinatal nurse staff should offer parents time to meet their baby because spending time together helps to humanize their child (Charrier & Clavandier, 2019). Simple acts like dressing, bathing, and holding their infant strengthen the bond between parents and their infant and encourage parents to transition into their caregiver role, even though the infant will pass (Paraiso Pueyo et al., 2021). If it is the patients' first child, perinatal nurses may have to teach the parents basic newborn care skills like swaddling and bathing. There is a lack of cultural support in western cultures for women who have experienced pregnancy loss, so parents may find comfort in discussing how they will memorialize their pregnancy (Cox, 2021). Finding ways to memorialize and honor their infant immediately after birth and through the lifetime is an important part of the healing process for parents (Richard & Schiller, 2021). Legacy creation can also include photographs, keepsakes, funeral planning, and allowing extended family and friends to spend time with the infant.

Figure 1

Infant Demise Burial Clothes

Note. Infant burial gown, hat, memorial card, and infant bracelet. Picture taken by researcher.

Photography

Many parents treasure pictures of their children. Memento mori photography, or photographs of dead loved ones, has been shown to be an approved form of bereavement after perinatal loss (Palmer & Murphy-Oikonen, 2019). Verbal communication is only part of the human connection experiences; another important bonding experience includes images (Tateo, 2018). Although many bereaved parents do not request photographs of their infant, it should be offered to every parent who has experienced perinatal loss because the value of post-demise photographs has been shown through research, and these photos can help create positive feelings from parents (Paraiso Pueyo et al., 2021). The job of bereavement photography may become the responsibility of the nurse; therefore, all nurses should receive some education in memento mori perinatal photography.

The tiny size and possibility of trauma can make postmortem photography of a baby's body difficult. Post-mortem photographs should attempt to mirror what the child looked like

during their life, which can be difficult in preterm deliveries and traumatic births (Charrier & Clavandier, 2019). Photography of their child who has died has been shown to improve patients' satisfaction of bereavement care by HCPs (Tovey & Turner, 2020). Photographs after miscarriage or stillbirth can also serve as family photos for future remembrance. Depicting patients in the role of the parent with their child after perinatal loss preserves the child's place in the family and can be used throughout the parents' lives to solidify their parental role, allowing them to share their child with others visually (Tateo, 2018). Bereavement photography leaves behind more than just memories and a gravestone, it can give parents the ability to see their child forever and promotes healing (Vivekananda et al., 2023). Postmortem photography can also be used to share memories of the deceased infant with other family members who were not physically there to create memories during bereavement, such as a future sibling.

Keepsakes

Some bereavement keepsakes can be kept as physical reminders of the child who has died. Healthcare professionals must address more than the emotional needs of patients but also guide them in creating tangible memories of their baby (Fuller & Kuberska, 2022). Common keepsakes provided to families are molds, memory boxes, teddy bears, or other physical representations of the child. Molds of the infant may include hands, feet, or the face and provide parents with a physical representation of the unique features of their child (Paraiso Pueyo et al., 2021). Keepsakes provide tangible evidence that the child existed and are useful for parents to help navigate the bereavement process (Tovey & Turner, 2020). Tangible keepsakes can be used as future healing elements and can help parents have a physical representation of the child they lost.

Figure 2

Infant Demise Ceramic Heart Keepsakes

Note. Glazed ceramic hearts for infant photography and burial. Picture taken by researcher.

Memory boxes are a common bereavement keepsake used in perinatal loss. Fuller & Kuberska (2022) examined the use of bereavement keepsakes after perinatal loss and found that memory boxes typically contain preselected items, but still allow for individualization of memory objects that may appear mundane to other people. Artifacts included in memory boxes serve as a type of time capsule for the infant that symbolize their life, the experiences of the parents, and promote healing. Other items commonly used in bereavement care according to Fuller & Kuberska (2022) are toys, jewelry, and plants. Teddy bears or other toys are commonly placed with the baby before they are buried or cremated, similarly to how teddy bears are used to comfort living children. Jewelry is commonly worn by mothers as a representation of the connection to their lost child. Finally, plants, such as trees or memory gardens, commonly mark a place for remembrance and are used to create communal grief locations for lost children.

Figure 3

Memory Box

Note. Purple floral memory box for protection of keepsakes. Picture taken by researcher.

Funeral Planning

Funeral planning can be an important part of the bereavement process for parents. Many parents have never planned a funeral, especially for their own child, and will need healthcare provider assistance to navigate the process. Parents are encouraged to plan and customize their child's funeral and burial, going beyond simply choosing between burial or cremation (Fuller & Kuberska, 2022). The options available for burial can be overwhelming, so parents will require support when making funeral decisions. Another difficult decision connected to funeral planning is whether the parents would like an autopsy completed before burial. Some parents want questions surrounding the death of their infant answered, while others are at peace with God's will. Nurses should be trained in appropriate interactions and communications with parents regarding autopsy to help in their decision-making processes (Qian et al., 2021). The decision

whether to have a funeral is difficult for parents, especially for losses at earlier gestations. Perinatal nurses can help guide the parents through these hard choices by answering questions and being knowledgeable about available burial options.

Infant Bathing and Dressing

Some bereavement care mimics the care that is provided to living infants including bathing, dressing, and swaddling the baby. Infant bathing should be included in postmortem care, and parents should be encouraged to participate in this process (Paraiso Pueyo et al., 2021). Bathing the infant postmortem has been shown to strengthen the parents' bond with baby as they say goodbye to their child. Ravaldi et al. (2018) found that bathing and dressing the baby was one of the most important postpartum activities to parents experiencing perinatal loss. Parents are provided the opportunity to act in the role of a parent through bathing and dressing their child, despite the fact their baby is no longer living.

Community Support

Parents experiencing perinatal loss should be provided with community resources available after discharge. Written materials with community support programs, and relevant literature about the bereavement process, should be provided along with continued support through the first year after the loss (Paraiso Pueyo et al., 2021). Healthcare staff are often responsible for contacting community resources, such as charities or support groups, or providing the patients with information about these resources for future outreach (Akyempon & Aladangady, 2020). Parents should be provided with follow-up appointments in their doctor's office to discuss their bereavement process, have questions answered that were missed during the hospital admission, and discuss available community resources for them in their specific place of bereavement (Akyempon & Aladangady, 2020). It is important for parents to know they are not

alone in their grief and that other members of their community are available to offer guidance and support.

Parent support groups in the community are an important practice for healing after perinatal loss. Parent support groups allow patients to express their feelings openly, connect with other parents who have experienced perinatal loss, and help them to process their grief and pain (Paraiso Pueyo et al., 2021). Social support is critical for healthy processing of trauma, but perinatal loss has not always been openly discussed or supported culturally (Sun et al., 2019). A cultural change has occurred that supports the importance and acceptance of open communication about perinatal loss and often includes grief counseling and support groups (Meyer et al., 2018). Some cultures still view stillbirth and miscarriage as distasteful topics because of the importance of childbearing in those societies (Dyer et al., 2019). Mothers wanted to feel they were not alone and that other mothers had experienced similar losses, validating their grief and pain. A qualitative study by Hendriks and Abraham (2021) found that one participant and her spouse did not discuss their perinatal loss with each other for over a year from the time of their child's death, nor did they discuss their loss with their social network. The participant stated the only reason she reached out to a bereavement support group after a year was because her healthcare provider suggested connecting with a community of parents who had experienced a similar loss for support.

Extended Family Inclusion

Parents experiencing perinatal loss should be encouraged by their perinatal nurse to include extended family and friends in the care of their infant and promote bonding with the baby. Emotional support from family and friends can mitigate anxiety and depression in parents who have lost a child or a pregnancy (Fuller & Kuberska, 2022). Including extended family

members in perinatal bereavement care is an important part of nurse involvement with the patient and their support systems. Research shows that parents experiencing perinatal loss feel the support they receive from their partner, family, and friends as essential during their grief (Paraiso Pueyo et al., 2021). Although perinatal loss is a complicated bereavement process for both patients and their families, bereaved mothers who had family support after perinatal loss were found to be less lonely and had better psychological outcomes (Markman & Tushnova, 2021; Sun et al., 2019). A dedicated space should be provided for patients and their families to bond with the baby since privacy is important for creating memories and a bond with the deceased child (Akyempon & Aladangady, 2020). Siblings of the dead infant should also be encouraged to participate in baby care and bonding because sharing the grief process has been shown to promote family closeness and gives life meaning (Vig et al., 2021). The creation of bonds between siblings was shown to provide some comfort to parents (Paraiso Pueyo et al., 2021). Future siblings can be shown photographs and keepsakes created of their lost sibling to create a bond, despite not having been present during the bereavement period.

Figure 4

Infant Loss Books for Siblings

Note. Books for children of parents who have experienced perinatal loss. Picture taken by researcher.

Perinatal nurses must understand and assist in preventing negative outcomes related to lack of family support after perinatal loss. Patients who experience a termination of pregnancy for fetal anomaly (TOPFA), commonly report a lack of deep communication with their family members and a lack of empathy for their loss (Sun et al., 2019). After a TOPFA, some family members will become avoidant due to congruent feelings of grief or their own spiritual views on pregnancy termination (Sun et al., 2019). Perinatal nurses must remain neutral and practice an examination of personal bias about termination to support their patients who make these difficult decisions, especially when familial support is lacking.

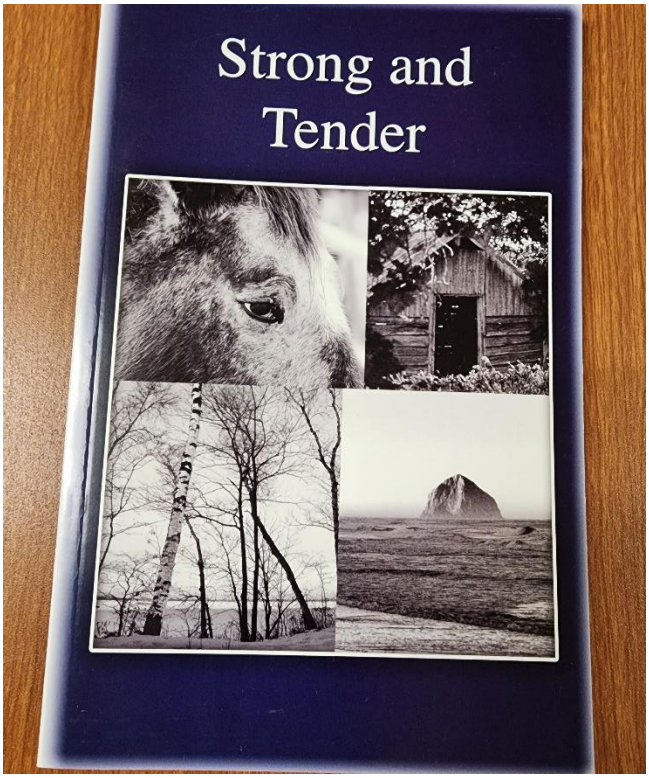
Spiritual Care

Healthcare professionals must be aware of the spiritual needs of their patients experiencing perinatal loss. Common spiritual interventions for patients include calling their preferred clergy person, baptism of the infant, prayer, and written spiritual resources. Spirituality and religion have been shown to be a strong defense mechanism during times of bereavement (Paraiso Pueyo et al., 2021). Spiritual behaviors can alleviate pain and suffering and have been shown to reduce depression, physical pain, and the effects of PTSD. Interventions for parents must be individualized and promote spiritual healing because many bereaved parents have stated their faith helped them to manage their grief and make sense of the loss (Paraiso Pueyo et al., 2021). Vig et al. (2021) stated spiritual support has been shown to help parents' coping processes, prevents complicated grief, mitigates shock, reduces disbelief in the loss, enhances mental health healing, boosts personal growth, improves bonding with the infant who has died, and helps professionals assess the grieving processes of the parents. Protocols and guidelines for bereavement care at healthcare facilities must support different religious views and allow for

individualized care (Paraiso Pueyo et al., 2021). Patient care planning should be individualized to include the race, culture, and religion of the parents and their families.

Figure 5

Tender and Strong: Spiritual Resource for Fathers Experiencing Perinatal Loss



Note. Bereavement book for fathers. Picture taken by researcher.

Care in Future Pregnancies

Future pregnancies are an important consideration during the healing process for perinatal loss. Several research studies have shown that trauma resulting from perinatal loss is commonly present in future pregnancies (Fernandez Ordonez et al., 2021; Fernandez Ordonez et al., 2018; Zelop et al., 2019). Parents may require extra spiritual and psychological support in future pregnancies to improve both maternal and newborn outcomes. According to a recent literary review of 21 published studies examining perinatal loss, PTSD symptoms can be found in approximately 21% of future pregnancies after perinatal loss in the third trimester (Fernandez

Ordonez et al., 2021). Patients are also at high risk for psychological distress as they near the gestation of the previous perinatal loss (Fernandez Ordonez et al., 2018). There are emotional and physical limitations and consequences that may exist in future pregnancies :nurses must be aware of both to properly educate their bereaved patients.

Perinatal nurses must be aware of their role in future pregnancies after perinatal loss. Patients may be more stressed when receiving medical interventions, even routine care, so nursing staff must convey patience and encouragement about the health and wellness of the current pregnancy (Fernandez Ordonez et al., 2018). Gestational spacing is also associated with the mental health of a patient experiencing pregnancy after perinatal loss. Perinatal nurses must be aware that patients who get pregnant again quickly after experiencing perinatal loss are at higher risk for depression and anxiety; attachment with the healthy baby of a future pregnancy could be delayed (Fernandez Ordonez et al., 2018). Many women want to get pregnant again quickly after perinatal loss. This is called Replacement Child Syndrome, to minimize the pain they feel from losing a child; a review of current literature found that up to 80% of women will get pregnant again after perinatal loss within 18 months (Dyer et al., 2019). Replacement Child Syndrome can carry both physical and emotional consequences that must be presented to patients experiencing perinatal loss. The focus of education should be on healing, not pregnancy replacement because the deceased infant can never truly be replaced.

There are several physical risks to mothers experiencing a pregnancy after perinatal loss, and perinatal nurses must be aware of the increased medical dangers to these patients. There is a higher risk of placental issues in subsequent pregnancies after perinatal loss, which can lead to recurrent fetal death, preterm delivery, or maternal hemorrhage (Quenby et al., 2021). Cervical issues may be present if the mother required a Dilation and Curettage (D&C) which can also lead

to preterm delivery, chronic endometriosis, or uncontrolled cervical bleeding at delivery (Quenby et al., 2021). Since nurses are active participants in the education of patients, often providing discharge education themselves, they must ensure their bereaved patients understand the physical and emotional risks that may accompany future pregnancies. Patients must be presented with the resources available for them if they decide they are ready to attempt another healthy pregnancy.

Pregnancy and Birth

Nurses are fundamental in bereavement care. Nurses are leaders in problem identification, care planning, executing patient care, and evaluating the results of interventions (Paloma-Castro et al., 2020). Nursing care through pregnancy and birth helps parents to accept their loss and grieve the death of their child. When parents are given a diagnosis that will end in fetal or infant death, nurses should help the families prepare an EOL plan, often including palliative care (Cox, 2021). When a mother comes to delivery with a known fetal anomaly that will end in fetal death or whose baby has already died, the nurses should take time to explain the birth process in detail, including what the patient's birth preferences include (Ravaldi et al., 2018). Parents experiencing perinatal loss still have many birth options and should be given the opportunity to plan their own care. Information provided to patients should be based on the most updated evidence-based practices and should include community resources for the future. Nurses must also understand the physical risks associated with perinatal loss; mothers may need a higher acuity of care due to these dangers (Zelop et al., 2019). These mothers are at a higher risk for hemorrhage, sepsis, and other physical ailments that are commonly missed if nursing staff are not experienced or educated on perinatal loss (Qian, 2022). Delivery choices for mothers experiencing perinatal loss must be individualized according to the patient's health history,

gestation age of the baby, and the parents' choices (Zelop et al., 2019). Each patient is unique and may require a higher level of care during their period of perinatal loss.

Birth for mothers who have experienced perinatal loss, or who are carrying an infant with a terminal diagnosis, could be vaginal or surgical. Vaginal delivery should be a goal for every mother to improve maternal health after delivery (Zelop et al., 2019). No matter which delivery route the mother experiences, the postpartum bereavement processes will be difficult. When a mother decides to have a vaginal birth, the nurse actively provides care through the labor and birth processes while supporting the mother emotionally (Salgado et al., 2021). Mothers who have a vaginal delivery will most likely be able to better participate with bereavement care after delivery including holding, bathing, dressing the baby, funeral planning, and bonding. Women who have vaginal deliveries are also able to get pregnant again sooner if they wish, so the healthcare professionals, including nurses, should keep vaginal delivery as a goal for each patient experiencing perinatal loss (Salgado et al., 2021). Cesarean sections require a longer period of healing due to the risks of uterine rupture if the incision site is still weak, a condition known as an isthmocele (Lagana et al., 2018). A Consensus Statement by the Global Congress on Hysteroscopy Scientific Committee found that 60% of first-time cesarean section mothers and 100% of mothers who have had three or more cesarean sections were found to have an isthmocele in their uterine or abdominal scar (Lagana et al., 2018b). It is also important to include a narrative of the parents' loss and how they view the death (Richardson & Schiller, 2021). This narrative will help the nursing staff to individualize the needs of the patients based on how they view the loss of their child and how they are coping with the death.

If the mother is having an early termination of pregnancy, before 20 weeks gestation, there is an increased risk for hemorrhage. Mothers who have early termination of pregnancy are

more likely to experience uterine atony after delivery, resulting in excess blood loss (Zelop et al., 2019). There is a high risk for retained placental or fetal tissue, which also causes excessive bleeding; the nurse must understand these risks and be prepared to treat the mother with medications and collaborate care with other medical specialties such as anesthesia, respiratory therapy, and a surgical team. Approximately two percent of early pregnancy terminations will require a surgical D&C for retained placental or fetal parts (Zelop et al., 2019). Nurses must know how to assess patients for incomplete delivery and understand how to minimize long-term risks.

Postpartum Care

During the postpartum period, nurses can help parents preserve the dignity of their baby. For parents whose infant survives the immediate delivery time and is taken to the NICU for palliative care before death, the nurse is the main source of support and care for both the newborn and parents (Paraiso Pueyo et al., 2021). The nurse must ensure the parents are given ample opportunities to participate in the care of their infant and build memories and bonds. The nurse can help parents to make mementos of their baby including photos, hand and footprints, locks of hair, and hospital ID bands (Ravaldi et al., 2018). Helping to care for their baby until death and providing postmortem care is an important part of creating a parental identity. Parental identity supports the attachment between the parents and their child (Atashi et al., 2018). Once the baby has passed away, care must acknowledge the parents' loss (Zelop et al., 2019). There must be acknowledgement that a member of their family has died and will not be going home. Even though their baby has died, they are still and will always be parents to that child.

Figure 6

Infant Demise Footprint Mold

Note. Infant foot mold keepsake, created by researcher. Picture taken by researcher.

The nurse attends to the holistic needs of the parents and provides support through their struggles, guiding the patients past any perceived stigmatization of perinatal loss. The nurse also provides physical aftercare for the mother including assessments of her physical and mental health. Parents should be given written and verbal education on the physical and psychological changes they will experience through the healing process and any implications for future pregnancies after their loss (Ravaldi et al., 2018). During the postpartum period, the nurse may also assist the parents in finding social support through the community and the patients' own families (Vig et al., 2021). The physical and emotional needs of the father will also be prioritized by the nurse; despite the fact he may not be the actual patient, fathers also experience bereavement and should be encouraged to participate in every step of the bereavement process.

Patient Education and Communication

Nurses play an important role in bereavement education and communicating with bereaved patients. Poor communication can create conflicts and barriers to the nurse-patient relationship and can cause dissatisfaction in patient care (Atienza-Carrasco et al., 2018). Verbal

and non-verbal communication can be used to assess patient wellbeing and ensure that bereavement remains healthy, preventing complicated grief (Paraiso Pueyo et al., 2021). If HCPs are uncomfortable having difficult conversations about perinatal loss with patients, there is an increased risk for poor medical outcomes resulting from modifiable risks (Dyer et al., 2019; Zelop et al., 2019). Therapeutic communication supports the nurse-patient relationship and builds a rapport that supports honest expressions of grief and patient comfort conveying needs to their caregivers.

Parents should be aware of what their infant may look like in accordance with their gestational age to better prepare for seeing the child after delivery. It is important for nurses to educate expectant parents on the physical changes that are likely to occur as the child passes away, preferably before (Akyempon & Aladangady, 2020). Information must be communicated to patients in terms of their own beliefs and values to help them overcome the distress of difficult decisions (Atienza-Carrasco et al., 2018). Postpartum care often includes rooming in with the infant postmortem, similarly to a live infant, and parents should be offered the use of a cooling cot to preserve the remains longer if available (Fuller & Kuberska, 2022). Education about the preservation of their child during the postpartum time promotes bonding and allows for more time with the infant at the bedside. One study by Meyer et al. (2018) examined bereavement practices of women in Ghana in accordance with their cultural beliefs toward perinatal death. Culturally, infants who died in Ghana were expected to be buried the same day they passed. Several mothers discussed how they desired to have more time with their child and wanted the ability to hold their baby. These results emphasize how important time with the deceased infant is for bonding and parental healing.

It is part of the role of the nurse to participate in communication with other healthcare professionals as an involved member of the perinatal bereavement team, specifically as part of a perinatal mortality review. One parent's story of perinatal loss discussed how a lack of communication between medical team members led to difficult conversations and decreased their satisfaction in the care received during their perinatal loss. When the couple arrived at the hospital for a late termination of pregnancy (LTOP), the anesthesiologist thought they were there for a standard birth and came to consult with the patient for a labor epidural (Hendriks & Abraham, 2021). After offering his congratulations on the birth of their child, the nurse entered the patient room to find her crying uncontrollably on the side of the bed. The reason for a perinatal mortality review is to gather the healthcare professionals who provided care to the bereaved parents to confirm a diagnosis was available, acknowledge any circumstances that played a role in the perinatal death, and identify any issues that arose with providing patient care (Bakhbakhi et al., 2018). On occasion, parents may be offered an invitation to the meeting to facilitate future bereavement care provided by healthcare professionals at the facility. Communication about patient care should also include referrals to spiritual professionals when appropriate, such as counselors, priests, psychologists, or a chaplain (Zelop et al., 2019). Spiritual professionals may have resources available to patients that can promote spiritual healing and can prevent a spiritual crisis.

Emotional and Spiritual Care

Nurses must have a generalized understanding of different religions and how different religions view perinatal loss. Research shows that, since nurses commonly build relationships of trust easily through their care, nurses who maintained contact with their patients after discharge allowed for a social connection that promoted the child's legacy and improved bereavement for

the parents (Vig et al., 2021). One of the most common reasons parents felt they received inadequate perinatal care was because interactions with their healthcare providers were not holistic and did not address the difficulty of the situation (Paloma-Castro et. al., 2020). Parents felt their emotional and social needs were not well supported by staff, rather than perceiving a lack of physical care. Immediately after diagnosis, parents may be in disbelief and may refuse to accept the loss of their pregnancy or infant. They may try to bargain with their divine power or question their own beliefs of fate (Cassaday, 2018). Patients must be supported with emotion-oriented comfort care that includes interventions focusing on the emotional needs of each bereaved patient (Sharma & Kalia, 2021). The nurse must validate the feelings of each patient and be empathetic to their unique situation.

Despite a standard need for emotional support by nursing staff, parents commonly experience care they feel is not respectful after perinatal loss. Atkins et al. (2022) found that 25.4% (n = 958) of their participants did not feel they were provided respectful care during their entire hospital stay and 23.5% (n = 886) of participants stated their baby was not always treated respectfully after baby's death. Slightly over half of participants stated they received respectful care throughout their entire hospitalization, leaving almost half of the participants feeling they were not always respected. HCPs commonly will try to have an upbeat approach to perinatal loss and attempt to find the good in the situation; however, this minimizes the patient's loss and creates a barrier to the relationship between staff and patient, often leaving the parents feeling disrespected (Cassaday, 2018). Also, parents who experienced perinatal loss before 30 weeks gestation were more likely to feel some level of disrespect. Nurses must ensure that all care they provide is respectful, no matter the baby's gestation, as a form of emotional support for bereaved parents.

The term emotional support encompasses verbal, physical, and mental care that promotes emotional healing. Emotional support from HCPs can come in the form of healing touch, caring words, acknowledgement of a patient's loss, and a general kind approach to care; these actions can have long-term positive effects for patients (Cassaday, 2018). Emotional support is necessary from HCPs throughout the perinatal loss process, from the moment of diagnosis and through all stages of healing (Hendriks & Abraham, 2021). This support is crucial to both the women carrying the child and for their support people. According to Dyer et al. (2019) men felt they needed to be in the role of a protector and often felt they were unable to talk about their own fears and emotions because they needed to be strong for their partner. Men commonly reported feeling a different burden than their female partners and requiring personalized emotional care.

Perinatal Nurse Attitudes About Providing Bereavement Care

Bereavement is a complex but normal process, and the role of the nurse in bereavement is irreplaceable. Caring for parents who are suffering from the loss of a child is an exceptional challenge, especially considering the unique cultural and personal needs in each situation (Salgado et al., 2021; Hutti et al., 2019). The support nurses provided after perinatal loss has an important effect on the parents' responses to the death of their infant.

Nurse attitudes toward providing perinatal bereavement are composed of three qualities: comfort providing care, understanding of the role of the nurse, and inclusion of the family in bereavement interactions (Engler et al., 2004). Nurses must have a professional attitude toward providing perinatal bereavement care to favorably influence the grief experiences of parents (De Roose et al., 2017). Nurses are fundamental for caregiving and carry much of the responsibility for perinatal bereavement care (Paraiso Pueyo et al., 2021). Nurses recognize and promote best practices for bereavement care and preventing complicated grief (Cassaday, 2018). Education

has been shown to have a positive influence on nurse attitudes about providing care to patients experiencing miscarriage (De Roose et al., 2017). Ravaldi et al. (2018) found that more than 75% (n = 506) of the participants in their study had never participated in specific training for perinatal loss and bereavement care. Nurses must support couples and families in emotional, spiritual, physical, and social responses to their loss in ways that may not be anticipated by the parents (Paloma-Castro, 2020). Providing care with kindness and being sensitive to the physical, spiritual, and emotional state of the patients was found to have a positive impact of patients' opinions on the quality of care provided (Tovey & Turner, 2020). Nurses build relationships of trust and promote individualized connections that allow for holistic and long-term support promoting the inclusion of patients and families in the bereavement process (Vig et al., 2021). Nurses cultivate these relationships through educating parents about their anticipated loss, seeing to the needs of the parents, promoting a sense of control and bonding, and promoting healthy grieving that is based on individualized beliefs and needs.

Fuller & Kuberska (2022) interviewed 31 women from the United Kingdom, using mixed methods, who had experienced a stillbirth or loss of pregnancy and were able to support the importance of considerate and courteous care from nursing staff when providing care through bereavement. Nursing care was found to be essential in guiding the bereavement experience and creating tangible memories of the child after death. Negative interactions with nursing staff during perinatal bereavement had long-term negative effects on the patients and their healing. Atienza-Carrasco et al. (2018) examined the views of healthcare professionals who provided care in the event of an adverse prenatal diagnosis. It was noted that participants experienced 'insecurity and anxiety' when participating in communication with patients who were given a difficult diagnosis during pregnancy, often including a diagnosis of fetal incompatibility with life

(Atienza-Carrasco et al., 2018, p. 7). These negative feelings about communicating with bereaved patients were theorized to have been caused by a lack of bereavement knowledge and skills.

Perinatal nursing is an important role because of the ability to offer decisional support for the patients regardless of one's own personal beliefs. Referring to the qualitative study by Hendriks & Abraham (2021), some parents felt alone when making important decisions on how to continue or end their pregnancy after a diagnosis of fetal anomaly that would end in demise. One participant described how she struggled with the difficult nature of the choices she was forced to make and lacked social support outside her medical team. This study also found that some HCPs struggled to support the decisions made by patients if they had conflicting beliefs; however, it was a consensus that the decisions had to be made by the patients and supported by staff. The decisions should balance the risks and benefits to mother and child but also include the patient's own spiritual beliefs and personal preferences.

Nurse Comfort Providing Bereavement Care

Perinatal nurses experience a wide array of emotions when providing care after a perinatal loss. Most nursing professionals view death and dying as natural processes; however, emotionally, the death of an infant or child is a significant loss that often feels unnatural (Gilart et al., 2022). Caring for bereaved parents is emotionally demanding and often includes complicated care that nurses do not commonly provide (Hutti et al., 2019). With perinatal loss, there is a loss of what would have been, loss of the parental role, and the loss of who the infant would have become. Although grieving in healthcare is common and death is inevitable for everyone, too often nurses are not well trained to deal with the emotions they have after caring for perinatal loss. Perinatal death is infrequent in comparison to healthy deliveries in the United

States, which can leave providers feeling ill-prepared to care for bereaved families (Cassaday, 2018). Ravaldi et al. (2018) found that about half of the participants in their study had provided perinatal bereavement care to five or fewer families during their career, and 6.3% (n = 43) of participants had never assisted in the delivery of a stillbirth. Even though stillbirth is not considered uncommon in perinatal healthcare, the percentage of pregnancies that end through miscarriage, stillbirth, and neonatal death is very low, limiting the number of experiences perinatal nurses have providing bereavement care.

Perinatal nurses experience grief and bereavement. Nurse grief and bereavement can affect their work and private lives negatively (Salgado et al., 2021). Common feelings of helplessness, grief, and sadness are expressed by perinatal staff members providing bereavement care (Yenal et al., 2021). “Because I feel grief for the baby… perhaps I couldn’t express what I feel there, but each time I have the same experience over again, I feel helpless” (Yenal et al., 2021, p. 5). Nurse distress can affect communication with bereaved parents, which can change the patients’ perceptions of the care they received. The care they receive in the hospital can facilitate or deter their grieving process (Sorce & Chamberlain, 2019). Perinatal nurse discomfort can have a direct impact on the care provided to patients.

Nurses often feel unprepared for the trauma of perinatal loss. Understandably, caring for bereaved parents can be stressful for perinatal nurses and can have secondary effects for the caregiver. Nurses who provide care for patients experiencing perinatal loss are at risk for stress-related health problems and emotional strains that can cause physical, emotional, mental, and social problems (Qian et al., 2021). There is a heavy emotional burden on perinatal nurses when they provide care for patients who have lost their child (Hutti et al., 2019). Healthcare providers must be educated on bereavement care and approaches to promote self-awareness and promote

self-comfort (Qian et al., 2021). Due to the high level of stress associated with caring for bereaved parents, there must be an understanding of the emotional influences on nursing staff.

Engler et al. (2004), the creators of the BEACONNS instrument, found that nurses commonly expressed discomfort with providing bereavement care, which inspired their original research and the creation of the instrument. In many cultures, death is a taboo subject; however, nurses must be able to fully recognize that parents are grieving the death of a baby, no matter the gestation of their pregnancy and loss (Qian et al., 2021). In the study by Engler et al. (2004), the most common responses of nurse participants were sadness, sorrow, and helplessness. Most participants also stated they experienced physical manifestations of grief after providing bereavement care that included tearfulness, difficulty concentrating, feelings of sadness, tiredness, being overly critical, headaches, and bad temperament. Their work also showed that the area that caused the most discomfort for nurse participants was discussing autopsy or organ donation with the parents; less than 50 percent of participants were comfortable in those discussions (Engler et al., 2004). Nurses with limited knowledge of the bereavement process are more likely to experience challenges in providing perinatal bereavement care and traumatizing experiences with care (Hutti et al., 2019). Providing nurses with more knowledge about the bereavement process could minimize nurse trauma.

Perinatal Nurse Coping

What if perinatal nurses were not able to cope with the trauma experienced by providing bereavement care? Gilart et al. (2021) asked an important question, “what would happen if the same health professionals became people in need of treatment or therapy because they did not know how to cope with a complicated bereavement?” (Gilart et al., 2021, p. 3). In nurses who provide perinatal bereavement care, emotional states like helplessness, insomnia, depression,

exhaustion, frustration, anxiety, and even PTSD have been seen (Gilart et al., 2021; Engler et al., 2004). The term ‘professional traumatic grief’ was identified in 2021 as a specific health problem for healthcare staff and has now been validated as a diagnostic label (Gilart et al., 2022). Professional traumatic grief occurs when the healthcare professional cannot process all their own emotions secondary to a patient’s perinatal loss and the care they were required to give as a result.

It is important to remember the nurse experiences pain and suffering when a patient dies, and their own past traumas can affect how they manage grief after bereavement care. Gilart et al. (2021) found that nurses who experience professional traumatic grief can have changes in their physical, mental, and social health. Not all nursing staff followed an expected course of grief when providing bereavement care, causing changes in their normal functions, and affecting their quality of life. PTG Theory states that when the core assumptions of a person are broken or questioned because of experienced trauma, those core assumptions may need to be reevaluated through access to materials that promote post-traumatic healing (Spelvins et al., 2009). Nurses must be given the skills needed to provide high quality holistic perinatal bereavement care but also the methods to prevent professional traumatic grief and promote their own mental health after experiencing the trauma of perinatal loss.

Perinatal nurses should be encouraged to discuss their feelings before, during, and after providing bereavement care. Often, perinatal nurses rely on their coworkers for support and promotion of coping skills to maintain the delicate balance of their physical, mental, emotional, and spiritual wellness (Vo, 2020). Nurses reported that they would share their feelings with coworkers because they had similar experiences and could empathize with the difficulty of providing bereavement care after perinatal loss (Yenal et al., 2021). It is important to remember

that comfort is defined differently for each person, including healthcare professionals, and colleagues can be an outlet for sociocultural relief and can decrease psychosocial distress from providing bereavement care. Nurses also stated that prayer helped them to cope with their emotions and promoted healing after perinatal bereavement. Spiritual beliefs can help nurses to cope (Yenal et al., 2018). “They tried to cope with their sadness by sharing feelings with their colleagues, by praying for the mothers, and by positive thinking” (Yenal et al., 2021, p. 11). Perinatal nurses should be encouraged to find a personal way to cope with the perinatal losses experienced by their patients.

Summary

Childbirth may be viewed as a happy event that should be celebrated, but that is not always reality. Perinatal bereavement is a unique phenomenon in nursing that requires a unique scope of practice because it involves transitional care from birth to death in a short span of time (Horey et al., 2021). Perinatal loss has been shown as traumatic not only for parents and families, but also for the nurses who provide bereavement care. PTG Theory; however, theorizes that through effective coping and with the application of the appropriate resources, a person can evolve or grow into a stronger and more resilient person because of the trauma experienced (Tedeshai et al., 2018). There is a need for further research into high-quality bereavement care to reduce the stigma surrounding pregnancy and infant loss, and to promote healing practices for bereaved parents.

Comfort is an important concern in healthcare, especially since caring for the sick and injured is the main goal of medicine to promote healing and recovery. Without proper training, it can be difficult for perinatal nurses to guide their patients safely through the bereavement process. Communication in healthcare is an ethical responsibility of HCPs; however,

communicating difficult information can be a barrier to helping patients make educated autonomous decisions and can be distressing to the nursing staff leading those conversations (Atienza-Carrasco et al., 2018). Nurses often participate in the memory making process through photography and keepsake creation with the fetal remains (Tovey & Turner, 2020). This is a difficult task for someone who has minimal previous involvement with perinatal bereavement care.

Currently, research shows that simulation is an effective learning practice in healthcare and can be used to simulate conditions that are not commonly experienced by staff. Simulation allows nursing professionals to use problem-solving skills and to learn techniques for patient care that can be directly applied to care in the real world (Qian et al., 2021). Simulation has been shown to promote confidence in nursing staff and improve patient outcomes by allowing nurses to learn in a simulated environment with minimal risks as opposed to learning through actual patient care (Ratislava et al., 2019). There is a gap in research examining how high-fidelity simulation affects nurse attitudes and comfort providing perinatal bereavement care. This study applies currently published evidence-based practices for bereavement care and simulation education to examine if HFS can be used as a learning method to increase nurse attitudes and comfort providing bereavement care.

CHAPTER THREE: METHODS

Overview

The study implemented a quantitative quasi-experimental one-group pretest posttest design that using the BEACONNS instrument (Engler et al., 2004) to measure perinatal nurse attitudes and comfort providing bereavement care before and after participation in a high-fidelity perinatal bereavement simulation. The participants and setting for the study included perinatal nurses in one hospital network who receive the same bereavement education opportunities and apply the same bereavement policies and procedures to their patient care. The minimum estimated sample size of participants was calculated be 45 nurses to ensure a confidence interval of CI = 95% using a medium effect size of 0.5 (see Appendix E for A priori), as supported by similar studies; however, due to a nationwide cybersecurity attack, data from only 20 participants was collected. The high-fidelity perinatal bereavement simulation applied INACSL standards to ensure a repeatable study that uses evidence-based practices for simulation education and applied the concepts of PTG Theory. Paired-samples *t*-tests were completed on the difference in composite BEACONNS scores, nurse attitudes, (see Table 10) and the difference in comfort subscale scores of the instrument (see Table 12).

Design

The study incorporated a quantitative quasi-experimental one-group pretest posttest design. The three main design steps were a pretest, an intervention, and a posttest (Grove & Gray, 2022). First, the BEACONNS instrument was administered to participants measuring the nurses' overall attitudes toward and comfort level when providing perinatal bereavement care. Second, there was the implementation of the intervention, a bereavement simulation that was composed of a prebrief, role play of providing bereavement care in the event of perinatal loss,

and a debrief. The independent variable of the study was participation in a standardized high-fidelity perinatal bereavement simulation. Third, a posttest using the BEACONNS instrument (Engler et al., 2004) was administered to the participants to measure the difference between the dependent variables, perinatal nurse attitudes and comfort with providing bereavement care after participating in a high-fidelity perinatal bereavement simulation. The time between pretest and posttest was less than or equal to seven days for all participants except for one, due to a personal emergency for one participant. The difference between the pretest and posttest scores produced the effects of the experimental treatment.

The design method described was most appropriate for the study for several reasons (Laerd Statistics, n.d.; Grove & Gray, 2022; Warner, 2021). First, the convenience of the sample of perinatal nurses, who work in the same hospital network, were recruited for the study. Due to access to a specific population of nurses, the one-group pretest-posttest design supports the participation of all nurses in the hospital network who provide perinatal bereavement care. Second, due to the importance of the topic of study, all participants were given access to a standardized bereavement education and simulation experience to allow all participants equal opportunity to benefit from study participation. Finally, the one-group pretest-posttest design was appropriate for this study because the amount of time between the pretest and posttest was so short that the risk of external factors affecting results was minimal (Laerd Statistics, n.d).

Research Questions

RQ1: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' overall attitude scores on the BEACONNS tool for providing perinatal bereavement care?

RQ2: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' comfort scores on the BEACONNS tool for providing perinatal bereavement care?

Hypotheses

***H*1:** There is a statistically significant increase, from pretest to posttest, of perinatal nurses' overall attitude scores for providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

***H*$_0$1:** There is no statistically significant difference, from pretest to posttest, of perinatal nurses' overall attitude scores for providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

***H*2**: There is a statistically significant increase, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

***H*$_0$2:** There is no statistically significant difference, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

Participants and Setting

The target population of the study was perinatal nurses working in the United States. The study sample included perinatal nurses from two hospitals in one selected healthcare network who receive the same bereavement education opportunities. The number of included sites was limited due to cybersecurity attacks nationally within the chosen hospital network and lack of participation at a third testing site. The chosen hospital network has more than 140 hospitals of differing sizes nationwide. The three chosen hospital sites for the study had between 100 and 130

available perinatal nurses who were recruited to participate in the study. The study results should offer a high level of generalizability to the target population because the selected health network is the one of the largest nonprofit healthcare systems in the country and currently provides services in almost half of the states in the United States and Washington, DC.

Eligibility criteria included being at least 18 years old, speaking and reading the English language, must work as a perinatal nurse at a hospital in the selected healthcare network, and could not currently be in orientation. All perinatal nurses from the participating hospitals were invited to participate in the study (see Appendix B for recruitment script), but involvement was voluntary. Requests for participation come during unit staff meetings, after a brief description of the study and any possible risks associated with participation. Perinatal nurses were sent an email for recruitment into the study with the same information presented at the meeting (see Appendix C for recruitment email). Staff email addresses were provided to the researcher securely by the manager of each unit. Every perinatal nurse was provided with an informed consent form electronically using DocuSign to protect participant information. Completed informed consent forms were saved in a secure Google Drive, as requested by the chosen hospital network, and can only be accessed by the researcher and committee chair. Using Qualtrics, subjects were asked to verify that they had signed their consent form in DocuSign prior to completing the pretest and before participating in the simulation (Appendix D). The pretest took participants between six and 49 minutes to complete. The sample size was a convenience sample of local perinatal nurses (n = 20).

A minimum sample size of 45 perinatal nurses was planned to ensure a statistical power of 95% CI and have a margin of error equaling 5%. Sample size was calculated using G*Power statistics program, version 3.1.9.7 (Universität Düsseldorf, n.d.) (see Appendix E for A Priori).

The sample size was calculated using a medium effect size of 0.5 supported by similar studies. Analysis of similar study results using calculations for Cohen's *d* found varying effect sizes from 0.5 to 1.0 depending on the variable being measured in one study (Doherty et al., 2018). Another similar study had a Cohen's *d* of 0.8 when examining the effect of role-playing education for nurses who provide perinatal bereavement care (Source & Chamberlain, 2019). Gardiner et al. (2016) examined international bereavement education programs and the effect on healthcare provider practices with bereavement care. This pretest-posttest designed study examined two different educational programs, and the effect size in both groups were large: Cohen's *d* of 1.0. Although some studies and variables had larger effect sizes, planning for this study implemented the smaller effect size from similar studies to allow for more data collection. The IRB request included data collection from 75 perinatal nurses in the hospital network due to risk for nurse error when completing BEACONNS surveys or possible simulation complications that could void the results from those participants. All nurses were offered the opportunity to complete the simulation; however, only data from 20 nurses was collected and used for data analysis.

The participant group consisted of 20 female perinatal nurses with differing levels of perinatal experience, a total of n = 20 participants. The least amount of time practicing as a perinatal nurse was 0 - 2 years (n = 11), while the most experienced perinatal nurses had been practicing for >20 years (n = 3). Some participants had no experience providing perinatal bereavement care (n = 5) while the highest number of annual perinatal losses experiences was >10 (n = 1). The age ranges for participants in years were 21-30 (n = 10), 31-40 (n = 5), 41-50 (n = 2), 51-60 (n = 1), and 61-70 (n = 1); all participants were over the age of 18, and none were over the age of 70. The highest degree level obtained by participants was a BSN, and the lowest

degree level an ASN, with a majority (n = 16) having earned a BSN. Half of participants had never been provided any form of perinatal bereavement education previously (n = 10).

Table 1

Demographic Data

Variable	n = 20
Age (years)	
21-30	10
31-40	5
41-50	2
51-60	2
61-70	1
> 70	0
chose not to disclose	0
Gender	
male	0
female	20
non-binary/ third gender	0
chose not to disclose	0
Highest Degree	
LPN	0
ASN	4
BSN	16
MSN	0
Doctorate	0
Nursing Certificate	0
Years of Nursing Experience	
0-2	8
3-5	4
6-10	2
11-15	1
16-20	2
>20	3

Years of Perinatal Nurse Experience	
0-2	11
3-5	1
6-10	5
11-15	1
16-20	1
>20	1
Previous Bereavement Education[a]	
yes	10
no	10
Frequency of Providing Bereavement Care (patients per year)	
0-1	7
2-5	5
6-10	2
>10	1
never	5

Note. This table describes the sample of perinatal nurses included in this research study.

[a] No data was collected on the type of education completed by participants previously.

The setting for the study included different perinatal units in the same network with the same policies and education opportunities for perinatal bereavement. The included hospitals had differing levels of care from site one with a level two maternity unit and level two NICU, while site two had a level three maternity unit and a level three NICU. Maternity and NICU units range from level one to level four with a higher number representing a higher acuity of care provided. The included hospitals differed in the setup of their maternity units with one implementing separate L&D and postpartum units while the other provided LDRP (Labor and Delivery/Recovery/Postpartum) suites where parents stay in the same room their entire stay. Both included institutions provided advanced level care to pregnant patients and maintain at least

a level two NICU with pediatric providers or neonatologists. Both hospitals had varying rates of perinatal loss with at least five cases of perinatal loss annually per site.

Instrumentation

The first instrument for data collection was a sociodemographic questionnaire to gather demographic information about the research sample. The information included in the demographic questionnaire was age, gender, highest degree earned, years of nursing experience, years of perinatal nurse experience, previous bereavement courses, and how often the participant cares for perinatal loss patients. Like other studies, the demographic information describes the sample of participants to aid in future replication of the study.

The Bereavement/End-of-Life Attitudes about Care: Neonatal Nurses Scale

The Bereavement/End-of-Life Attitudes about Care: Neonatal Nurses Scale (BEACONNS) was originally published in 2004 by Engler et al. The most updated version of the BEACONNS instrument includes 43 questions and three subset scales: a comfort scale, a role scale, and an involvement scale. The tool overall, as a composite instrument, has been proven reliable and validated statistically by multiple studies in measuring nurse attitudes toward bereavement and EOL care for fetuses and newborns (Engler et al., 2004; Sorce & Chamberlain, 2019). Permission to use the instrument has been obtained by the original authors who maintain ownership of the scale currently (see Appendix F for instrument consent). The BEACONNS tool uses a Likert style scoring system with each question scoring from one to five. The Likert scale for each subsection of the BEACONNS tool equates to one being the lowest score and five being highest with each subscale measuring its own nursing quality with providing bereavement care. The comfort subscale is scored from very uncomfortable (1) to very comfortable (5), the role subscale is scored from strongly disagree (1) to strongly agree (5), and the involvement scale is

scored from very unimportant (1) to very important (5). Participants rated themselves for each question and all participants were asked to complete the entire BEACONNS tool as the pretest and posttest. The overall attitude score and the subset comfort score were analyzed. The BEACONNS scale can be considered a continuous scale because the overall scores of the instrument and the scores for the comfort subset will create a continuum from the lowest possible scores, 43 for the attitudes score and 19 for the comfort scale, to the highest possible scores, 205 for the attitudes score and 95 for the comfort scale. Reliability of the BEACONNS tool has been shown to have a Cronbach's alpha range from 0.81 to 0.95 (Zhang & Lane, 2013; Source & Chamberlain, 2019). No validity studies have been found for the BEACONNS tool subscales.

The BEACONNS subset comfort scale is a 19-item instrument that measures nurse comfort with providing bereavement care in the event of perinatal loss, and it has been shown as reliable with Cronbach's alpha reliability of $\alpha = 0.95$ (Engler et al., 2004; Sorce & Chamberlain, 2019). Analysis of the participants' overall score changes of the comfort scale was completed. The 19-items are combined for a total score, with a higher score (5) indicating more comfort providing perinatal bereavement care.

Procedures

Procedures for this study were divided up into five steps and included a timeline of one to six months for data collection. The data collection timeline was guided by volunteer participation; however, due to a nationwide cybersecurity attack, data collection was forced to cease after four months.

Step One: Preparatory Meetings and IRB approval.

Permission to complete the study was obtained from the proper IRBs to ensure the research was acceptable for all participants and institutions (see Appendix G for IRB approvals).

The informed consent form was included in the IRB approval and was worded according to the expectations of the institutions (see Appendix C for participant consent form). An in-person preparatory meeting was held with each of the unit-based managers at site one and site two to discuss the study and what to expect during the research process. A virtual meeting was held using a secure Microsoft Teams request with the manager at site three; however, after recruitment was completed, no staff from site three consented to participate in the study. Permission to use the BEACONNS tool was obtained from the original authors and the instrument was prepared for implementation in the study using Qualtrics (see Appendix F for instrument consent). A standardized simulation using the standards published by INACSL was created, which incorporated the five standard steps for successful simulation: briefing, communication, the simulation, debriefing, and the nursing staff applying the information learned into patient care (INACSL Standards Committee, 2021a). Evidence-based best practices for perinatal bereavement care were included in the simulation, and the presented education supported the hospital network's available current resources. The created simulation was reviewed and approved by the hospital network's IRB. A simulation schedule was created with the managers at the two remaining participating institutions to facilitate the needs of the units and to provide a regimented timeline for research completion.

Step Two: Participant Recruitment

Participants were recruited at staff meetings by the researcher and through secure emails to all perinatal nurses who work in the selected hospitals in the chosen network. The prospective participants were educated about the study and what participation would entail for them; they were also provided a brief description of the possible significance of the research to encourage participation but not taint participant responses. All risks were addressed with the perinatal

nurses as a group, and the voluntary nature of their participation was explained. All willing perinatal nurses completed an electronic consent form in DocuSign that was securely stored on a Google Drive only accessible by the researcher and committee chair, prior to completing the pretest. Perinatal nurses who chose to participate in the study were given a 10 dollar gift card for their time and a goodie bag with snacks and a drink after completion of the simulation.

Step Three: Pre-Intervention

To ensure standardization of the simulation experience, the researcher acted as facilitator for the bereavement simulations. Each simulation was led according to the outline created by the researcher that is evidence-based and included the five steps to a successful simulation (INACSL Standards Committee, 2021a). The researcher did not require the help of the unit-based educators to set up the simulation nor for troubleshooting technology. Before completing the pretest, each participant was contacted privately and securely by the researcher via their employee email address, as required by the chosen hospital network, and was signed up for a scheduled simulation time to ensure the participants were divided up evenly into groups of three or four for each simulation. The researcher provided each participant a link to the BEACONNS instrument via a secure online survey system, Qualtrics, when they signed up for their scheduled simulation time (See Appendix H for Qualtrics links). The BEACONNS instrument pretest could be completed any time between simulation scheduling and simulation participation (within approximately seven days of the simulation); however, one participant had a change of schedule and completed the pretest more than seven days before the posttest. Code names were used in Qualtrics to allow for pairing of pretest and posttest data. Code names were composed of individual initials and birthday numbers to allow for pairing of survey answers after simulation but protection of participant identity (example: first initial last initial birth month day & year

with no spaces: VJ03261990). Only the first BEACONNS instrument survey included the demographic questionnaire.

Step Four: Intervention

The high-fidelity bereavement simulations were completed over a four-month period on the maternity units at both hospital sites. Participants were divided into groups of three or four nurses and assigned times for the simulation; however, there were two simulations that included two participants due to schedule changes in the participants after scheduling. Participants were asked to block out one hour of their time for participation in the high-fidelity simulation (HFS), which included evidence-based practices that support patient and healthcare provider wellness when providing bereavement care. Training nurses to use the right words and approaches with parent interactions is critical in helping parents' decision making and improvement of nurse comfort with discussing difficult topics like autopsy and burial. The prebriefing and briefing phases took approximately 15 minutes to complete. A PowerPoint was used to guide the prebriefing, briefing, and debriefing stages of the simulation to ensure each subject receives the same pre-intervention preparation (See Appendix I for facilitator speaking notes). The simulation maintained high physical-and-psychosocial fidelity, requiring each subject to participate as if it were a real bereavement patient. The HFS simulation took approximately 15 minutes to complete.

Step Five: Post-Intervention

The debriefing step was also led by the researcher with a guiding debrief PowerPoint to ensure the debriefing session was the same for each participant. Participants were encouraged to talk about the experience together during the debrief period but were asked not to discuss the simulation with others until after the end of the study. The debriefing step took approximately 30

minutes to complete. After debriefing, the participants were asked to fill out their second BEACONNS tool via a Qualtrics link they were sent by the researcher to their employee email. The participants were expected to complete the posttest before leaving the hospital after their simulation participation. The posttest took between four and 42 minutes to complete. A link was included at the end of the posttest for participants that provided information on available bereavement resources for perinatal nurses and continuing education opportunities throughout the State (see Appendix J for participant resources). Finally, a follow-up virtual meeting was scheduled with the managers at each participating hospital to discuss the results of the study and possible applications of the data to improve staff and patient future outcomes.

Data Analysis

After the simulations were completed, data was taken from the pretest and posttest BEACONNS instruments and digitally uploaded onto a secure Google Drive as an Excel document created by the researcher. Only the researcher and the PhD committee chair have access to the secure Google Drive. Following digitization of data, data analysis was completed using SPSS version 29.0. Pretest and posttest scores were paired according to the code names created by the participants to ensure the correct scores were paired for each nurse participant.

Descriptive Data

All demographic data collected was used to describe the sample of participants. Similarities amongst participants is a limitation to the study and has been examined to better describe the sample, allowing for repetition of the study in the future with more diverse demographics. The included demographic data has been organized into Table 1 that shows the division of participants who fit into each category of demographic data being examined.

Comparison of Means

IMB SPSS version 29.0 was used for data analysis. The first data analysis was a comparison of means of perinatal nurse attitudes (see Table 2) about perinatal bereavement care before and after intervention. By examining the average overall BEACONNS scores before and after participation in a bereavement simulation, overall improvement or indifference was seen. The mean (M) was calculated by dividing the sum of all scores (X) by the number of scores (n) (Warner, 2021). Then, a comparison of means was completed for the comfort subscale (see Table 3) using the same analysis to find the overall improvement or indifference in perinatal nurse comfort scores on the BEACONNS instrument.

Paired-Samples *t*-test

The next step in data analysis was a paired-samples *t*-test (see Table 10 and Table 12). A paired-samples *t*-test analyzes the variance of means between the pretest and posttest scores in connection to the independent variable, bereavement simulation. The paired-samples *t*-test required the assumptions that all scores are interval (The BEACONNS tool uses a five-point Likert scale that can be added for an overall score that is continuous); the scores were independent of each other or were both within a group (pretest and posttest groups; each participant completed the pretest and posttest alone, not together as a group); the scores were approximately normally distributed when comparing the differences in the dependent variable from both samples (see Table 8 and Table 9) (Laerd Statistics, n.d.); there were no group outliers (see Table 6 and Table 7); and violations of these assumptions could cause significant issues in statistical analysis (Warner, 2021). A Shapiro-Wilk test of normality was completed to ensure test scores were normally distributed ($p = .994$ and $p = .803$). To determine if the collected data included any outliers, a boxplot was created, and one outlier from nurse comfort scores was

removed from the study. Due to the small sample size, any outliers could have had a great effect on statistical analysis.

The paired-samples *t*-test was appropriate because this study used a repeated measure design where the same group of participants were used to collect two sets of scores; the pretest and posttest scores represent two related groups (Laerd Statistics, n.d.; Grove & Gray, 2022). Common risks with the paired-samples *t*-test (participant fatigue, maturation of subjects, and attrition) were not a problem in this study due to the short time between the pretest and posttest. The pretest-posttest design is commonly used to analyze participant attitudes or perceptions of an event and can be used to assess comfort related to information presented to participants. It can be assumed that improved attitudes and comfort resulting from an educational experience would produce higher posttest scores compared to pretest scores (Stratton, 2019). Paired-samples *t*-tests were used to analyze both nurse attitudes (the overall BEACONNS scores) and the participant scores on the comfort subscale of the BEACONNS instrument.

To use a paired-samples *t*-test, the distribution of variables had to include a normal distribution. Before completing the paired-samples *t*-test, a Shapiro-Wilk test was completed to determine if the difference in pretest and posttest scores for nurses' attitudes and comfort scales followed a normal distribution pattern. Normality was met in the Shapiro-Wilk test (see Table 8 and Table 9). In the event either the attitude or comfort scores did not follow a normal distribution, a non-parametric statistical analysis would have been completed using Wilcoxon signed-rank test. The Wilcoxon signed-rank test could have been used in nominal, ordinal, and interval level data to measure the effects of an intervention during a quasi-experimental study. The presented study applies because the BEACONNS tool uses a 5-point Likert scale that could be considered ordinal, rather than continuous, despite looking at total scores (Grove & Gray,

2022). The paired-samples *t*-test was the best statistical analysis for the study because of the pretest-posttest design that measured a change from pretest scores to posttest scores.

The Simulation

The high-fidelity perinatal bereavement simulation was created using INACSL standards. The simulation standards published by INACSL are divided into sections required for a successful and evidence-based simulation. The sections presented are: Prebriefing, Preparation, Briefing, Simulation Design, Facilitation, Debriefing, Infrastructure, Outcomes and Objectives, and Evaluation of Learning. Each section includes specific criteria that were included for the simulation to meet the standards set by INACSL. The simulation was created using a template from the NLN that can be used by future researchers to repeat the study (National League for Nursing, 2023).

Prebriefing

Prebriefing is a key element for successful learning when participating in a simulation (Rutherford-Hemming et al., 2019). Prebriefing includes an information session before simulation participation that aims to help participants meet the objectives of the simulation and to create an environment for learning. Criterion 2 from INACSL states that prebriefing should be guided by the learning objectives of the simulation to better prepare participants to meet the stated learning goals for the experience (INACSL Standards Committee et al., 2021f).

Setting the Scene

During the prebriefing session, the researcher set the scene for the simulation. Several topics were included in setting the scene: psychological safety, discussion on a fiction contract, confidentiality, communication methods, and the logistics of the simulation (Rutherford-Hemming et al., 2019). The goal of setting the scene was to create a safe learning environment

where fidelity was supported, and learners felt safe to participate in the simulation. Setting the scene for the simulation helped learners to achieve situational awareness (SA). SA is simply knowing what is going on during the simulation and understanding the goals trying to be achieved (Potter et al., 2021). SA prevents participants from feeling lost during their learning experience and prevents them from having moments of confusion about what they are supposed to be doing. Promoting SA makes for a smoother and more lifelike simulation that will help maintain high-fidelity learning and encourage a contract of fidelity between participants and the facilitator (Potter et al., 2021).

Expectations

The researcher communicated all expectations to the participants, including maintaining a safe learning space free of judgement, confidentiality outside of the learning environment, and the use of clear communication to promote learning (Rutherford-Hemming et al., 2019). Expectations for the researcher as facilitator included maintaining professionalism, acting as a role model for participant expectations, and promoting standards of best practice. It was also expected that the facilitator would follow the created documents and simulation as written to ensure continuity of education.

Simulation Scenario

Setting the simulation scenario was an important component of the prebriefing process (Rutherford-Hemming et al., 2019). The facilitator provided the backstory for the simulation and provided roles to participants. All roles had clear guidelines. The objectives of the simulation were addressed and included SMART goals: specific, measurable, achievable, realistic, and time appropriate (Harrington & Simon, 2022; Rutherford-Hemming et al., 2019). The learning objectives of the simulation were created with the idea that participants had differing levels of

experience with perinatal bereavement, which promoted learning for all levels of nursing professionals. Educational equity is supported by Criterion 3 of INACSL (INACSL Standards Committee et al., 2021f).

The simulation scenario included perinatal bereavement care for a couple expecting their first baby. The mother went into preterm labor at 22 weeks gestation (viability is considered 23 weeks) and the couple had chosen palliative care for their baby at birth rather than have medical interventions to extend her life. The parents were encouraged to participate in the care of their baby after she passed and the nursing staff worked together to create keepsakes, communicate therapeutically with the parents, and educate them on healing and resources.

Simulation Room Orientation

Participants were given an orientation of the simulation space to allow an understanding of available resources, supplies, and time to practice with any technology (Rutherford-Hemming et al., 2019). Participants were also notified of any limitations of the simulation environment at this time, which included site two not having access to a cuddle cot. High-fidelity simulations, specifically, require a more immersive learning environment to maintain reality, which required participants to study the simulation environment prior to participation in learning (Potter et al., 2021).

Preparation Time

Participants were given time in the simulation environment to prepare the simulation space, but this is not always a requirement for successful simulation (Rutherford-Hemming et al., 2019). If new technology, instruments, or an environment that is foreign to the participants will be used for learning, it is best for the learners to have some time allowed for exploring the learning environment. Simulation participants were given approximately three minutes to

explore the simulation environment before beginning.

Preparation

A prewritten simulation scenario and facilitator plan (see Appendix I for facilitator speaking notes) were created. Prewritten simulation scenarios are used for successful simulations to standardize the learning process for all participants and allow for repetition of the study through the creation of a standardized patient. Prebriefing with a standardized patient "may also help to ensure a successful simulation experience for the learner" (Rutherford-Hemming et al., 2019, p. 413). Criterion 4 presented by INACSL states that participants must be provided appropriate time and resources for preparation for the simulation, which includes all learning materials and information that will support participants in successfully meeting the learning objectives (INACSL Standards Committee, 2021f). Criterion 5 also supports the need for preparation materials that are guided by the learning objectives of the simulation to ensure that each participant will have the same standardized, achievable goals (INACSL Standards Committee, 2021f).

Briefing

Briefing included a critical conversation between participants and the facilitator prior to beginning the learning simulation. Where prebriefing set the tone for the simulation, briefing was more logistical, and the facilitator conveyed the structure for the simulation and expressed the importance of maintaining a high-fidelity same learning environment (Potter et al., 2021). Criterion 7 from INACSL states that the facilitator must present the expectations, plan, and the logistics of the simulation prior to beginning (INACSL Standards Committee et al., 2021f). Criterion 8 states that orientation of the learning environment must be structured and led by the facilitator during the briefing period (INACSL Standards Committee et al., 2021f) and Criterion

9 states the facilitator is responsible for creating a safe learning space that supports the participants' emotional and physical wellbeing during briefing (INACSL Standards Committee et al., 2021f). Participants must feel safe learning and making mistakes.

Live Simulation

Criterion 1 for simulation design presented by INACSL states that a simulation should be designed with best practices and content presented by experts in the field of study (INACSL Standard Committee et al., 2021l). Evidence-based practices and current published research on perinatal loss and bereavement were used to create the simulation template. All education included in the simulation was also approved by the chosen network's IRB before the researcher received site approval. Criterion 2 discusses the researcher performing a needs assessment to support the need for simulated learning (INACSL Standard Committee et al., 2021l). A needs assessment was completed through the presented literature review that shows a gap in research regarding the use of simulation as a learning approach for perinatal nurses with providing bereavement care and literature that supports perinatal nurses' positive attitudes toward receiving more perinatal bereavement education. Criterion 3 continues to discuss the need for measurable objectives, which were presented as SMART goals, and Criterion 4 discusses how the simulation template must align with the presented objectives (Harrington & Simon, 2022; INACSL Standard Committee et al., 2021l).

Criterions 5 and 6 from INACSL state that the simulation scenario should guide the entire simulated learning experience and must have a high level of realism to promote learning (INACSL Standard Committee et al., 2021l). HFS has been shown to have a large effect size on participants' knowledge, hands-on skills, and satisfaction with the learning experience (Tong et al., 2022). Bowe et al. (2017) supports that a simulation should be as realistic as possible to

support participant learning and the ability of learners to apply learned content and skills to live patients. Criterion 7 focuses on the need for learner-based simulation approaches that facilitate learning and achievement of outcomes despite the participant's prior knowledge or experience levels (INACSL Standard Committee et al., 2021l). Part of the simulation design included well designed prebriefing and debriefing materials that aligned with the context of the written simulation to allow for SA, improved learning, and reflection (Criterions 8, 9, and 10) (INACSL Standard Committee et al., 2021l). A PowerPoint was used to guide the prebriefing, briefing, and debriefing sessions of the simulation to effectively apply participants' time and ensure all subjects received the same learning experience. Finally, the researcher ran through a test simulation before leading others in learning to allow for learning and reflection (INACSL Standard Committee et al., 2021l).

Facilitation

As the facilitator of the simulations, the researcher was most knowledgeable about the written simulation, best practices, and learning objectives of the intervention. Criterion 1 from INACSL states that a simulation facilitator must be knowledgeable about the content and scenario of the simulation to be able to successfully lead the participants and to model best practices (INACSL Standards Committee et al., 2021f). Criterion 6 from INACSL states that all preparatory materials must be planned out and provided to learners prior to the simulation; the researcher ensured that participants were prepared and were able to carry out any required psychomotor skills for the simulation (INACSL Standards Committee et al., 2021f). Only perinatal nurses who were off orientation were able to participate in the study; this helped ensure the subjects had the necessary psychomotor skills to successfully complete the simulation.

Criterion 2, according to INACSL for facilitation, is that the facilitator must approach

their guidance in accordance with the level of learning and experience of the participants, while Criterion 3 focuses on the importance of the facilitator to be prepared as a role model and educator prior to beginning the simulation (INACSL Standard Committee et al., 2021j). The facilitator was prepared to allow learning to continue without interruption after providing appropriate pre-education to participants (Bowe et al., 2017). Finally, Criteria 4 and 5 state that the facilitator may have to give cues to the learners aimed at assisting participants to achieve learning outcomes if SA is not achieved and the learners begin wavering from the guided simulation, and that the facilitator may have to guide learning post-simulation to achieve the learning outcomes if they were not met during the live simulation experience through debriefing (INACSL Standard Committee et al., 2021j). The facilitator in this study offered cues according to the outlined simulation template. The mother character in the simulation offered many cues for nursing staff through asking questions and making statements that should prompt nurses to provide care or education as she needed.

Debriefing

Debriefing was a crucial phase in the simulation process where the learning was reflected, participants recollected what was done during the simulation, and they provided feedback about the learning experience. The facilitator encouraged participation from every learner and supported conscious consideration for what went well and what could be improved (Potter et al., 2021). Debriefing was a time for exploring the thinking that led to decisions, whether correct or incorrect, during the simulation and the individual learner's personal factors that may have impacted their decisions, such as previous care experiences or cultural differences.

Criterion 1 for debriefing according to INACSL states that debriefing must be planned and should be guided to help participants meet the learning outcomes (INACSL Standards

Committee et al., 2021d). The second debriefing criterion is that debriefing must be completed by a competent facilitator (INACSL Standards Committee et al., 2021d). The researcher received training prior to leading the learning experience and had been provided with the skills necessary to successfully guide the debriefing process. Criterion 3 states that debriefing should include analysis of the participant, the teamwork completed, and any systems or technologies used. Debriefing was reflective, reviewed necessary knowledge to make decisions that promoted best practices, and there was a resolution of any gaps in knowledge or confidentiality noted after completion of the simulation (INACSL Standards Committee et al., 2021d). Finally, the debriefing process was purposeful and supported by theoretical frameworks (INACSL Standards Committee et al., 2021d). The debrief process was supported by PTG Theory since perinatal loss is a traumatic event. Debriefing mimicked step six in PTG Theory, rumination, allowing for participants to reflect on the simulated event and process their thoughts and actions.

Infrastructure

A successful simulation that promotes learning must have a well-designed scenario with a script that allows for continuity of education through several different learning groups (Harrington & Simon, 2022). Criterion 1 presented by INACSL for infrastructure states that there must be a strategic plan for the simulation that promotes the learners' abilities to achieve stated learning outcomes (INACSL Standards Committee et al., 2021c). The facilitator required a structured plan for simulation to allow them to provide their expertise and sustain the simulation, as supported by Criterion 2 from INACSL for infrastructure (INACSL Standards Committee et al., 2021c). Criterion 3 states that all technology, learning spaces, and any required personal resources must be outlined for the facilitator, and a plan for the use of resources must be available (INACSL Standards Committee et al., 2021c). Criterion 4 states that any financial

resources must be managed and well-secured to maintain the sustainability of the learning and to promote the learning outcomes (INACSL Standards Committee et al., 2021c). Finally, Criteria 5 and 6 are to formally integrate any systems being used for learning and to ensure the application of any policies and procedures to support simulated learning (INACSL Standards Committee et al., 2021c).

Outcomes and Objectives

Learning outcomes and objectives were used to guide simulation creation following several criteria presented by INACSL. Outcomes and objectives were measurable and achievable within the simulation period. Criteria 1 through 3 from INACSL state that outcomes and objectives should be influenced by the curriculum or patient care needs and should be used to guide simulation creation to ensure the simulation scenario promotes participant success in achieving outcomes (INACSL Standards Committee et al., 2021h). The appropriate fidelity level must be considered when creating objectives and outcomes; some simulations may require higher or lower fidelity levels to promote participant learning (Criterion 4) (INACSL Standards Committee et al., 2021h). Finally, guidelines were created for the facilitation of the simulation-based education to meet the objectives presented; this included no intervention by the facilitator during the live simulation (Criterion 5) (INACSL Standards Committee et al., 2021h).

Simulation Learning Objectives

By the end of the simulation experience, participants will be able to:

1. Provide respectful maternity care to bereaved women, their families, and their babies to promote healthy perinatal bereavement.
2. Define basic principles and techniques to promote legacy creation after perinatal loss.
3. Differentiate typical and atypical (normal/abnormal) grief responses and how to

respond in a way that creates a healing environment with appropriate emotional support for bereaved parents and families.

4. Therapeutically communicate with patients and families experiencing perinatal loss, as well as other staff members who participate in bereavement care.
5. Demonstrate postnatal physical and psychosocial assessments to address the holistic needs of the bereaved patients and their families, including access to resources after discharge.

Evaluation of Learning

Evaluation of learning was completed thorough learner participation in the BEACONNS posttest. Criteria 1, 2, and 3 regarding evaluation of learning from INACSL state that the method of evaluation must be determined before creation of the simulation and that evaluations can be either formative or summative (INACSL Standards Committee et al., 2021g). The pretest-posttest design involved a formative evaluation of the participants' attitudes and comfort while providing perinatal bereavement care. Criterion 4 states that there may be high-stakes evaluations for learners after simulation participation; however, this did not apply to the study.

Summary

The study implemented a quasi-experimental one-group pretest-posttest design which was most appropriate due to the use of a convenience sample, standardization of the intervention, and the need for data collection before and after participation in the simulated education. The minimum estimated sample size was 45 perinatal nurses, which was calculated using a medium effect size of 0.5 (see Appendix E for A Priori), as supported by similar studies; however, due to a cybersecurity attack nationally, data was collected from only 20 participants. The BEACONNS tool published by Engler et al. (2004) was used to measure participant attitudes and comfort

levels providing bereavement care before and after participation in a standardized high-fidelity perinatal bereavement simulation. A paired-samples *t*-test was completed for each research question using the participants' composite scores (nurse attitude) and the comfort subscale of the BEACONNS instrument.

CHAPTER FOUR: FINDINGS

Overview

This chapter examines the statistical analysis completed by the researcher to address the research questions presented by the study. Descriptive statistics and a comparison of mean scores for both perinatal nurses' attitudes and comfort scores were completed to examine the difference in scores from pretest to posttest following the intervention of participation in a high-fidelity perinatal bereavement simulation. Assumption tests were completed through data screening examining histograms of data sets, including boxplots to test for outliers (see Table 6 and Table 7) and Shapiro-Wilk tests for normality (see Table 8 and Table 9) to ensure normally distributed data. The results of the assumption tests support the use of paired-samples *t*-tests to measure the statistical significance of the difference in participant scores from pretest to posttest. A step-by-step description of data analysis is included along with a summary of study results.

Research Questions

RQ1: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' overall attitude scores on the BEACONNS tool for providing perinatal bereavement care?

RQ2: Does participation in a high-fidelity perinatal bereavement simulation increase, from pretest to posttest, perinatal nurses' comfort scores on the BEACONNS tool for providing perinatal bereavement care?

Null Hypotheses

$H_0$1: There is no statistically significant difference, from pretest to posttest, of perinatal nurses' overall attitude scores for providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

$H_0$2: There is no statistically significant difference, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

Descriptive Statistics

The study included 20 participants (n = 20) and examined perinatal nurse attitude and comfort scores for providing perinatal bereavement care before and after participation in a high-fidelity perinatal bereavement simulation. The interval for the perinatal nurse attitude scores was from 43 to 215. The minimum pretest score for perinatal nurse attitude before intervention was 129, while the maximum pretest score for perinatal nurse attitude before intervention was 197. The mean score for perinatal nurse attitude pretest scores was M = 159.65 (20.518). The minimum posttest score for perinatal nurse attitude after intervention was 153, while the maximum posttest score for perinatal nurse attitude after intervention was 205. The mean score for perinatal nurse attitude posttest scores was M = 183.00 (16.537).

Table 2

Descriptive Data: Nurse Attitude

	Pretest	Posttest
Total Number of Participants	n=20	n=20
Minimum score (min)	min=129	min=153
Maximum score (max)	max=197	max=205
Mean score (M)	M= 159.65	M=183.00
Standard Deviation STD(x)	STD(x)=20.518	STD(x)=16.537

Note. This table shows the minimum and maximum scores of the composite BEACONNS instrument that measures nurse attitude toward providing bereavement care. The mean scores and standard deviation for both pretest and posttest were calculated using all 20 participants' scores.

The interval for the perinatal nurse comfort scores was from 19 to 95. The minimum pretest score for perinatal nurse comfort before intervention was 28, while the maximum pretest score for perinatal nurse comfort before intervention was 93. The mean score for perinatal nurse comfort pretest scores was M = 62.85 (16.050). The minimum posttest score for perinatal nurse comfort after intervention was 63, while the maximum posttest score for perinatal nurse comfort after intervention was 93. The mean score for perinatal nurse comfort posttest scores was M = 78.70 (9.114).

Table 3

Descriptive Data: Nurse Comfort

	Pretest	Posttest
Total Number of Participants	n=20	n=20
Minimum score (min)	min=28	min=63
Maximum score (max)	max=93	max=93
Mean score (M)	M= 62.85	M=78.70
Standard Deviation STD(x)	STD(x)=16.050	STD(x)=9.114

Note. This table shows the minimum and maximum scores of the comfort subscale from the BEACONNS instrument that measures nurse comfort when providing bereavement care. The mean scores and standard deviation for both pretest and posttest were calculated using all 20 participants' scores.

Comparison of Mean Scores

By examining the mean pretest and posttest scores of each dependent variable, the difference in average scores can be seen from before to after intervention. The mean score from pretest to posttest for nurse attitudes providing perinatal bereavement care increased from M = 159.65 to M = 183.00, an increase of 23.35. This increase in average nurse attitude score shows an improvement of nurse attitudes toward providing bereavement care as approximately 10.86% after participation in a high-fidelity perinatal bereavement simulation.

Table 4

Paired Samples Statistics: Nurse Attitude Scores

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Attitude Posttest	183.00	20	16.537	3.698
	Attitude Pretest	159.65	20	20.518	4.588

Note. This table provides the average scores for the composite BEACONNS instrument, measuring nurse attitudes toward providing perinatal bereavement care and the standard deviation of the mean scores. With a CI of 95%, all the mean scores should fall between the calculated mean plus or minus the standard error mean.

The mean score from pretest to posttest for nurse comfort providing perinatal bereavement care increased from M = 64.68 to M = 79.00, an increase of 14.32. This increase in average nurse comfort score shows an improvement of nurse level of comfort providing bereavement care as approximately 15.07% after participation in a high-fidelity perinatal bereavement simulation.

Table 5

Paired Samples Statistics: Nurse Comfort Scores

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Comfort Posttest	79.00	19	9.262	2.125
	Comfort Pretest	64.68	19	14.174	3.252

Note. This table provides the average scores for the comfort subscale from the BEACONNS instrument, measuring nurse comfort when providing perinatal bereavement care and the standard deviation of the mean scores. With a CI of 95%, all the mean scores should fall between the calculated mean plus or minus the standard error mean.

There was an increase in overall pretest to posttest scores for both nurse attitude and comfort scores after participation in a high-fidelity perinatal bereavement simulation. To determine if there was a statistically-significant increase in scores, more data analysis was needed. The next step was to complete paired-samples *t*-tests for both sets of data collected and to determine the effect size for the collected data.

Results

The paired-samples *t*-test was used to determine whether the average difference between two pairs has statistical significance. For this study, the pairs included the same individuals tested at two times, with a dependent variable being posttest scores after a standardized intervention. The paired-samples *t*-test has four assumptions that must be met for accurate results. One, there must be one dependent variable that is measured as continuous. In this study, the dependent variable is participation in a high-fidelity perinatal bereavement simulation using the BEACONNS instrument for measurement of pretest and posttest scores. The BEACONNS instrument is considered continuous because the scores are measured on an interval. Two, the

study must include two related groups that are able to be matched as pairs. The study measured scores from the same 20 participants at two points in time, and the participants' scores were matched according to confidential code names provided by the participants. Three, there must be no significant outliers between the two related groups. Box and Whisker Plots were completed for both nurse attitude and comfort scored pairs and will be discussed in the Assumption Tests section. Finally, the fourth assumption is that the distribution of the difference scores between the related groups will be normally distributed. Shapiro-Wilk Tests of Normality were completed for both nurse attitude and comfort difference scores and will be discussed in the Assumption Tests section.

Preparation of Data

Before assumption tests could be completed, the study data had to be prepared appropriately. First, pretest and posttest scores were paired according to the confidential code names provided by participants. This step ensured the correct pretest and posttest scores were paired. Next, the difference in pretest and posttest scores were calculated using SPSS 29.0 for both nurse attitude and nurse comfort. To test for outliers and the assumption of normality, the difference scores must be applied. The difference scores were calculated by subtracting the pretest scores from the posttest scores to show the positive or negative change in the BEACONNS instrument scores after intervention. By setting up the data this way, the pretest scores are acting as a control group, while the posttest scores are acting as the test group.

Assumption Tests

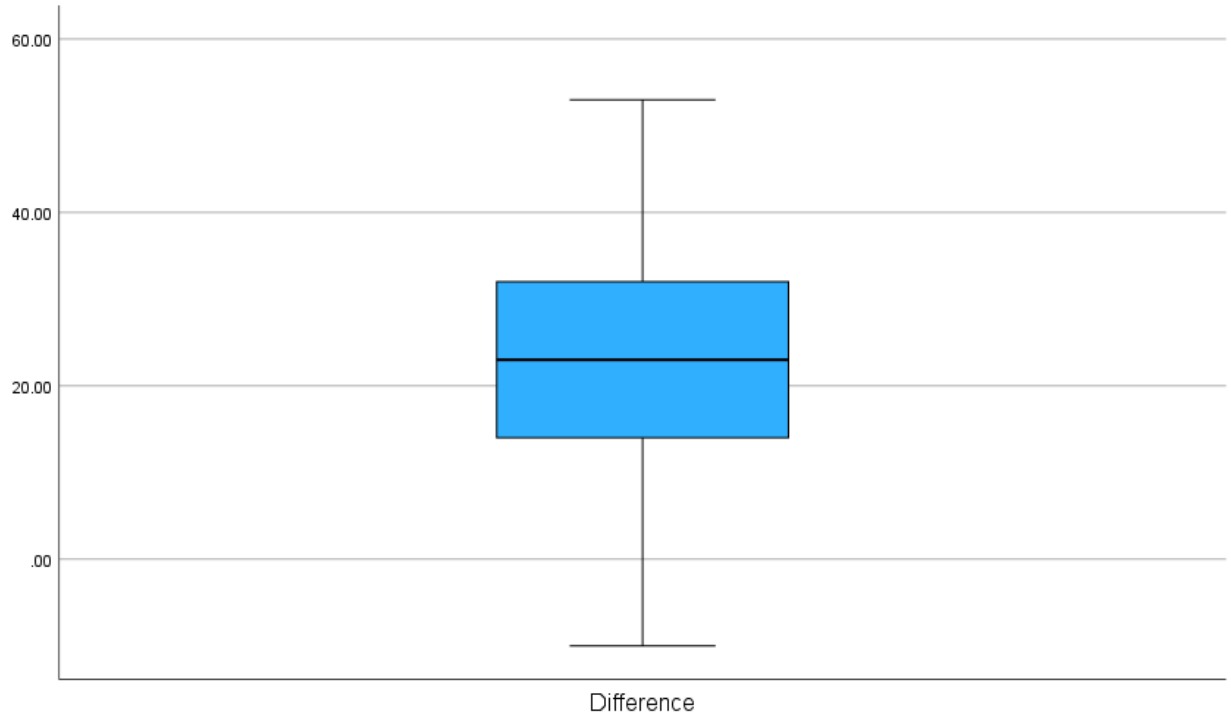
Box and Whisker Plots

The first assumption test completed examined whether there were any outliers using the difference scores for nurse attitude and nurse comfort. Box and Whisker Plots were used to

determine if there were any outliers (unusual scores) which could have a negative impact on study results. Due to the small sample size (n = 20), any outlier will have a greater influence on study results. The Box and Whisker Plot for nurse attitude scores showed no outliers, while the Box and Whisker Plot for nurse comfort scores showed one outlier.

Table 6

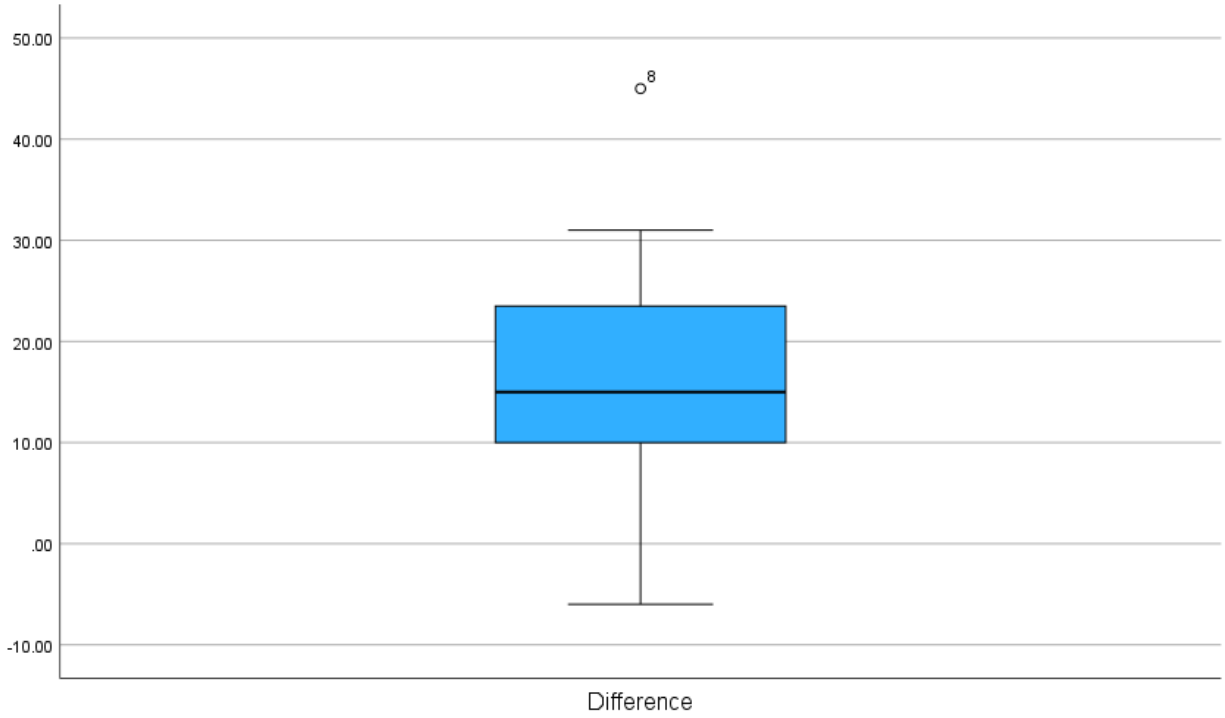
Box and Whisker Plot: Nurse Attitude Scores



Note. There were no outliers found when analyzing the paired composite BEACONNS scores (attitude) for the 20 study participants.

Table 7

Box and Whisker Plot: Nurse Comfort



Note. One outlier can be seen in the Box and Whisker Plot for paired subscale comfort scores when examining all 20 participants. The single outlier, participant 8, was removed from the data set before future analysis.

The one outlier found in the Box and Whisker Plot for nurse comfort scores was removed before completing the test for normality and paired-samples *t*-test due to the small sample size of the study. Although the pretest/posttest scores from the participant appeared genuine, the outlier was removed to prevent the addition of another limitation to the study. The participant number eight's pretest comfort score was 28, while their posttest score was 73. This participant had 0-2 years of perinatal nurse experience and had never provided perinatal bereavement care to an actual patient. The improvement in comfort score for this patient was unusually high compared

to the other participants, so the score was removed to prevent skewing the overall results of the study.

Shapiro-Wilk Tests of Normality

Shapiro-Wilk tests of normality were completed for both nurse attitude and nurse comfort scores to address assumption four for the paired-samples *t*-tests: the distribution of data from the difference in scores between the paired samples should be approximately normally distributed. The Shapiro-Wilk test of normality is the best option to measure normal distribution of data in this study because of the sample size of fewer than 50 participants (Laerd Statistics, n.d.). The difference scores for the nurse attitude pretest/posttest scores were normally distributed, as assessed by the Shapiro-Wilk's test (p = .994). After the removal of the single outlier in the difference scores for perinatal nurse comfort, the difference scores were also normally distributed, as assessed by the Shapiro-Wilk test (p = .803).

Table 8

Tests of Normality Nurse Attitude Scores

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Difference	.091	20	.200*	.988	20	.994

Note. The Shapiro-Wilk test is more accurate for this study due to the small sample size. The Kolmogorov-Smirnov test, while included in the table, was not used in the data analysis process.

Table 9

Tests of Normality Nurse Comfort Scores

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Difference	.120	19	.200*	.971	19	.803

Note. The Shapiro-Wilk test is more accurate for this study due to the small sample size. The Kolmogorov-Smirnov test, while included in the table, was not used in the data analysis process.

Null Hypothesis: Nurse Attitude

There is no statistically significant difference, from pretest to posttest, of perinatal nurses' overall attitude scores for providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

Paired-Samples *T*-Test: Nurse Attitude Scores

After all assumptions had been met, a paired-samples *t*-test was completed on the difference in nurse attitude scores from pretest to posttest. There were no missing values in the analysis, and therefore, no influence from the inability to run all 20 paired samples. Using SPSS 29.0, with a 95% CI [16.52, 30.18], participation in a high-fidelity perinatal bereavement simulation improved perinatal nurse attitudes providing perinatal bereavement care, compared to pretest scores, t (19) = 7.152, $p < .001$, $d = 1.599$, 95% CI [16.52, 30.18]. The paired-samples *t*-test was statistically significant, determining that it is unlikely that the mean difference between the paired samples would have happened by chance.

Table 10

Paired Samples Test: Attitude

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Attitude Posttest Attitude Pretest	23.350	14.601	3.265	16.517	30.183	7.152	19	<.001	<.001

Note. This study is a one-tailed test, hypothesizing an increase in posttest scores when compared to pretest scores, not examining an overall change in scores. This requires the use of the one-sided significance (*$p < .001$).

Effect Size

The effect size calculated for the perinatal nurses' attitude scores, using Cohen's *d* (1.599), is a large effect size. A large effect size supports the notion that there is a practical significance to the study results and a meaningful relationship between the intervention and improvement in nurse attitude posttest scores.

Table 11

Paired Samples Effect Size: Attitude

					95% Confidence Interval	
			Standardizer[a]	Point Estimate	Lower	Upper
Pair 1	Attitude Posttest Attitude Pretest	Cohen's *d*	14.601	1.599	.922	2.258
		Hedges' correction	15.211	1.535	.885	2.168

Note. Hedges' correction was included due to the small sample size included in the study, and it supports the large effect size found using Cohen's *d*.

Rejection of the Null Hypothesis: Nurse Attitude

There was a statistically significant difference between pretest and posttest means for perinatal nurse attitudes ($p < .001$). Therefore, the null hypothesis can be rejected. There was a statistically significant increase, from pretest to posttest, of the perinatal nurses' attitude scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation, as measured by the BEACONNS instrument.

Null Hypothesis: Nurse Comfort

There is no statistically significant difference, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

Paired-Samples *T*-Test: Nurse Comfort

After all assumptions had been met, a paired-samples *t*-test was completed on the difference in nurse comfort scores from pretest to posttest. There were no missing values in the analysis, and therefore, no influence from the inability to run all remaining 19 paired samples, after removal of the one outlier. Using SPSS 29.0, with a 95% CI [9.56, 19.07], participation in a

high-fidelity perinatal bereavement simulation improved perinatal nurses' comfort providing perinatal bereavement care, compared to pretest scores, t (18) = 6.321, $p < .001$, d = 1.450, 95% CI [9.56,19.07]. The paired-samples t-test was statistically significant, determining that it is unlikely that the mean difference between the paired samples would have happened by chance.

Table 12

Paired Samples Test: Comfort

		Paired Differences							Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	*t*	df	One-Sided *p*	Two-Sided *p*
Pair 1	Comfort Posttest Comfort Pretest	14.316	9.872	2.265	9.558	19.074	6.321	18	<.001	<.001

Note. This study is a one-tailed test, hypothesizing an increase in posttest scores when compared to pretest scores, not examining an overall change in scores. This requires the use of the one-sided significance (*$p < .001$).

Effect Size

The effect size calculated for the perinatal nurses' comfort scores, using Cohen's d (1.450), is large. A large effect size supports the notion that there is a practical significance to the study results and a meaningful relationship between the intervention and improvement in nurse comfort posttest scores.

Table 13

Paired Samples Effect Size: Comfort

					95% Confidence Interval	
			Standardizer[a]	Point Estimate	Lower	Upper
Pair 1	Comfort Posttest Comfort Pretest	Cohen's *d*	9.872	1.450	.790	2.091
		Hedges' correction	10.308	1.389	.757	2.002

Note. Hedges' correction was included due to the small sample size included in the study, and supports the large effect size found using Cohen's *d*.

Rejection of the Null Hypothesis: Nurse Comfort

There was a statistically significant difference between pretest and posttest means for perinatal nurses' comfort ($p < .001$). Therefore, the null hypothesis can be rejected. There was a statistically significant difference, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument.

Summary

A paired-samples *t*-test was used for both research questions to determine whether there was statistical significance in the mean differences from perinatal nurse pretest to posttest BEACONNS scores after participation in a high-fidelity perinatal bereavement simulation. One outlier was detected and removed from the nurse comfort difference scores. Inspection of the pretest and posttest values of the outlier determined an extreme increase in the dependent variable, so the outlier was removed before running the paired-samples *t*-test for perinatal nurse comfort. The assumption of normality for both nurse attitude difference of scores and nurse comfort difference of scores were not violated, as assessed by Shapiro-Wilk tests of normality

(p = .994 and p = .803). Participants had improved nurse attitude scores (M = 183.00, SD = 16.537) and nurse comfort scores (M = 78.70, SD = 9.114) after participation in a high-fidelity perinatal bereavement simulation compared to the control group of pretest nurse attitude scores (M = 159.65, SD = 20.518) and pretest nurse comfort scores (M = 62.85, SD = 16.050), prior to intervention. The paired-samples *t*-test showed a statistically significant increase of mean nurse attitude and nurse comfort scores and a large effect size using Cohen's *d* (Cohen's *d* = 1.599, Cohen's *d* = 1.450) was calculated for both hypotheses.

CHAPTER FIVE: CONCLUSIONS

Overview

A discussion of current literature, recent studies, and Post Traumatic Growth Theory adds to the importance of results of this study and how the results can be used to build upon current knowledge. There are many implications of the study including real-world relevance for nursing professionals and patient outcomes. Finally, an examination of the limitations of the study guides recommendations for continued future research.

Discussion

The purpose of the study was to examine if high-fidelity perinatal bereavement simulation is an effective way to increase nurse comfort and improve nurse attitudes toward providing perinatal bereavement care. Participants completed a pretest using the BEACONNS instrument, participated in a high-fidelity perinatal bereavement simulation, and then retook the BEACONNS instrument again as a posttest. Paired-Samples *t*-tests were completed on the difference of scores for the composite BEACONNS instrument (perinatal nurse attitude measurement) and the difference of scores for the comfort subscale. The increase in both nurse attitude and comfort scores was found to be statistically significant, supporting the hypothesis that participation in a high-fidelity perinatal bereavement simulation can improve both nurse attitude and comfort level providing perinatal bereavement care. The results of this study build upon the major concepts of post-traumatic growth theory; specifically steps five (coping), six(rumination), and eight (growth). This study provides new support for the use of high-fidelity perinatal bereavement simulation as an educational method to safely imitate the secondary occupational trauma experienced by nurses providing perinatal bereavement care and to promote deliberate rumination through debrief.

Literature: Nurse Attitude

There are three main qualities that compose nurse attitudes when providing perinatal bereavement care: comfort, understanding of the role of the nurse, and the inclusion of family in bereavement care (Engler et al., 2004). The first hypothesis of this study was that there is a statistically significant increase, from pretest to posttest, of perinatal nurses' overall attitude scores for providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument. According to current research, nurses require a positive professional attitude to provide holistic perinatal bereavement care and promote healthy grief responses in parents experiencing perinatal loss (DeRoose et al., 2017). Despite the importance of positive professional attitudes for perinatal nurses, many nursing professionals have been provided little or no bereavement education. The results of this study support the use of high-fidelity perinatal bereavement simulation to assist perinatal nurses to improve their professional attitude toward providing perinatal bereavement care. There was an increase in mean nurse attitude scores from pretest (M = 159.65) to posttest (M = 183.00) when using the BEACONNS instrument to measure nurse attitude. The paired-samples *t*-test found a statistical significance in the difference of pretest and posttest scores when measuring perinatal nurse attitude with providing perinatal bereavement care ($p < .001$). Improved nurse attitude with providing perinatal bereavement care, especially a better understanding of the role of the bereavement nurse, could promote professional growth after experiencing the occupational trauma of perinatal loss; the result of PTG Theory.

Atienza-Carasco et al. (2018) found that most nurses in their study had to teach themselves perinatal bereavement care. In their study, most bereavement learning came from observing real-world patients experiencing perinatal loss and learning which actions and

communication techniques worked best for their colleagues. Perinatal bereavement education is lacking in many healthcare networks as evidenced by the demographic data of the sample. Of the 20 participants in the study, half (n = 10) had never had any form of bereavement education before participation in this study. The statistically significant results of this study support the need for EOL education at all levels of nursing education and experience levels.

Recent Studies: Nurse Attitude

There have been many previous publications that examine nurse attitude and how to provide better resources to support nurses providing bereavement care. This research adds to previously contributed knowledge through the major themes of HFS, bereavement education, and the use of role-play in nursing education.

Role-Play Education

Ratislavova et al. (2019) examined perinatal palliative care (PPC) education, a concept that was included in the simulation created for this dissertation study. Their study found that role play simulation can be used as an educational process to help participants learn new skills, problem solve, and analyze situations. Role play was shown to simulate real-life patients and situations that would otherwise be uncommon for learners. Of the 20 participants in this dissertation study (n = 20), five (n = 5) participants had never provided any form of perinatal bereavement care for real-world patients and seven (n = 7) of the remaining participants experienced only 0-1 perinatal losses annually. PTG Theory describes the need to promote coping skills to minimize negative effects resulting from traumatic experiences (Tedeshi et al., 2018); role play through simulation created a safe route for perinatal nurses to learn about bereavement resources and techniques to promote coping. The statistically significant results of this study support the use of role play simulation to teach participants new bereavement skills,

support problem solving, and the analyze the unique situation presented when providing perinatal bereavement care.

Lack of Bereavement Education

Ravaldi et al. (2018) found that more than 75% (n = 506) of participants in their study had never participated in specific training for perinatal bereavement in the event of perinatal loss. Similarly, 50% (n = 10) of participants in this study had also never participated in specific perinatal bereavement training. With such high rates of participants not being offered bereavement educational opportunities, and the increase in nurse attitude scores when comparing the difference from pretest to posttest on the BEACONNS instrument, it can be concluded that nursing staff could benefit from hospital networks offering high-fidelity perinatal bereavement simulation as a learning opportunity to their perinatal nurses. The rarity of providing perinatal bereavement care was also discussed by Ravaldi et al. (2018), where it was found that approximately half of the participants in their study had cared for five or fewer families experiencing perinatal loss during their entire career. It was also found in their study that 6.3% (n = 43) had never given care to any perinatal loss patients during their career. The results of this dissertation study support these statistics. In this study, 25% (n = 5) of participants had never provided perinatal bereavement care, and while the number of perinatal loss cases for each participant's nursing career was not examined, 65% (n = 13) of participants had either no experience in perinatal loss or provided care to one or fewer patients experiencing perinatal loss annually. PTG theory presents the idea that when an individual experiences trauma, it can promote growth into a more capable and functional person when experiencing similar trauma again in the future. This study simulated perinatal bereavement care, allowing for rumination through debrief and growth, as evidenced by the increase in both nurse attitude and comfort

scores. This study shows that high-fidelity perinatal bereavement simulation can simulate trauma and growth for nurses who may not have had previous experience with providing bereavement care and who had never been offered bereavement education.

High-Fidelity Simulation is an Effective Educational Method

Bragard et al. (2019) examined the use of HFS with a debriefing session to simulate rare emergency situations in a pediatric emergency room. Although this dissertation study examined perinatal bereavement education, the main concept of using HFS to mimic rare medical conditions applies. Bragard et al. (2019) found that HFS improved the satisfaction of the participants' learned skills, decreased participant stress with future patients, and improved collaborative skills like interprofessional communication, prioritization of nursing tasks, and teamwork. This dissertation study builds on the results of Bragard et al. (2019) by showing a statistically significant improvement in participant attitudes about providing perinatal bereavement care which includes: comfort, the role of the nurse, and inclusion of family and friends in bereavement care. HFS was shown as an effective learning method to recreate the rare event of perinatal loss. HFS could promote growth that, when applied to real-world bereavement care in the future, could improve nurse outcomes and patient outcomes. PTG theory guided the creation of the HFS used in this study, to promote nurse growth after experiencing the trauma associated with perinatal bereavement.

Theoretical Framework: Nurse Attitude

The eighth major concept of Post Traumatic Growth Theory is post-traumatic growth: this is the main goal of PTG theory. PTG creates strength in the nurse and wisdom for future traumatic events they may experience. Step six in PTG theory was recreated through this study; it is rumination, or a purposeful reflection on traumatic events. Rumination allows a person to

gain insight and strength that can be applied in the future in the event of similar trauma (Tedeshi et al., 2018). This study supports post-traumatic growth through an improvement of perinatal nurse attitudes when providing bereavement care. Role play education through high-fidelity simulation was found to promote an increase, from pretest to posttest, in participant attitude scores using the BEACONNS instrument. Like the results of Ratislavova et al. (2019) and Bragard et al. (2019), learning through simulation in a high-fidelity environment could be applied as an effective learning approach to promote post-traumatic growth. This study builds upon post-traumatic growth theory by creating more support on how to create deliberate rumination safely for perinatal nurses who have experienced trauma through providing care to patients experiencing perinatal loss.

Understanding the role of the nurse during perinatal bereavement is a major concept for positive professional nurse attitudes and is an important step in post-traumatic growth. Sadly, many perinatal nurses are not formally trained in the role of bereavement nurse before being required to provide perinatal bereavement care. In this study, half of the participants (n = 10) had never been provided any formal perinatal bereavement education. Adding to the work of Ravaldi et al. (2018), this study found that perinatal bereavement education is lacking for many perinatal nurses who are responsible for caring for patients during the loss of their pregnancy or child. Both this study and the work of Ravaldi et al., (2018) build on the knowledge of PTG theory because of the need for resources that can be used to guide nurses to experience growth after undergoing occupational trauma, like perinatal bereavement. Participation in perinatal bereavement education was shown by this study and Ravaldi et al. (2018) to improve nurse outcomes, which could be applied to improving nurse outcomes associated with traumatic events, resulting in growth and improved skills to minimize future trauma.

Literature: Nurse Comfort

Nurses commonly state that enhanced training or mentoring in bereavement care is needed to improve interactions between staff and patients or families experiencing perinatal loss (Yenal et al., 2021). Nurses often feel unprepared for the trauma of perinatal loss due to the rarity of pregnancy loss and stillbirth in obstetrics. Caring for bereaved patients and families causes increased stress and strain on perinatal nurses. The second hypothesis for this study was that there is a statistically significant increase, from pretest to posttest, of the perinatal nurses' comfort scores providing bereavement care after participating in a high-fidelity perinatal bereavement simulation as measured by the BEACONNS instrument. Nurses who provide perinatal bereavement care are at risk for emotional, mental, and social distress (Qian et al., 2021). This dissertation study found a statistically significant increase in the difference in pretest to posttest scores using the BEACONNS instrument when measuring perinatal nurse comfort providing perinatal bereavement care after participating in a high-fidelity perinatal loss simulation. This study provides evidence that HFS could be applied to hospital networks to improve nurse comfort providing perinatal bereavement care, decreasing nurse risk for emotional, mental, and social distress. Caring for bereaved parents is emotionally demanding for perinatal nurses and is often complicated by the rarity of providing bereavement care (Hutti et al., 2019). As supported by this dissertation study, high-fidelity perinatal simulation could be applied to offer simulated perinatal bereavement experiences for nurses who rarely provide bereavement care and is likely to result in improved perinatal nurse comfort providing bereavement care to future patients. Perinatal nurse comfort could promote effective coping, PTG theory step five, by minimizing the negative effects of secondary trauma experienced through providing perinatal bereavement care.

Recent Studies: Nurse Comfort

There have been many previous publications that examine nurse comfort in different unique healthcare situations and the occupational traumas that nurses can experience through providing care to patients. This study was able to add to the previously contributed knowledge of several published studies through the major themes of professional trauma experienced by nurses and perinatal nurse discomfort providing bereavement care.

Perinatal Nurse Discomfort

Atienza-Carrasco et al. (2018) examined healthcare professionals who provided care to patients who had received an adverse prenatal diagnosis. Participants experienced feelings of lack of confidence and fear when communicating with patients who were given a difficult diagnosis during their pregnancy. Their negative feelings were theorized to have been influenced by a lack of bereavement education and skills. The results of this dissertation study support the idea that access to bereavement education could improve perinatal nurse comfort when providing bereavement care. There was a statistically significant increase in perinatal nurse comfort level providing bereavement care after participation in a high-fidelity perinatal bereavement simulation. The opportunity to participate in a high-fidelity perinatal bereavement simulation could improve perinatal nurse confidence and minimize fear of communication in the event of a difficult pregnancy diagnosis. Improved confidence and communication can be applied in the care of future patients experiencing perinatal loss and can minimize the negative effects of nurse occupational trauma experienced when providing bereavement care.

Nurse Professional Trauma

Gilart et al. (2021) examined the effects of professional trauma on nurses. It was found that nurses who experienced professional traumatic grief can experience negative physical,

mental, and social effects. Professional traumatic grief can be a result of providing perinatal bereavement care in the event of pregnancy loss or stillbirth. Common side effects of professional traumatic grief in nurses are helplessness, trouble sleeping, depression, fatigue, anxiety, frustration, and even PTSD. The results of this dissertation study build on the work by Gilart et al. (2021) by supporting the notion that providing bereavement care can be traumatic, but nurse comfort providing bereavement care could be improved through participation in a high-fidelity perinatal bereavement simulation. Improved nurse comfort can lead to professional growth through the steps of PTG theory that were simulated in the perinatal bereavement simulation and can be applied in future bereavement care with real patients.

Theoretical Framework: Nurse Comfort

The fifth concept of Post-Traumatic Growth Theory is successful coping (Tedeshi et al., 2018). As a nurse participates in rumination after a traumatic event, they can achieve successful coping through acceptance of the traumatic event and effective management of their emotions. There was a statistically significant increase in scores from pretest to posttest when measuring perinatal nurse comfort after participation in a high-fidelity perinatal bereavement simulation. Nurses have been shown to experience secondary trauma from providing care to patients who experience trauma themselves, and sadly, this is often considered an occupational hazard for this chosen career (Kelly, 2020; Gilart et al., 2021). This study and the published study from Atienza-Carrasco et al. (2018) support the perception that providing perinatal bereavement care can be uncomfortable for nurses. This discomfort could be increased by a lack of education provided to perinatal nurses. This dissertation study adds to PTG theory by supporting the idea that perinatal loss education can be used to simulate the stages of PTG theory and promote nurse comfort with perinatal loss and stillbirth care.

Implications

There are several implications for the results of this study moving forward. The data collected in the study is current and unique to other research studies previously published. The results can be applied to both nurse and patient outcomes in the future and begin to close the gap in knowledge surrounding the use of high-fidelity perinatal bereavement simulation as a learning method for perinatal nurses.

Addition of Knowledge

There is a gap in research regarding the use of simulation as a learning method for perinatal nurses who provide bereavement care. The results of this study support the use of high-fidelity perinatal bereavement simulation to improve perinatal nurse attitude and comfort levels when providing perinatal bereavement care. HFS has been shown to provide scenarios that are standardized for learners, especially in the event of rare medical conditions. Perinatal loss is considered uncommon in perinatal medicine with many perinatal nurses never having provided bereavement care during their career. The demographics of this dissertation study support that many nurses have little to no experience with perinatal bereavement care (n = 13) and that a standardized bereavement simulation can present a high-fidelity learning environment. Technology in nursing education is a common area of research as technology continues to evolve over time. Simulation of rare and emergent situations within a safe learning environment is becoming increasingly common in healthcare (Ward & Hober, 2020). This dissertation study closes the gap in research on whether perinatal bereavement can successfully be recreated in a safe and standardized learning environment while promoting positive participant outcomes. This study also supports the use of simulation to present fetal or newborn demise as a healthcare phenomenon. Zelop et al. (2019) found that pregnancy loss and stillbirth create a unique socio-

economic environment that is unique and creates feelings unexhibited in any other medical scenario. This study stands to suggest that this unique medical scenario can be standardized and simulated for educational purposes and can result in positive patient outcomes in connection to perinatal nurse attitudes and comfort providing perinatal bereavement care.

Post Traumatic Growth Theory

This study builds upon the concepts included in PTG theory. Healthcare workers can experience trauma resulting from caring for bereaved parents who are experiencing pregnancy loss or stillbirth (Salgado et al., 2021). PTG theory explains a natural process humans can experience after trauma that promotes growth because of the traumatic events. This study focuses on concepts five, six and eight of the PTG theory which include rumination and improved coping. After experiencing trauma, reflection or rumination on the event in a safe environment can help a person to process the event and build coping skills that can be applied to future traumatic events. The development of a deeper understanding of trauma and applying healthy coping skills is what the theory creators consider "growth" (Tedeshi et al., 2018). This dissertation study used high-fidelity bereavement simulation to mimic concepts five, six, and eight in a safe and standardized environment. The process of debriefing a simulated perinatal loss allowed participants to safely practice rumination of the events. Participants built physical and emotional skills from the event that could be applied to improve their future role as a nurse who provides perinatal bereavement care. Research shows that providing perinatal bereavement care is traumatic for nursing staff (Broden & Uveges, 2018); however, simulating the steps of PTG theory through participation in a HFS could improve both nurse outcomes and, as a result, patient outcomes.

Spelvins et al. (2009) described how, after experiencing trauma, a person may begin to question their core assumptions and may have to reevaluate their personal beliefs. It was also found that post-traumatic healing can be promoted through access to materials on navigating trauma. Post-traumatic healing and growth are the main goals of PTG Theory. The bereavement education information used in the high-fidelity perinatal bereavement simulation in this dissertation study applied evidence-based best practices for holistic perinatal bereavement care and resources for patients and staff. The results found in this study build on the work of Spelvins et al. (2009) to support the use of high-fidelity perinatal bereavement simulation as a method for post-traumatic healing and growth through the application of evidence-based practices in the perinatal simulation prebrief and debrief steps. Participation in a high-fidelity perinatal bereavement simulation that includes evidence-based practices and educational materials can improve nurse participant attitude and comfort when providing perinatal bereavement care. Nurses must be given the methods needed to provide high quality perinatal bereavement care that support the holistic needs of patients, their families, and the community.

Real-world Applications

There are several real-world applications for the results of this study. There is a direct connection between the results found and the ability to improve perinatal nurse attitudes and comfort providing bereavement care. However, the results could also be applied to improve patient outcomes through promotion of perinatal nurses who are more comfortable and have an improved professional attitude when providing real-world perinatal bereavement care in the future. Improvements could also be seen by society through the application of community resources, as a result of more competent and comfortable perinatal nurses who have a better

understanding of their role as a nurse and the importance of inclusion of support systems in perinatal bereavement care.

Perinatal Nurses

This study contributes to the discipline of nursing by providing evidence that high-fidelity perinatal bereavement simulation can be used as a learning method that could improve perinatal nurse attitudes and comfort while providing bereavement care. Providing EOL care has been shown as traumatic for nursing professionals and can lead to moral distress, burnout, emotional fatigue, depersonalization, contempt, detachment from patients or their support people, and questioning their value as a healthcare professional (Broden & Uveges, 2018). Since perinatal bereavement simulation requires participants take part in life-like learning in the event of pregnancy loss or stillbirth, it is possible to improve problem solving skills, gain new knowledge, and analyze uncommon healthcare situations in a way that promotes the development of more confidence and competence (Ratislavova et al., 2019). The study results should offer a high level of generalizability to the target population, perinatal nurses in the United States, because the selected health network is the largest nonprofit healthcare system in the country and currently provides services in 19 states and Washington, DC. Despite the smaller sample size, the results support the need for continued bereavement education for perinatal nurses and support high-fidelity perinatal bereavement simulation as an acceptable educational method.

Patients

Parental bereavement is complicated and requires unique care that supports the parents with coping and processing the traumatic event. Poor knowledge and communication skills can create barriers between perinatal nurses and their patients when providing bereavement care.

This can often lead to dissatisfaction in patient care (Atienza-Carrasco et al., 2018). The results of this study support the use of high-fidelity perinatal bereavement simulation as a learning method to improve perinatal nurse attitudes and comfort providing bereavement care. Improved bereavement care could, in turn, improve patient outcomes by allowing for a better healing process for patients. One area that could be improved in perinatal bereavement care is through legacy creation, a major learning objective of the applied high-fidelity perinatal simulation. Legacy creation can help parents to feel a sense of control in their own bereavement process and includes holistic physical, spiritual, and emotional care (Paraiso Pueyo et al., 2021). Parents could be able to find meaning and comfort after their loss through the creation of a deeper legacy and connections to their child, guided by the perinatal nurse with a high level of comfort and a positive attitude toward providing bereavement care.

Society

The results of this study can be applied to society at large by including extended family members and community resources in perinatal bereavement care. Part of the BEACONNS instrument used for this study to measure nurse attitude providing bereavement care includes a section on the inclusion of family in the care of the bereaved parents and infant. A statistically significant increase in perinatal nurse attitudes providing bereavement care supports the idea that participation in high-fidelity perinatal simulation could improve perinatal nurse comfort and the ability to include family members in the care of the patient and infant as a main support system. Research shows that parents experiencing perinatal loss or stillbirth require support from their partner, family, and friends to navigate the grief process (Paraiso Pueyo et al., 2021).

Social support is critical for the healthy processing of trauma; however, perinatal loss is not always supported culturally. The high-fidelity perinatal bereavement simulation used in this

study applied globally accepted, evidence-based best practices for bereavement care that encompassed the cultural differences of patients. A cultural change is occurring where there is more societal support through family, friends, and support groups (Meyer et al., 2018). Perinatal nurses with improved levels of comfort and attitudes can help patients navigate postpartum resources and support groups, as evidenced by learning objective five from the implemented high-fidelity perinatal bereavement simulation.

Limitations

There are several limitations to the presented study, including both internal and external threats to validity. The first internal limitation is the small sample size of the study. It was estimated that a minimum sample size of 45 participants would be required to achieve a medium effect size; however, data from 20 participants was collected and analyzed. The original IRB approvals through Liberty University and the chosen hospital network included data collection from three hospital sites. After participant recruitment at all three original sites, only the first two sites had perinatal nurses volunteer for participation in the study.

After data collection at the two remaining hospital sites, a nation-wide cybersecurity attack occurred. The cybersecurity attack created a massive security breach through the entire hospital network and crashed the computer systems at all their hospitals. Leadership in the chosen hospital network determined continued data collection could pose a threat to patient security and felt that participation in a voluntary study would add to the terrible emotional turmoil being encountered by the networks' perinatal nurses as they navigated changing to a paper charting process and new protocols for daily patient care.

Two weeks before the cybersecurity attack, IRB modifications had been submitted by the researcher to expand the study to two larger hospitals in the chosen hospital network with the

goal of reaching the minimum estimated participant sample of 45 nurses. Due to the loss of computer networks, all IRB modifications and current study requests were lost. Modifications sent to the network IRB would have to be recreated on paper and submitted for a formal review. The IRB representative was unable to give a timeline for modification approval due to the new paper processes. When the researcher attempted to get a timeline for continuation of data collection at the three initially approved hospital sites, a finite timeline could not be given, but an estimate was provided of a minimum of four months before the hospital network would be back online and secure. Due to the inability to continue to collect data in the chosen hospital network and having no connections to any other hospital network, data collection was stopped, and data analysis was completed on the previously collected 20 participants.

Another internal validity threat was one participant completing the pretest more than seven days before participating in the high-fidelity perinatal bereavement simulation. One participant had been assigned a simulation time, but due to unforeseen circumstances, could not participate in the simulation until a later date. This testing limitation could have influenced the posttest score of this participant in comparison to the other participants. Sending the pretest link only after the participant was scheduled for a simulation time was designed to prevent this testing limitation.

There was an internal threat to validity during the analysis of study data. There was one outlier found when analyzing perinatal nurse comfort after participation in a high-fidelity perinatal bereavement simulation. The single outlier was removed due to the small sample size of the study and the extreme increase in participant posttest comfort score when compared to pretest score. Leaving the outlier could have had a major impact on study results; the study results are more accurate after the removal of the single outlier. Additionally, failure to remove

the outlier would have resulted in the need to apply a nonparametric statistical analysis, rather than the paired-samples *t*-test.

The final threat to internal validity was the demographics of the participants who completed the study. Of the 20 participants, over half (n = 11) have 0-2 years of perinatal nurse experience, making the sample predominantly inexperienced perinatal nurses. Also, the study sample only included female participants. Perinatal nurses are predominately female; however, inclusion of male subjects could have influenced study results. Finally, the study sample included mostly perinatal nurses with a BSN (n = 16) and only a few nurses with an ASN (n = 4). No nurses with graduate degrees were included in the study, nor were any certificate level or doctoral level nurses.

The first external threat to validity is that data was collected from one hospital network. Although the included hospital network is the largest nonprofit healthcare system in the country and currently provides services in 19 states and Washington, DC, the results would be more generalizable to the target population if data was collected from more than one network. On the same note, data was only collected from two hospitals in one of the 19 in-network states. Inclusion of more hospitals and more states would also make the results more generalizable to the target population.

The next external threat to validity is that the sample was composed of volunteers for the study, and the volunteers were compensated with a gift card and snack bag for participation. Compensation and a convenience sample of volunteers could influence test scores. To minimize these effects, compensation was minimal, equaling no more than $20 per participant, and all perinatal nurses at the three approved hospitals were given the opportunity to volunteer to participate in the study, if they met the inclusion criteria.

The final external threat to validity is that the researcher is an employee of the chosen hospital network. As an employee, coworker, previous clinical educator, and travel nurse associated with the chosen hospital network, the researcher had many professional connections to the study sites. This could have caused study bias through the study participants knowing the researcher professionally, and possibly could have influenced the results of the study, in either a positive or negative way. Participant bias associated with a professional relationship with the researcher was minimized through maintaining a professional learning environment, ensuring a standardized bereavement simulation, and recruitment at staff meetings led by unit leadership to maintain professionalism.

Recommendations for Future Research

There are several areas of this study that could be expanded to add more to the current knowledge base around perinatal bereavement education. Due to the small sample size of this study, future research examining perinatal bereavement simulation should be expanded to include more participants. The estimated minimum sample size of the study was calculated to be 45 perinatal nurses. Future research into this topic using a larger sample size would provide more accurate results. A more diverse sample of nurses with a wider range of experience levels would also produce more applicable results.

Future research into perinatal bereavement simulation as a learning method to increase perinatal nurse attitudes and comfort providing bereavement care would be more generalizable using multiple hospital networks. Different networks have different bereavement protocols and practices. Recreating this study on a larger scale with multiple healthcare networks would provide more generalizable results to the population of perinatal nurses to provide perinatal bereavement care. It could also be beneficial to repeat this study with nondenominational

healthcare networks because the chosen healthcare network is a Christian system. Faith-based health systems have different spiritual resources and policies than many non-faith-based systems, leading to a need for future research that includes data from both religious and non-religious networks.

Another recommendation for future research is to implement a neutral external facilitator who is not in the role of researcher. This would help to minimize bias amongst the participants who have a professional relationship with the researcher. If an external facilitator is not possible, completing data collection in a hospital network where the research has no personal or professional connection would prevent bias from relationships between the researcher and volunteer participants.

Continued research is recommended into more effective perinatal bereavement education that promotes nurse comfort and improved attitudes toward providing bereavement care. Horey et al. (2021) discussed the importance of continuing research that examines the use of different trainings and technologies to improve patient outcomes related to bereavement. This study supports the use of high-fidelity perinatal bereavement simulation to achieve improved comfort and nurse attitudes; however, research into more time-effective and cost-effective education options would be beneficial in the future. Research would also benefit in the future from examining the application of perinatal bereavement education into new nurse orientation on perinatal units. A majority of the sample in this study were nurses with 0-2 years of perinatal nurse experience (n = 11), considered novice nurses. Also, half of all participants had never been offered or participated in any bereavement education (n = 10). By adding perinatal bereavement education to new nurse orientation, future research could examine if nurse and patient outcomes improve with the addition of EOL curriculum.

High-fidelity Simulation

Finally, a recommendation for future research is to continue to examine the effectiveness of high-fidelity simulation in other rare or uncommon medical conditions. Several other studies support the application of HFS as a learning method; however, more research into using HFS in obstetrics and neonatal health should be completed. Maintaining a high-fidelity learning environment can be difficult in a healthcare setting, where a simulation center is not typically available. Future research into HFS could also examine the simulation environment itself and how to better create a high-fidelity environment in a hospital setting.

Summary

The purpose of the study was to examine if high-fidelity perinatal bereavement simulation is an effective method to increase nurse comfort and improve nurse attitudes toward providing perinatal bereavement care. A discussion of current literature, recent studies, and Post Traumatic Growth Theory adds to the importance of results of this study and how the results can be used to build upon current knowledge. Improved perinatal nurse attitudes and comfort could promote effective coping by minimizing the negative effects of secondary trauma experienced through providing perinatal bereavement care. There are also multiple implications for the study including real-world relevance for nursing professionals and patient outcomes. The results could also be applied to improve patient outcomes through promotion of perinatal nurses who are more comfortable and have an improved professional attitude when providing real-world perinatal bereavement care in the future. Finally, an examination of the limitations of the study guides recommendations for continued future research, including repetition of the study with a larger sample and the participation of multiple hospital networks**.**

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APPENDIX A

The Bereavement End-of-Life Attitudes About Care: Neonatal Nurses Scale (BEACONNS)

Comfort Scale	
1. Allowing families to hold their dying or dead infant	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
2. Allowing families to participate in post-mortem care of their infant	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
3. Appropriately touching grieving family members as a way of showing your care and concern	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
4. Assisting families in experiencing the pain of grief	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
5. Caring for the family of a dying infant	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
6. Contacting families after their infant has died in your unit	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
7. Discussing autopsy or organ donation with families of dying infants	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
8. Discussing funeral arrangements with patients' families	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable

9. Discussing withdrawal of life support/therapy with patients' families	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
10. Dressing the dying/dead infant rather than leaving the infant nude or covering him or her with just a blanket	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
11. Families who cry or are otherwise verbal around the time their infant is dying	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
12. Getting together with other staff members who cared for a deceased infant to share food, talk about the death, and discuss your reactions to it	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
13. Helping peers learn to provide culturally-sensitive and competent bereavement/end-of life care	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
14. Participating in closure or grief conferences with families and other caregivers after the death of an infant	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
15. Providing culturally-sensitive bereavement/end-of-life care for families of culture other than your own	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
16. Providing postmortem care for your patients	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
17. Sitting with parents and listening as they express their grief	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable

18. Talking to families about grief and bereavement issues	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
19. Talking to friends of the deceased infants' family about the grief process and what to expect	1- Very Uncomfortable 2- Uncomfortable 3- Neutral 4- Comfortable 5- Very Comfortable
Role Scale	
1. I am comfortable explaining to family members equipment or the way the infant looks	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
2. I make sure the family knows my name when I care for their infant	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
3. The role of the nurse is very important in providing support to families of critically-ill infants on a daily basis	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
4. I am comfortable discussing with patients' family members how the members are coping with having a critically-ill infant	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
5. I relieve other neonatal intensive care unit nurses so they can go out and talk to their patients' families	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
6. It is realistic to expect staff nurses to care for the emotional needs of families of critically-ill infants	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
7. I have the necessary knowledge and skills required to meet the psychosocial and emotional needs of families of critically-ill infants	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree

8. I am comfortable having patients' family members watch me do procedures	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
9. I am comfortable talking to families about their infant's progress	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
10. I am comfortable allowing siblings of the patient to visit outside specified visiting hours	1- Strongly Disagree 2- Disagree 3- Neutral 4- Agree 5- Strongly Agree
Involvement Scale	
1. A family whose infant has just died	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
2. A dying infant	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
3. When there is a language or cultural barrier between you and the family	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
4. A receptive family	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
5. When you are unsure of what information the physician or advance practice nurse has given the family	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
6. A family being supported by others	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important

7. When you are dealing with a very young parent	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
8. You're feeling supported by other people	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
9. Your own high stress level	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
10. When you are unsure of your nursing skills in a particular case	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
11. A busy unit	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
12. When you disagree with the treatment your patient is receiving	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
13. Expectations of nursing leaders in your unit and/or hospital	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important
14. Expectations of your peers	1- Very Unimportant 2- Unimportant 3- Neutral 4- Important 5- Very Important

APPENDIX B

Recruitment Speaking Outline

Hello Potential Participant,

As a graduate student in the School of Nursing at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to examine whether high-fidelity bereavement simulation can be implemented as a tool for improved attitudes and level of comfort when providing perinatal bereavement care. If you meet my participant criteria and are interested, I would like to invite you to join my study.

Participants must be 18 years of age or older, speak and read the English language, must work as a perinatal nurse at one of the selected hospitals ([redacted]), and cannot currently be on orientation. Participants, if willing, will be asked to take a pretest (12-15 minutes), participate in a high-fidelity bereavement simulation (1-hour), and complete a posttest (8-10 minutes). The only identifying information requested as part of this study will be your [redacted] email address, but the information will remain confidential.

Would you like to participate?

[Yes] Great, could I get your email address so I can send you the link to the survey and instructions for signing up for a simulation time?

[No] I understand. Thank you for your time.

A consent will be emailed to all perinatal nurses on the unit and can be signed digitally if you choose to participate. consent document contains additional information about my research. After you have read the consent form, please type your name to indicate your participation in the study.

Participants will receive a $10 gift card to Starbucks or Amazon (participant's choice) and a goodie bag of snacks for their time.

Thank you for your time. Do you have any questions?

APPENDIX C

Recruitment Email

Subject Line: Participation in a Perinatal Bereavement Simulation Study

Dear Potential Participant

As a graduate student in the School of Nursing at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to examine whether high-fidelity bereavement simulation can be implemented as a tool for improved attitudes and level of comfort when providing perinatal bereavement care. If you meet my participant criteria and are interested, I would like to invite you to join my study.

Participants must be 18 years of age or older, speak and read the English language, must work as a perinatal nurse at one of the selected hospitals ([redacted]), and cannot currently be on orientation. Participants, if willing, will be asked to take a pretest (12-15 minutes), participate in a high-fidelity bereavement simulation (1-hour), and complete a posttest (8-10 minutes). The only identifying information requested as part of this study will be your [redacted] email address, but the information will remain confidential.

Please contact me at [redacted] or by phone at [redacted] with any questions.

The study consent form has been sent using DocuSign to maintain confidentiality of participants. The consent document also contains additional information about my research. After you have read the consent form, please type your name, sign and date to indicate your participation in the study.

Participants will receive a $10 gift card to Starbucks or Amazon (participant's choice) and a goodie bag of snacks as compensation for their time after completion of all three study procedures.

Sincerely,

Victoria Johnson, RNC-OB, MSN

[redacted]

Study Sponsor: [redacted]
IRB contact email: [redacted]

APPENDIX D

Consent
[redacted] Network

Title of the Project: THE EFFECTS OF HIGH-FIDELITY BEREAVEMENT SIMULATION ON PERINATAL NURSE ATTITUDE AND COMFORT WITH PROVIDING BEREAVEMENT CARE FOR PATIENTS EXPERIENCING PERINATAL LOSS

Principal Investigator: Victoria Johnson, Doctoral Candidate, School of Nursing Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be at least 18 years of age, speak and read the English language, work as a perinatal nurse at one of the selected hospitals ([redacted], [redacted], or [redacted]), and cannot currently be on orientation. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to examine whether high-fidelity bereavement simulation can be implemented as a tool for improved attitudes and level of comfort when providing perinatal bereavement care.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following:

1. First, you will be asked to take a virtual pretest provided through a secure email link. The pretest will take approximately 12 - 15 minutes to complete.
2. Second, you will participate in a high-fidelity bereavement simulation. The simulation process will take approximately 1 hour.
3. Finally, you will take a posttest survey provided through a second secure email link. The posttest will take approximately 8 - 10 minutes to complete.

How could you or others benefit from this study?

The direct benefit participants should expect to receive from taking part in this study include a better understanding of the role of perinatal bereavement simulation on perinatal nurses. This research will potentially help perinatal nurses have better access to bereavement education, providing more tools for them to learn and better support their patients.

Benefits to society include improved patient outcomes by promoting a higher quality of perinatal bereavement care for parents experiencing perinatal loss.

What risks might you experience from being in this study?

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life. The risks involved in this study include the possibility of psychological stress from being asked to recall and discuss prior trauma. To reduce risk, I will provide information on bereavement support resources and continued education opportunities for participants.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be kept confidential by replacing names with pseudonyms.
- Confidentiality cannot be guaranteed in debriefing settings which will be implemented during the process of the simulation. While discouraged, other participants who share in debriefing may share what was discussed with people outside of the group.
- Data will be stored on a password-protected Google Drive in the [redacted] Network System, a password-protected computer, and Qualtrics. After three years, all electronic records will be deleted.

How will you be compensated for being part of the study?

Participants will be compensated for participating in this study. At the conclusion of the posttest, participants will receive a $10 Amazon or Starbucks gift card (the participant's choice) and a goodie bag of snacks. Any participant who chooses to withdraw from the study after beginning but before completing all study procedures will not receive the gift card and goodie bag of snacks.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or the Ascension Health Network. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data

collected from you, aside from debriefing data, will be destroyed immediately and will not be included in this study. Debriefing data will not be destroyed, but your contributions to the debriefing will not be included in this study if you choose to withdraw.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Victoria Johnson. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted] and/or [redacted]. You may also contact the researcher's faculty sponsor, Dr. Shelly Blackwood, at [redacted]

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, [redacted]; our phone number is [redacted], and our email address is [redacted].

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the IRB for [redacted] Network at [redacted]

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

_____

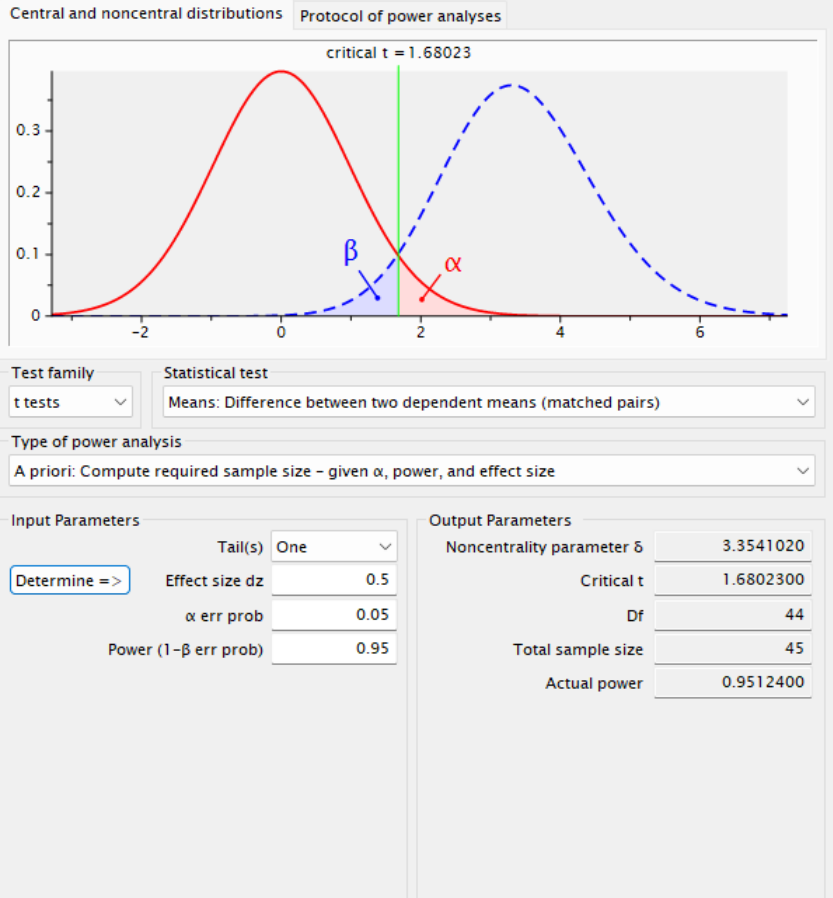
Printed Subject Name

_____

Signature & Date

APPENDIX E

A Priori



***t*-tests** – Means: Difference between two dependent means (matched pairs)

Analysis:	A table: Compute required sample size		
Input:	Tail(s)	=	One
	Effect size dz	=	0.5
	α err prob	=	0.05
	Power (1−β err prob)	=	0.95
Output:	Noncentrality parameter δ	=	3.3541020
	Critical t	=	1.6802300
	Df	=	44
	Total sample size	=	45
	Actual power	=	0.9512400

APPENDIX F

On Oct 20, 2022, at 8:52 PM, Johnson, Victoria Jule <vjohnson142@liberty.edu> wrote:

*Message sent from a system outside of [redacted]

Dr. [redacted],
My name is Victoria Johnson, and I am a PhD candidate from Liberty University, Lynchburg VA. My PhD dissertation will be examining the effect of high-fidelity bereavement simulation on perinatal nurse comfort with providing perinatal bereavement care. I would like to ask permission to use your Bereavement/End-of-life Attitudes About Care: Neonatal Nurses Scale (BEACONNS) instrument for my data collection. The proposed one-group pre- and posttest designed study will measure perinatal nurse comfort providing bereavement care before and after participation in the high-fidelity bereavement simulation created using evidence-based practices and simulation standards created by the International Nursing Association for Clinical Simulation and Learning (INACSL).

I am grateful for your time and consideration. Appropriate acknowledgement and citation of your work will be included in my dissertation with your permission to use the BEACONNS instrument.
Thank you,
Victoria Johnson RNC-OB, MSN

You have my permission and I wish you success in your scholarly endeavors.

Sent from my iPhone
[redacted]

APPENDIX G

IRB Approvals

Date: 11-19-2023

IRB #: IRB-FY23-24-236

Title: THE EFFECTS OF HIGH-FIDELITY BEREAVEMENT SIMULATION ON PERINATAL NURSE ATTITUDE AND COMFORT WITH PROVIDING BEREAVEMENT CARE FOR PATIENTS EXPERIENCING PERINATAL LOSS Creation Date: 8-12-2023 End Date:

Status: Approved

Principal Investigator: Victoria Johnson

Review Board: Research Ethics Office Sponsor:

Study History

Submission Type Initial	Review Type Limited	Decision Exempt - Limited IRB

Key Study Contacts

Member Victoria Johnson	Role Principal Investigator	Contact [redacted]
Member Victoria Johnson	Role Primary Contact	Contact [redacted]
Member Shelley Blackwood	Role Co-Principal Investigator	Contact [redacted]

Initial Submission

INSTITUTIONAL REVIEW BOARD
NOT HUMAN SUBJECTS RESEARCH

To: Victoria Johnson

From [redacted] Institutional Review Board
Date: August 17, 2023

On 8/17/2023, the IRB reviewed the following submission and determined that the proposed activity is not research involving human subjects as defined by DHHS/FDA regulations.

Type of Review:	Initial Study
Title:	THE EFFECTS OF HIGH-FIDELITY BEREAVEMENT SIMULATION ON PERINATAL NURSE ATTITUDE AND COMFORT WITH PROVIDING BEREAVEMENT CARE FOR PATIENTS EXPERIENCING PERINATAL LOSS
Investigator:	Victoria Johnson
IRB Study ID:	RIN20230104
Funding:	Name: 01Unfunded
Documents Reviewed:	See list at close of letter below signature line

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving humans in which the organization is engaged, please submit a new request to the IRB for a determination. You can create a modification by clicking **Create Modification / CR** within the study workspace in the [redacted] eIRB system.

Documents Reviewed for this Submission:

- [redacted] QA-QI worksheet.docx, Category: Other;
- Bereavement Resources and Training.docx, Category: Other;
- Perinatal Loss and Bereavement Simulation.pptx, Category: Study Tools (Data Collection Sheet, Surveys, etc.);

- Posttest, Category: Study Tools (Data Collection Sheet, Surveys, etc.);
- Pretest, Category: Study Tools (Data Collection Sheet, Surveys, etc.);

- Recruitment Email.docx, Category: Recruitment Materials;
- Simulation Resource for Participants- CLASS Checklist, Category: Other;
- Victoria Johnson Study Protocol.docx, Category: IRB Protocol;

APPENDIX H

Qualtrics Anonymous Links

Pretest
https://liberty.co1.qualtrics.com/jfe/form/SV_eVWNJkru6qvwqfc

Posttest
https://liberty.co1.qualtrics.com/jfe/form/SV_8dpmoRdg4eJVWNU

APPENDIX I

Simulation Facilitator Speaking Notes

Slide 1: Have slide 1 on the screen for participants to see as they enter the learning environment

Slide 2: Review the agenda

Slide 3: Take a moment to thank the participants for choosing to join the study and welcome them to the learning space

Slide 4: Take a moment to introduce yourself as the simulation facilitator. This will give you the opportunity to build trust and rapport with the simulation participants. They need to know you are competent in perinatal loss and bereavement care.

Slide 5: Participants will have been sent a link to complete the BEACONNS pretest and demographic data information. If a participant has not completed the pretest, they are still welcome to complete the simulation; however, they will not be able to complete the posttest for data collection.

Slide 6: This is a safe learning environment and there are no consequences for the actions taken during the simulation. This is not a graded session. Participants should be comfortable taking risks without fear of negative consequences. Please maintain a "fiction contract" which means that everyone who participates will use their best judgement and reasoning with providing care to the patient and that you will treat the simulation just like you would be treating a living patient. All information and actions made during the simulation will be kept confidential between the simulation participants and the facilitator. Please use respectful communication to each other and your simulated patient to maintain a professional learning environment. Do not be afraid of making mistakes. Mistakes are simply opportunities to learn and make improvements that can help you in your role as a perinatal nurse and can improve patient outcomes. Remember, "What happens in simulation, stays in simulation."

Slide 7: This is a safe learning space that will remain judgement free. We are all here to learn and grow together. Please maintain professionalism through the entire simulation and ensure you are practicing within your scope of practice. Do not ask your facilitator questions during the simulation, this will interfere with maintaining a high-fidelity learning environment.

Slide 8: Important terms to know before participating in bereavement education:

Palliative Care: Care that begins during pregnancy and ends at time of death that focuses on pain/symptom management of the infant rather than treating with the goal of extending life.

Grief: One symptom of bereavement that includes the emotional response that results from the loss of a loved one

The Role of the Nurse: The role of the nurse is to recognize and promote best practices for bereavement care and to provide holistic interventions supporting the physical, mental, emotional, and spiritual wellbeing of the bereaved parents.

Coping: The ability to process perinatal loss, the circumstances around the loss, and the consequences of the loss

Slide 9: An international study examined best practices for providing perinatal bereavement care globally (Salgado et al., 2021). The role of the perinatal nurse with providing perinatal bereavement care includes several levels of intervention for the bereaved parents:

Level one: professional qualification through education to provide bereavement care, supporting the emotional and psychosocial needs of the patients, and having effective and efficient communication with other staff members.

Level 2: Ensuring individual accommodations specific to the needs of each patient, memory collection through legacy creation, ensure the infant's remains care kept in a cool environment to slow decomposition, and place memory items in a safe place like a memory box.

Level 3: ensure privacy, individualized care, clear and respectful communication, informed decisions for all choice to be made by the parents, evidence-based care practices, never make assumptions about the wishes of the bereaved, and ensure continuous care that extends past discharge.

Level 4: Allow the parents to be active participants in their birth process and support their choices on how to birth, encourage the parents to see and hold their baby, all parents to say goodbye to their child, ensure the memory box is organized to keep all keepsakes safely inside, have open communication with parents about their wishes for their child's remains, and inform the parents of all their care and burial options

Level 5: Work to create positive memories, the time parents have with their child is short and cannot be repeated.

Level 6: Support a plan of care that will help the parents to have a healthy perinatal bereavement that promotes long-term healing.

Slide 10: There are several ways perinatal staff members can create a legacy for the baby who has died. Taking photographs of the child and their parents helps to memorialize their time spent together. Immersion photography is a helpful tool for babies who are premature or have been deceased for some time because immersion in sterile water or saline can make the infant look more lifelike and mimics what they looked like in the womb. Molds or prints of the child's hands create legacy creation because they help parents to remember the smaller details of their child and provide them with tangible representations of the child for future reminiscence. Memory boxes with mementos like blankets or stuffed animals are important for parents as they represent childhood and the innocence of their child, with the memory box remains a safe place for legacy creations

to be kept for the future. Finally, parents should be encouraged to hold their child and to dress and bathe the infant. This helps the parents to recognize their role as parents despite their infant having passed away.

Slide 11: Review the general objectives for the simulation with the participants before the simulation begins.

Slide 12: Review the learning objectives

Slide 13: All participants must be oriented to the simulation space. They should be shown all physical resources, the general functions of the simulator, and know the available hospital resources they could use during the simulation.

Slide 14: Keep patient history on screen through simulation for participant references

Slide 15:

1: Have the participants provide a BRIEF summary of what was done during the simulation.
   1. Give a brief summary of this patient and what happened in the simulation.
   2. How did you feel throughout the simulation experience?

2: Have the participants reflect on their actions during the simulation
   1. Discuss how you were able to promote legacy creation after the perinatal loss.
   2. Was respectful bereavement care provided?
   3. Did the patient(s) express any abnormal grief responses?
   4. What resources would you provide for the patient(s) after discharge?
   5. What other members of the care team should you consider important to achieving good care outcomes?
   6. How did you communicate therapeutically with the patient?

3: Allow some time for participants to discuss their personal feelings and experiences related to the simulation or actual patients they had requiring perinatal bereavement care.
   1. What did you learn from this experience?
   2. Is there anything else you would like to discuss?

Slide 16: Complete a brief education session that is specific to your institution regarding required charting, paperwork, policies, and procedures in place to help perinatal nurses provide perinatal bereavement care.

Slide 17: review the summary of supportive guidelines regarding perinatal bereavement

Slide 18: review the summary of supportive guidelines regarding perinatal bereavement

Slide 19: review the summary of supportive guidelines regarding perinatal bereavement

Slide 20: review what to do when there is a stillbirth, neonatal death, or imminent neonatal death

Slide 21: Give the participants time to complete their posttest that will be in their email

Slide 22: Ensure all participants receive their goody bag of snacks and $10 gift card for their participation.

APPENDIX J

Bereavement Resources and Training Opportunities: Indiana

Location	URL	Services
Riley Children's Hospital: Indiana University Health	Grief & Bereavement Services | Riley Children's Health (rileychildrens.org)	**Grief and Bereavement Services** • Individual and Family Grief Counseling • Grief Support Groups for Adults and Children • Specialized Grief Workshops • Telephone Consultations • Grief Education Materials
Indiana University Health	Grief Counseling | IU Health	**Grief Counseling** • Anticipatory Grief Support • Bereavement Support Groups • Grief Counseling After Loss of a Child • Grief Counseling for Hospice Patients • Grief Counseling for Friends and Extended Family • Referrals to Outside Resources

Community Health Network	Grief and Bereavement Services | Community Health Network (ecommunity.com)	**Grief and Bereavement Services**
		• Grief Support Groups for Loss
		  ○ Loss of a Parent
		  ○ Loss of a Child
		  ○ General Grief and Loss
		  ○ Loss of a Sibling
		  ○ Loss of a Spouse

Franciscan Health Network	Caring Companions Program | Franciscan Health	**Caring Companions Program** **For women who have recently lost a child to miscarriage, stillbirth or neonatal death, Franciscan Health Indianapolis offers support and comfort with our Caring Companions service.**
St. Vincent Ascension Health Network	Perinatal and Infant Loss Training-Indianapolis | Ascension Events	**Perinatal and Infant Loss Training** **This comprehensive program, offered by the St. Vincent Center for Perinatal Loss, provides insights, knowledge, and hands-on experience to gain the skills necessary to interact with families experiencing perinatal loss.**