Original Article

Evaluation of an education session using standardized patients and role play during perinatal bereavement

Giovanna Sorce, Jill Chamberlain*

Memorial Medical Center, 701 North First Street, Springfield, IL, 62781, USA

ABSTRACT

Nurses have voiced their lack of comfort during perinatal loss and communicating with families during this period. A mid-western organization provided bereavement education to its perinatal nurses, which included a didactic session, followed by two perinatal loss scenarios with standardized patients, and debriefing. Participant's knowledge ($p = 0.000$) and comfort ($p = 0.000$) levels significantly improved after the education session. Observations during the standardized patient scenarios, demonstrated that the majority of nurses used appropriate communication techniques with the bereaved mother that was reviewed throughout the education session. An education session that includes standardized patients acting out a perinatal loss may be an effective approach in promoting perinatal nurses comfort level in providing effective bereavement care and communication.

1. Introduction

The death of an infant, whether before birth or shortly after birth is perhaps one of the most devastating events in a parent's life. Perinatal loss is often regarded as the most painful form of bereavement because it is often sudden, unexpected, and many times unexplained (Chan and Arthur, 2009). Perinatal loss includes miscarriage, stillbirth, or neonatal death and is a major, but often overlooked, public health problem (MacDorman and Gregory, 2015).

The March of Dimes (2016) reports that 10–15% of pregnancies end in miscarriage. In the literature, the percentage of pregnancies ending in miscarriage range from 8 to 33% (Breeze, 2016; Johnson and Langford, 2015; Kling et al., 2016; Nelson, 2015; Sapra et al., 2016; Tulandi, 2016). According to the 2013 National Vital Statistics Report on fetal mortality, which is the most recent statistics found, it is estimated that 5.96 in every 1000 pregnancies end in a fetal death at 20 weeks of gestation or greater (MacDorman and Gregory, 2015) and 3.28 in every 1000 live births end in a neonatal death (Gregory et al., 2014).

The grief process with the loss of an infant is challenging for both the families involved as well as for the healthcare professionals. The effects on the family can be physical, emotional, psychological, social, and spiritual and may affect every aspect of their lives (Gibson et al., 2011). Unmanaged grief may adversely affect the mental and emotional health of women even in successful subsequent pregnancies (Hutti et al., 2013). The care a nurse provides at the time of loss may have a

critical impact on the family's response to the loss of their infant (Engler et al., 2004; Ravaldi et al., 2018). Yet, evidence reveals that nurses rarely feel adequately prepared for these difficult conversations (Armentrout and Cates, 2011; Steen, 2015; Zhang and Lane, 2013).

Nursing curricula offers nurses limited preparation for facilitating coping with death and dying and continuing education on the nursing units regarding bereavement communication is often lacking (Fluharty et al., 2012; Jonas-Simpson et al., 2013; Ravaldi et al., 2018; Rondinelli et al., 2015; Whtie and Coyne, 2011). Nurses reported feeling unprepared and expressed concern when caring for families who experience a perinatal loss (Engler et al., 2004; Pastor-Monteor et al., 2012; Ravaldi et al., 2018; Steen, 2015). Zhang and Lane (2013) state that neonatal nurses' discomfort and distress may affect communication with parents leading to "changes in parent's perceptions of the quality of nursing care" (Zhang and Lane, 2013, p.2). The initial care that parents receive can influence their journey through the bereavement process. Negative perceptions may result in parents having unresolved issues years after the event (Hughes and Goodall, 2013).

Simulation has been used as an effective educational strategy for improving end-of-life care skills among nursing students (Hamilton, 2010; Kopp and Hanson, 2012; Leighton and Dubas, 2009; Lewis et al., 2016). However, there is limited research using simulation for improving end-of-life care skills among perinatal licensed nurses (Armentrout and Cates, 2011; Youngblood et al., 2012).

Knowledge Questions Regarding Perinatal Bereavement

1. What perinatal term is often used to describe parents and families you experience fetal loss?
   a. Traumatic death*
   b. Miscarriage
   c. Still birth
   d. Silent loss
2. Which of the following describes a process by which one develops a deep awareness of self and other responds nonjudgmentally in the present moment with full acceptance?
   a. Mindfulness*
   b. Caring
   c. Empathy
   d. Sympathy
3. Which of the following patient behaviors during traumatic grief would alert a healthcare professional that the patient is experiencing a prolonged mourning process?
   a. Extreme anger
   b. Experiential avoidance*
   c. Denial
   d. Lethargy
4. Which of the following is a term used to describe the opposite of a rigid protocol, where awareness of the unique individual and cultural differences ar the focus of care?
   a. Egalitarianism
   b. Attunement
   c. Nuance*
   d. Trust
5. To provide effective psychosocial care to a grieving family, it is best for the nurse to:
   a. Avoid showing emotion to the family
   b. Provide family presence*
   c. Ask for a pastoral care consult
   d. Ensure bereavement checklist is complete

Fig. 1. Knowledge questions regarding perinatal bereavement.

2. Methods

The primary objective for the study was to evaluate a perinatal bereavement educational session that included didactic learning and simulation using standardized patients for perinatal nurses on participants' knowledge, comfort, and skill levels. In addition, the study explored if there a difference in mean pre-comfort level scores among perinatal nurses' characteristics (years of work experience, having children, or experience of a significant personal loss within the past year) when caring for a bereaved mother?

2.1. Design

The study design was a one-group pretest-posttest program evaluation design. The setting's local Institutional Review Board reviewed this program and deemed it as non-human subject research determination. Participants were recruited by an email invitation that explained the project purpose, described the project objectives including educational interventions such as simulation, and that the results of their participation in the project would be confidential.

2.2. Setting

The obstetrics department and the level II nursery of a 500 bed academically affiliated Magnet hospital was the setting for this program. The hospital is a designated Level 2 with extended capabilities perinatal center, providing intermediate level of care to pregnant women and more complex care to newborns, when required. The organization has a level II nursery that is covered by a neonatologist who is trained to treat newborns requiring special care. Located in close proximity to the hospital, is a Perinatal Center that cares for women experiencing high-risk pregnancies and their infants. The maternity unit employs approximately 60 perinatal nurses who include labor, delivery, postpartum, and nursery nurses.

2.3. Procedure

The program began with participants completing a demographic survey. The participants then proceeded to take the pre-test to measure baseline comfort and knowledge level when caring for bereaved families. Following the pre-measurements, the participants continued with a 10 - minute didactic session, two five-minute scenarios with standardized patients, and ended with a 10 - minute debriefing. The participants then completed the program by re-taking the knowledge and comfort pre-test immediately after the debriefing session, which served as the post measures. Since all responses to the pre and posttests was anonymous, it was unknown which participants scored low. Ethically, we decided to distribute all participants a packet of additional information on perinatal bereavement, after they submitted their posttest, for their own review if they wish to do so.

2.4. Instruments

A demographic questionnaire was given in order to describe participants' characteristics. The survey asked participants about race, religion, marital status, age, education level, if they are a parent of a child, years of work experience, and if they have experienced a significant personal loss in the past year.

The BEACONNS tool, which stands for Bereavement/End of life Attitudes about Care Of Neonatal Nurse's Scale, was utilized in the evaluation protocol. BEACONNS was developed by Engler et al. (2004) and measures nurses' information and beliefs about bereavement comfort level, their perceived roles during bereavement and their thoughts on families' involvement during a perinatal loss. It is a 51 item
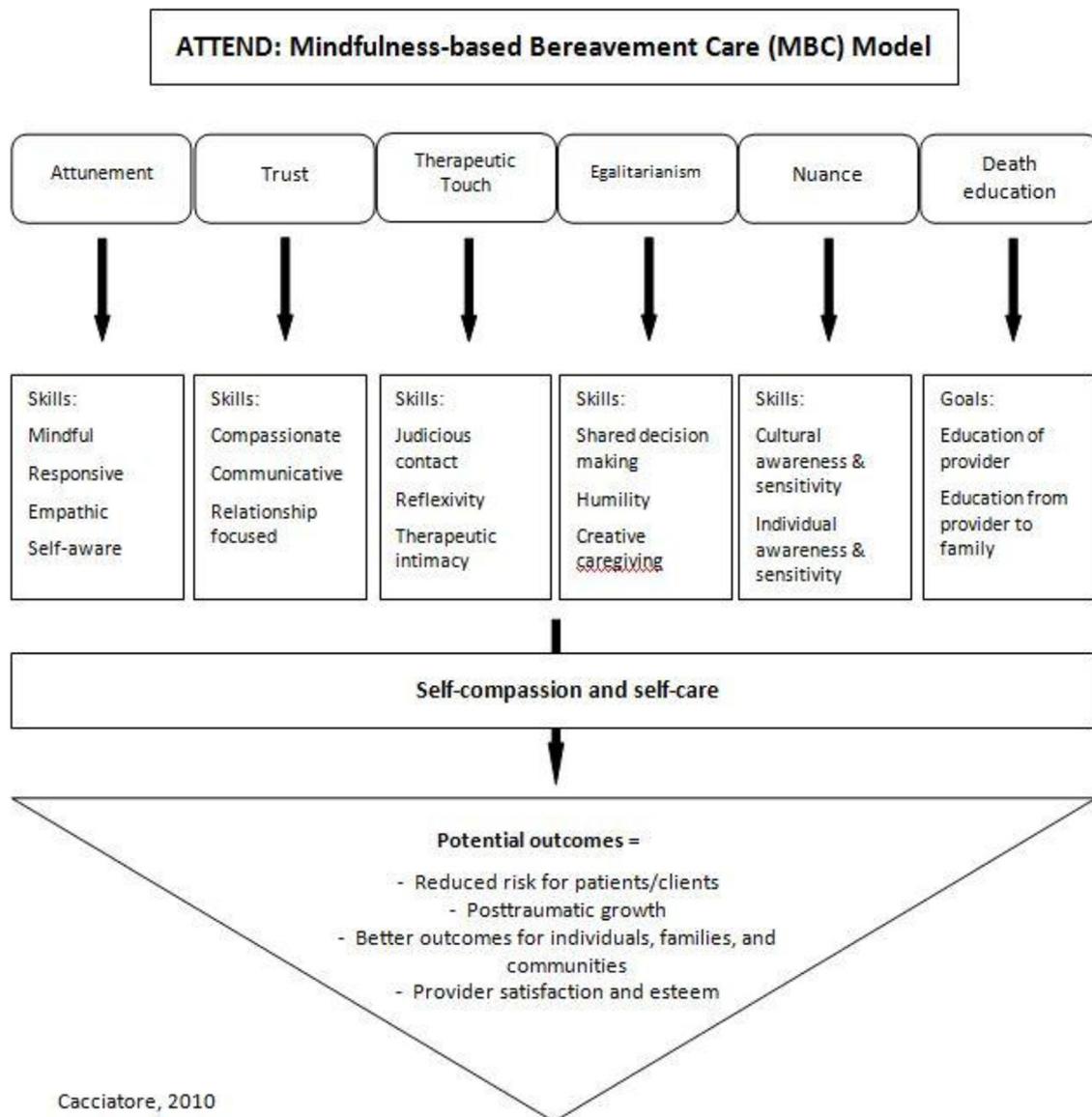
Fig. 2. ATTEND model.

Likert-type scale (1 = very uncomfortable, 2 = uncomfortable, 3 = neither comfortable nor uncomfortable, 4 = comfortable, 5 = very comfortable). Reliability of this scale when used in a descriptive study ranged from 0.81 to 0.95 (Zhang and Lane, 2013). No other data was found on the reliability of this instrument.

The subset comfort scale of the BEACONNS has 19 items that asked nurses their perceptions and degree of comfort they felt with basic aspects of bereavement care. The comfort scale has a reported reliability of 0.95 (Zhang and Lane, 2013). No validity data was available for the tool.

Five investigator-designed multiple-choice questions were used to assess participant's knowledge regarding the bereavement process (see Fig. 1). The knowledge test was validated for content by two nurse educators with over 10 years' experience in test question development and perinatal bereavement knowledge.

2.5. Education

The educational session was rooted in themes found throughout the review of the literature and the ATTEND Model (Cacciatore and Flint, 2011) (see Fig. 2). ATTEND is a mindfulness based bereavement care

model that is evidence based, and helps nurses deliver culturally sensitive and compassionate care to bereaved parents that does not pathologize grief. The use of this model has been effective in reducing trauma symptomatology, depression, fatigue, tension, and anxiety in both parents and healthcare providers (Cacciatore, 2013).

There is no magic script for nurses to use when dealing with perinatal loss. It is important that nurses do not use coercion when encouraging widely used interventions such as bonding with the deceased infant. Nurses need to be mindful of the uniqueness of each perinatal loss and bereaved family, and respect and accept the family's wishes. Strategies and interventions that have been used to help parents through the grieving process include encouraging the parents to see, hold, name, bathe, photograph, and create memories with their infants (Armentrout and Cates, 2011; Gibson et al., 2011; Lawrence, 2010; Pastor-Monteor et al., 2012). Although these interventions have been used widely, Limbo and Kobler (2010) state that "no evidence currently exists recommending that clinicians encourage all bereaved parents to interact with their baby in a set, consistent manner" (p. 318).

Prior to the simulation, participants also briefly viewed two pre-videotaped simulated scenarios depicting a bereaved mother and her perinatal nurse. The participants were then asked to identify actions

Background	Standardized Patient Actions	Appropriate Participant Behaviors
Scenario 1: Patient is a G1 P0 at 36 weeks gestation. She was hospitalized for 23 hour observation for vaginal bleeding two days ago. It was undetermined why she was bleeding. Lab work and ultrasound did not reveal any problems. Fetal heart tones during hospitalization were 135-145 moderate variability with accelerations. No decelerations noted. She was discharged after her 23 hour observation and told to follow up with obstetrician the following day. She went to obstetrician today for her follow up. Physician was unable to detect fetal heart tones. Follow up ultrasound shown no cardiac activity. The patient is sent to labor and delivery for induction of labor for IUFD. You are the primary nurse and come into assess your patient.	Patient is crying and displaying angry behavior. Patient asks, "Why did they send her home when they could not determine where my bleeding was coming from"? Patient asks, "Why didn't they do more tests"? Patient yells, "Everyone told me my baby was fine, but she is not. This is all of your faults. My baby is gone because no one knew what they were doing!"	• Knocks on door and introduces self. • Sits eye level with patient. • Use silence while patient is talking. • "I'm sorry for your loss". • "There is no good reason why this happened". • "It is okay to be angry." • "I'm a safe person to express your anger to." • "I can't imagine what you are going through. I am here to support you in whatever way feels best."
Scenario 2: Patient is a 17 year old G1 P0 at undetermined gestational age. She was seen in the ER where it was determined she was pregnant and was transferred to labor and delivery in active labor at 9 cm. Patient is not stable enough to transfer to higher care center. A brief history and physical by the OB hospitalist determines the gestational age to be between 22-24 weeks. Neonatology is called and requested to be present for the delivery. Patient spontaneously ruptures 5 minutes after arrival to the unit. The infant is born and resuscitative measures are started. Infant is quickly transferred to SCN where resuscitative measures continue. Neonatologist determined gestational age at 23 weeks. After 10 minutes, infant continues not to respond to resuscitation efforts. The mother is informed of the progress and she requests that the resuscitation is stopped. The infant expires 5 minutes later. Mom is informed by the physician that the infant has died. The nursery nurse informs the mom that she will bring the infant to her momentarily.	Patient states, " I do not want to see my baby." Patient is quiet and displays withdrawn behavior. Patient states, "I am scared of what it will look like." Patient is adamant about not wanting to see her baby.	• Knocks on door and introduces self. • Sits eye level with patient • Tries to explore reason why patient does not want to see her baby. Offer acceptance. • Explain in lay terms what baby will like and feel like at 23 weeks gestation. • Tell patient if she changes her mind about seeing the baby to let you know. • Purposeful touch, silence. • Ask patient if she would like to be alone or if she would like for you to stay with her.

Fig. 3. Scenarios.

that they would have done if they were the perinatal nurse for the mother depicted in the video.

2.6. Scenario

The two five-minute scenarios was developed by the primary investigator and were based on past perinatal losses (See Fig. 3). The scenarios utilized standardized patients to portray a bereaved mother. The standardized patients were hired actors who were coached by the researcher on the scenarios and how to respond to various nursing actions that may have been introduced by the participants during the simulation. The coaching took approximately one hour and the actors were given additional cue sheets to study that provided appropriate responses to various behaviors that the participants might display. The standardized patients were funded through the hospital's foundation grant that supports various health care related activities.

The first scenario depicted an angry mother who blamed health care workers for her loss. The second scenario depicted a mother who was quiet and withdrawn. See Fig. 3 for scenarios. The investigator developed a checklist with recommended communication techniques rooted in the ATTEND model to be used with each of the two scenarios presented.

2.7. Debriefing

After the scenarios, the participants were taken into another room and participated in guided reflection rooted in the Debriefing for Meaningful Learning model (Dreifuerst, 2012). The participants were asked as a group to share their perceptions of what went well and what could have been improved upon. In addition to debriefing, degriefing was performed which allows students to focus on emotions and concerns they have when faced with death and dying. "Degriefing after an EOL experience can benefit student nurses through the exploration and expression of feelings related to fears and grief for the patient and the family" (Hamilton, p.e136).

3. Results

Descriptive statistics were used to describe the demographic characteristics of the sample (Table 1). Paired *t*-test was utilized to determine if there was a significant difference between participants' pre and post knowledge and comfort levels (Table 2). Analysis of variance (ANOVA) was utilized to determine if a participant's years of work experience, being a parent, or having a personal significant loss within the past year differed among their mean pre-comfort levels (Table 3).

Table 1
Participants' demographics N-54.

Religion		Marital Status		Children	
Catholic	12 (26%)	Married	31 (67%)	Parent of Child	32 (68%)
Protestant	13 (28%)	Divorced	2 (5%)	No Children	15 (32%)
Other	15 (31%)	Single	13 (28%)		
None	7 (15%)				

IBM Statistical Package for the Social Sciences software, version 23 was utilized for data analysis.

Fifty-four nurses participated in the program, resulting in a 93% participation rate. The average age of participants was 33 years of age with a range from 24 to 61. The average work experience was 6.5 years with a range of 1–40 years. The majority of participants (*n*-40) were married and had children (*n*-36). Only 15% of the participants did not affiliate themselves with a religion (see Table 1).

3.1. Information and beliefs

Sixty-five percent (*n*-35) of the participants stated that they cared for a bereaved mother less than once a year, while 25% (*n*-13) of participants stated they cared for a bereaved mother about once every six months. Sixty percent (*n*-32) of the participants stated that they did receive bereavement education in their nursing program; however, only 6% (*n*-3) of these participants stated they were very satisfied with the content and 44% (*n*-23) stated that they were somewhat satisfied. Only 8% (*n*-4) of the participants stated they sought out continuing education on bereavement, and of those participants, only one participant found it helpful.

3.2. Knowledge

Each multiple-choice question of the knowledge test was worth 20% with the five questions totaling a possible 100%. The question was scored as either correct or incorrect. The overall average of the five baseline knowledge questions pre education was 22%, with a range of 0%–40%. Post education overall knowledge average was 71%, with a range of 20%–100%; thus demonstrating a significant difference between pre-knowledge and post-knowledge levels ($p = 0.000$). When asked how beneficial (not beneficial, somewhat beneficial, beneficial) the educational session was towards your knowledge level regarding the neonatal bereavement process, the majority of the participants (*n*-41) felt that the session was beneficial.

3.3. Comfort

The average baseline comfort level was 3.3 on the BEACONN's scale with the range from 1.4 to 4.3. Post session overall average comfort level increased to 3.9 with a range of 2.8–5.0. Thus, there was a significant difference between pre and post mean comfort levels ($p = 0.000$). The internal consistency reliability of the comfort scale for this program was 0.92. When asked how beneficial (not beneficial, somewhat beneficial, beneficial) the session was towards your comfort level regarding the neonatal bereavement process, the majority of the

Table 3
ANOVA for comparisons among group characteristics and pre comfort level means.

	Sum of Squares	df	Mean Square	F	p
Parent of Child					
Between Groups	1.028	1	1.028	2.332	.134
Within Groups	19.837	45	.441		
Total	20.865	46			
Significant Loss					
Between Groups	.511	1	.511	1.131	.293
Within Groups	20.353	45	.452		
Total	20.865	46			
Work Years Experience					
Between Groups	1.592	1	1.592	3.706	.061
Within Groups	18.474	43	.430		
Total	20.066	44			

*$p < 0.05$.

participants (*n*-40) felt that the session was beneficial.

There were no significant differences in pre comfort level means among participants with less than five years of work experience versus more than five years' experience ($p = 0.061$); with children and without children ($p = 0.134$), and those who have experienced a significant loss within the past year versus those who have not ($p = 0.293$).

3.4. Skills

During the scenarios, the primary investigator observed all interactions between the participant and standardized patient from behind a one-way glass. Many participants (*n*-43) described what the infant looked like to the standardized patient prior to the patient seeing the infant. Some participants (*n*- 21) explained the grieving process to the patient and acknowledged the stage they were currently in. Others encouraged the patient to participate in decision making in regards to infant care activities or whether or not they wanted to hold and see their infant. Most participants (*n*- 51) demonstrated compassion, transparency, and acceptance of the patient by being aware of the patient as an individual and not adhering to strict protocols or checklist. Most participants (*n*- 51) stated they were sorry for the patient's loss and that it was okay to be angry when the patient displayed angry behavior.

Despite chairs being strategically placed in the scenario room, only a small number of participants (*n*-10) sat down to talk to the standardized patient at eye level. A small number of participants (*n*- 10) stood in a perceived defensive pose such as arms crossed or hands on their hips. A small percentage of participants responded (*n*-16) inappropriately by stating they knew how the patient felt or assumed the patient wanted to see the baby. It was not uncommon for the use of silence to transition from therapeutic to awkward; however, this was thought to be due to nervousness and participants not knowing when the scenario would end.

Table 2
Descriptive Statistics and *t*-test Results for Comfort and Knowledge.

Outcome	Pretest	SD	Posttest	SD	n	95% CI for Mean Difference	t	df	P value
	M		M						
Comfort	3.30	.670	3.89	.530	48	−56.16, −41.71	−13.64	47	.000*
Knowledge	21.67	12.26	70.64	20.79	48	-.853, −.352	−4.84	47	.000*

*$p < 0.05$.

3.5. Debriefing

Participants were engaged in the discussions during debriefing and degriefing. Overall, participants expressed their appreciation of being able to participate in a scenario where they could practice their bereavement care skills. Many participants expressed their gratitude for the realism of the scenarios and using standardized patients. A few participants voiced their surprise about how emotionally overwhelmed they became during the scenarios. Overwhelmingly, participants felt that they communicated well with the bereaved mother. Most participants spoke of the importance of individualizing patient care and not treating all bereaved patients the same.

A few stated that they did not buy into the realism of the scenarios knowing that these were simulations and therefore could not perform accordingly.

4. Discussion

Participants were observed incorporating many of the techniques discussed during the didactic learning session while they were in the scenarios. During the debriefing many participants voiced their shock of encountering standardized patients versus high fidelity simulators. Overwhelming the participants stated they enjoyed the realism of the learning environment using standardized patients. A few participants even showed emotions such as crying with the standardized patient.

Many participants continued to discuss the importance and need for further perinatal bereavement education. It is planned to add a computer based learning module regarding perinatal bereavement for all nurses at the organization. The primary investigator along with some of the participants of the program initiated a new work group, The Perinatal Loss Workgroup. It was developed to ensure that all units in the hospital that participate in the care of bereaved mothers have education on bereavement. The workgroup consists of the nurse manager in labor and delivery, a chaplain, the nurse manager of day surgery, maternal quality improvement facilitator, and nurse from the emergency department.

The findings of this program support the notion that an educational session focusing on caring for a bereaved family may improve nurses' comfort and knowledge levels. These findings are similar to those from studies that have determined that simulation and role playing enhance learners' confidence with end of life issues (Fluharty et al., 2012; Hope et al., 2011; Gillan et al., 2014). The program did not find that participants who have children, greater work experience or those who have experienced a significant loss within the past year have higher pre education comfort levels due to their life experiences.

Many hospitals, including the one in which this program was conducted, consider perinatal loss a low frequency, high risk event. The majority of participants (65%) reported caring for a mother with a perinatal loss less than once a year. Many (40%) reported not receiving formal education in their nursing program regarding perinatal loss. Only 50% of participants who did receive bereavement education in their nursing programs were somewhat satisfied to satisfied with the quality of that education. Findings of this program support the need for ongoing education regarding care for the bereaved family, regardless of the nurses' lived and work experience.

4.1. Limitations

This program is limited by its small, non-randomized sample obtained from a single setting, all of which limit the generalizability of these findings. In addition, the brevity of the teaching and the one-group pretest-posttest design limits the ability of investigators to know if the difference in knowledge and comfort that participants demonstrated was due to the didactic knowledge to which they were exposed, the practice of the ATTEND communication concepts during the simulation experience with the standardized patient, the debriefing

session, or some combination of these. Using only five of the same pre/post knowledge questions makes it much easier for participants to remember pretest answers for the posttest, especially when the posttest is given within an hour or less of the didactic session, and may have affected the results of the program. Follow-up re-assessments of retention of knowledge and comfort several months post-didactic session is a recommendation for future research.

4.2. Implications

Few hospitals have bereavement protocols for perinatal loss (Blood and Cacciatore, 2014; Kelley and Trinidad, 2012). This may result in a wide variety of approaches from unit to unit and from institution to institution when caring for grieving parents, resulting in variance in the quality and appropriateness of care. For example, emergency room nurses experience perinatal loss in a different context than inpatient obstetrical nurses. It is highly recommended to develop bereavement protocols and education programs that will help nurses gain the knowledge needed in order to feel comfortable in their interactions with parents and to provide quality bereavement care (Smart and Smith, 2013).

There is a great need to develop standardized education for nurses to enhance their skills while caring for parents experiencing perinatal loss. This education session, utilizing simulation with standardized patients, demonstrated significant increases in knowledge, comfort level, and application of skills learned. It is recommended to enculture the learning received from this education session into the perinatal clinical environment and beyond to ensure all bereaved mothers and families receive the upmost quality care.

Nurse bereavement champions and groups dedicated to this difficult work can further affect the knowledge and awareness of nurses dealing with bereaved parents. Finally, further research regarding perinatal bereavement education is recommended to ensure evidence-based practice is being adhered to.

5. Conclusion

Providing care for parents who are experiencing perinatal loss is often difficult for nurses. Bereavement education maybe limited or frequently absent in some nursing curricula, therefore nurses may be uncomfortable communicating effectively with parents during this difficult time. The findings of this research project support the use of an education session including standardized patients during simulations with a focus on debriefing to enhance knowledge and comfort levels of perinatal nurses regarding perinatal bereavement. This study's findings reflect other study's findings regarding enhancing nursing students comfort with neonatal death and simulation (Colwell, 2016; Forster and Donovan, 2016). It is recommended that perinatal education is not a one time learning session. Education needs to be provided on an ongoing basis using evidenced based perinatal bereavement practices.

References

Armentrout, D., Cates, L.A., 2011. Informing parents about the actual or impending death of their infant in a newborn intensive care unit. J. Perinat. Neonatal Nurs. 25 (3), 261–267.

Blood, C., Cacciatore, J., 2014. BMC Psychology 42 (15). https://doi.org/10.1186/2050-7283-2-15.

Breeze, C., 2016. Early pregnancy bleeding. Aust. Fam. Physician 45 (5), 283–286.

Cacciatore, J., 2013. Psychological effects of stillbirth. Semin. Fetal Neonatal Med. 18, 76–82.

Cacciatore, J., Flint, M., 2011. ATTEND: toward a mindfulness-based bereavement care model. Death Stud. 36, 61–82. https://doi.org/10.1080/07481187.2011.591275.

Chan, M.F., Arthur, D.G., 2009. Nurses' attitudes towards perinatal bereavement care. J. Adv. Nurs. 65 (12). https://doi.org/10.1111/j.1365-2648.2009.05141.x. 2532-1541.

Colwell, P., 2016. Building confidence in neonatal bereavement: the use of simulation as an innovative educational approach. J. Neonatal Nurs. 23 (2), 65–74. https://doi.org/10.1016/j.jnn.2016.07.005.

Dreifuerst, K.T., 2012. Using debriefing for meaningful learning to foster development of clinical reasoning in simulation. J. Nurs. Educ. 51 (6), 326–333. https://doi.org/10.3928/0148484-20120409-02.

Engler, A.J., Cusson, R.M., Brockett, R.T., Cannon-Heinrich, C., Goldberg, M.A., West, M., Petow, W., 2004. Neonatal staff and advanced practice nurses' perception of bereavement/end of life care of families of critically ill and/or dying infants. Am. J. Crit. Care 13 (6), 489–498.

Fluharty, L., Hayes, A.S., Milgrom, L., Malarney, K., Smith, D., Reklau, M.A., Jeffries, P., McNelis, A.M., 2012. A multisite, multi-academic track evaluation of end of life msimulation for nursing education. Clinical Simulations in Nursing 2012 (8), e135–e143. https://doi.org/10.1016/j.ecns.2010.08.003.

Forster, E., Donovan, H., 2016. Enhancing bereavement support skills using simulated neonatal resuscitation. Int. J. Palliat. Nurs. 22 (10), 500–507. https://doi.org/10.12968/ijpn.2016.22.10.500.

Gibson, J., Finney, S., Boilnager, M., 2011. Developing a bereavement program in the newborn intensive care unit. J. Perinat. Neonatal Nurs. 25 (4), 331–341.

Gillan, P.C., Jeong, S., van der Riet, P.J., 2014 May. End of life simulation: a review of the literature. Nurse Educ. Today 34 (5), 766–774. https://doi.org/10.1016/j.nedt.2013.10.005.

Gregory, E.C.W., MacDorman, M.F., Martin, J.A., 2014. Trends in Fetal and Perinatal Mortality in the United States, 2006-2012. *NCHS Data Brief*, vol. 169 National Center for Health Statistics, Hyattsville, MD.

Hamilton, C.A., 2010. The simulation imperative of end of life education. Clinical Simulations in Nursing 6 (4), e131–e138.

Hope, A., Garside, J., Prescott, S., 2011. Rethinking theory and practice: pre-registration student nurses experiences of simulation teaching and learning in the acquisition of clinical skills in preparation for practice. Nurse Educ. Today 31 (7), 711–715.

Hughes, K.H., Goodall, U.A., 2013. Perinatal bereavement care: are we meeting families' needs? Br. J. Midwifery 21 (4), 248–253.

Hutti, M.H., Armstrong, D.S., Myers, J., 2013. Evaluation of the perinatal grief intensity scale in the subsequent pregnancy after perinatal loss. J. Obstet. Gynecol. Neonatal Nurs. 42 (6), 697–706. https://doi.org/10.1111/1552-6909.12249.

Johnson, O.P., Langford, R.W., 2015. A randomized trial of a bereavement intervention for pregnancy loss. J. Obstet. Gynecol. Neonatal Nurs. 44 (4), 492–499. https://doi.org/10.1111/1552-6909.12659.

Jonas-Simpson, C., Pilkington, F.B., MacDonald, C., McMahon, E., 2013. Nurses' Experiences of Grieving when There Is a Perinatal Death. SAGE Open, pp. 1–11. https://doi.org/10.1177/2158244013486116.

Kelley, M.C., Trinidad, S.B., 2012. Silent loss and the clinical encounter: parents' and physicians' experiences of stillbirth – a qualitative analysis. BMC Pregnancy Childbirth 12 (137).

Kling, C., Magex, J., Hedderich, J., von Otte, S., Kabelitz, D., 2016. Two-year outcome after recurrent first trimester miscarriages: prognostic value of the past obstetric history. Gynecologic Endocrinology and Reproductive Medicine 293, 1113–1123. https://doi.org/10.1007/s00404-015-4001-x.

Kopp, W., Hanson, M.A., 2012. High-fidelity and gaming simulations enhance nursing education in end-of-life care. Clinical Simulation in Nursing 8 (3), e97–e102.

Lawrence, N., 2010. Care of bereaved parents after sudden infant death. Emerg. Nurse 18 (3), 22–25.

Leighton, K., Dubas, J., 2009. Simulated death an innovative approach to teaching end-of-life care. Clinical Simulation in Nursing 5, e223–e230. https://doi.org/10.1016/j.ecns.2009.04.093.

Lewis, C., Reid, J., McLemon, Z., Ingham, R., Traynor, M., 2016. The impact of a simulated intervention on attitudes of undergraduate nursing and medical students towards end of life care provision. BMC Palliat. Care 15 (67). https://doi.org/10.1186/s12904-016-0143-2.

Limbo, R., Kobler, K., 2010. The tie that binds: relationships in perinatal bereavement. Maternal Child Nursing 35 (6), 316–321.

MacDorman, M.F., Gregory, E.C.W., 2015. Fetal and perinatal mortality: United States, 2013. Natl. Vital Stat. Rep. 64 (8).

March of Dimes, 2016. Miscarriage. Retrieved from. http://www.marchofdimes.org/compications/miscarriage.aspx.

Nelson, R., 2015. Fetal demise: caring for the parents. Am. J. Nurs. 115 (8), 19–20.

Pastor-Monteor, S.M., Romero-Sanchez, J.M., Parmnio-Cuevas, J.C., Hueso-Montoro, C., Paloma-Castro, O., Lillo-Crespo, M., Castro-Yuste, C., et al., 2012. Tackling perinatal loss, a participatory action research approach: research protocol. J. Adv. Nurs. 68 (11), 2578–2585. https://doi.org/10.1111/j.1365-2648.2012.06015.x.

Ravaldi, C., Levi, M., Angeli, E., Romeo, G., Biffino, M., Bonaiuti, R., Vannacci, A., 2018. Stillbirth and perinatal care: are professionals trained to address parents' needs? Midwifery 64, 53–59. https://doi.org/10.1016/j.midw.2018.05.008.

Rondinelli, J., Long, K., Seelinger, C., Crawford, C.L., Valdez, R., 2015. Factors related to nurse comfort when caring for families experiencing perinatal loss. Journal for Nursing in Professional Development 31 (3), 158–163 doi: 10.1097?NND.000000000000163.

Sapra, K.J., Joseph, K.,S., Galea, S., Bates, L.M., Louis, G.M., Ananth, C.V., 2016. Signs and symptoms of early pregnancy loss: a systematic Review. Reprod. Sci. 1–12. https://doi.org/10.1177/1933719116654994.

Smart, C.J., Smith, B.L., 2013. A transdisciplinary team approach to perinatal loss. Maternal *Child Nursing* 38 (2), 110–114.

Steen, S.E., 2015. Perinatal death: bereavement interventions used by US and Spanish nurses and midwifes. Int. J. Palliat. Nurs. 21 (2), 79–86.

Tulandi, T., 2016. Miscarriage. Retrieved from: http://www.uptodate.com/contents/misccariage- beyond-the-basics.

Whtie, K.R., Coyne, P.J., 2011. Nurses' perceptions of educational gaps in delivering end-of- life care. Oncol. Nurs. Forum 38 (6), 711–717.

Youngblood, A.Q., Zinkan, J.L., Tofil, N.M., White, M.L., 2012. Multidisciplinary simulation in pediatric critical care: the death of a child. Crit. Care Nurse 32 (3), 55–61. https://doi.org/10.4037/ccn2012499.

Zhang, W., Lane, B.S., 2013. Promoting neonatal staff nurses' comfort and involvement in end of life and bereavement care. Nursing Research and Practice 2013, 365329. https://doi.org/10.1155/2013/365329.