Published in final edited form as:

J Hosp Palliat Nurs. 2015 October ; 17(5): 391–396. doi:10.1097/NJH.0000000000000167.

Work environment facilitators to the availability of complementary and alternative therapies in perinatal hospices

Charlotte Wool, PhD, RN¹, Leila E. Kozak, PhD^{2,3}, and Lisa C. Lindley, PhD, RN⁴

¹Department of Nursing, York College of Pennsylvania

²VA Puget Sound Health Care System

³University of Washington – Seattle, School of Public Health, Health Services Department

⁴University of Tennessee - Knoxville, College of Nursing

Abstract

Increasingly, patients and clinicians are considering palliative care interventions during pregnancy for the maternal-fetal dyad, when a life-limiting diagnosis is confirmed. Nurses are at the forefront of providing hospice and palliative care that includes planning interventions for infants nearing the end of life. However, little is known about the work environment facilitators to the availability of complementary and alternative medicine (CAM) therapies. Using a national database of perinatal hospice and palliative care providers, we described the types of CAM therapies available and explored the influence of the nurse work environment on the availability of CAM therapies with multivariate regression analysis. This study showed that having an education environment where clinicians are trained, along with a highly educated RN support staff, and a BSN educated staff were critical to the availability of CAM therapies. The clinical implications for hospice and palliative nurses caring for infants and their families were discussed.

Keywords

perinatal; CAM; palliative care; hospice care; work environment

Advances in technology are leading to diagnoses of life-limiting fetal conditions at earlier stages of gestation.¹ However, mortality among infants in the United States is still the highest of any pediatric age group, with congenital malformations, deformations, and chromosomal abnormalities as the leading causes of infant death.² Increasingly, patients and clinicians are considering palliative care interventions during pregnancy for the maternal-fetal dyad, when a life-limiting diagnosis is confirmed.^{3, 4}

Perinatal hospice and palliative care focuses on relieving pain and uncomfortable symptoms in neonates with a terminal illness, and on providing emotional and spiritual support to

Correspondence: Charlotte Wool, PhD, RM, Department of Nursing, York College of Pennsylvania, 441 Country Club Road, York, PA 17403, (717)815-1364, cwool@ycp.edu.

Declaration of Conflict of Interest:

The authors declare no conflicts of interest with respect to the authorship and/or publication of this article.

family members.^{4, 5} Services often include medical and skilled nursing care, provision of equipment and medication, personal care, psychosocial care, and counseling.⁶ In the past decade, hospices have increasingly embraced the provision of complementary and alternative medicine (CAM) therapies.^{7, 8, 9, 10, 11} CAM therapies fit within the hospice philosophy of addressing the needs of the whole person: body, mind, and spirit.^{7, 8, 10, 11} These therapies consist of a group of non-pharmacological, non-invasive, holistic interventions that are usually provided by members of the interdisciplinary team or by trained volunteers.^{12, 6} The most common CAM therapies available by hospices are massage, acupuncture, music therapy, guided imagery, energy healing, aromatherapy, and pet therapy,^{7, 8, 9, 10, 11, 13} with the goals of relieving pain and anxiety^{14, 15, 16, 17, 13, 18, 19} and promoting comfort and wholeness.^{7, 8, 9, 10, 11}

Nurses are at the forefront of providing hospice and palliative care that includes planning interventions for infants nearing the end of life. As clinicians at the hospice and palliative care bedside and on administrative teams, nurses assess and manage the quality of care infants and their families receive. CAM therapies require specialized training as well as a work environment that is conducive to their practice, making the work environment an important variable in supporting the delivery of comprehensive care. Although there is emerging evidence that the nurse work environment can facilitate the availability of conventional perinatal hospice and palliative care,^{20, 21, 22} little is known about the work environment facilitators to availability of CAM therapies.

Research examining the use of CAM therapies with neonatal and perinatal populations is lacking. Despite the integration of some CAM therapies into mainstream medicine, and the consistent reporting of CAM availability through adult hospice care, systematic data are not available upon which perinatal clinicians can base their practice. The Institute of Medicine recognized the application of CAM therapies as a comfort intervention for children suffering from life-limiting conditions, including modalities such as relaxation, imagery, massage, and acupuncture.²³ CAM therapies in pediatric care has become so extensive that some authors have referred to this phenomenon as the emergence of a new specialty they dub “pediatric integrative medicine.”²⁴ Although the integration of CAM therapies into neonatal intensive care units has been proposed and the use of massage in medically fragile infants has been reported,^{25, 26} no studies have been published to date that describe the integration of CAM into perinatal hospice and palliative care. Thus, understanding the relationship between the work environment and availability of CAM therapies is a first step in capturing important data that can be used to identify modifiable practices in work environments and encourage the uptake of CAM in perinatal palliative care. Therefore, the purpose of this study was to identify the nurse work environment facilitators to availability of CAM therapies among perinatal hospices and palliative care providers.

Methods

Study Design and Sample

A retrospective, correlational design was used to analyze perinatal hospice data from the 2007 National Home and Hospice Care Survey (NHHCS). The unit of analysis was the hospice agency. The NHHCS is a complex survey that includes information on a nationally

representative sample of hospice care providers.²⁷ Inclusion criteria were licensed hospice providers, perinatal hospice service providers, and Medicare/Medicaid certified. Agencies that did not employ registered nurses (RN), were a home health care agency only, or had missing data were excluded. The final weighted sample size was 995 agencies that provided perinatal hospice and palliative care.

Data Source

The NHHCS is a nationwide survey sponsored and conducted by the Centers for Disease Control and Prevention that provides detailed national-level agency-reported information on hospices and home health care providers. Using agency and staffing questionnaires, agency directors or their designated staff were interviewed in-person for the survey. There was no contact with patients or families. The Centers for Disease Control and Prevention manages the data collection procedures and quality information for the NHHCS.²⁸

Measures

Complementary and Alternative Therapies—The NHHCS survey included a number of questions assessing the availability of complementary and alternative therapies in the hospice questionnaire. We created multiple binary indicators of CAM for this study. Our measure of *CAM* was whether or not an agency made available any CAM therapies to hospice patients. Variables were also created for acupuncture, aromatherapy, art therapy, guided imagery/relaxation, massage, music therapy, pet therapy, therapeutic touch, and transcutaneous electrical nerve stimulation (TENS) therapy.

RN Work Environment—Several indicators of the nurse work environment were created for this study. *Affiliation* was operationalized as whether hospices were freestanding or not freestanding agencies (e.g., hospital based, home-health based, long-term care based). *Service area* was categorized as whether hospices delivered care in metropolitan, micropolitan, or rural locations, using Metropolitan Statistical Area (MSA) status. The *facility size* variable was measured as small size if a hospice had less than or equal to 100 patients per day and large if they had over 100 patients per day. *Organizational age* was defined as the total number of years a hospice had been a licensed hospice. *Ownership* was measured as whether a hospice reported its profit status as for-profit or other (i.e., private not-for-profit, government). *Teaching status* was defined as whether or not the agency was ever used as a clinical training site for students. *Accreditation* was operationalized as the agency being accredited by the Joint Commission for Accreditation of Healthcare Organizations (JCAHO). *RN unit size* was measured as the number of full-time equivalent (FTE) RNs on staff per patient. *Patient acuity* was defined based on whether or not nurses cared for patients receiving continuous home care. A measure of *RN leadership* was derived based on whether the agency's director had a nursing degree. *RN support services* was whether or not there was a clinical nurse specialist or nurse practitioner on staff. The proportion of RN FTEs divided by the total number of RN and LPN FTEs was the *RN proportion*. Whether or not the nursing unit had RNs with their highest degree as a baccalaureate in nursing was *RN education*. *RN certification* was operationalized as whether or not any RNs had any medical specialty certifications. The definition of *safety climate* was whether influenza vaccinations were encouraged for nurses. Whether or not a hospice

agency provided a career ladder for nurses was the definition of *career climate*. As a proxy measure, *technology climate* was whether nurses currently used an electronic medical records system.

Statistical Analysis

The primary question of interest was whether there was an association between the nurse work environment and the availability of complementary and alternative therapies in perinatal hospices. For all analyses, data were weighted to reflect the population of hospice and home health agencies and to ensure adjustment for sampling bias. The characteristics of the sample, along with the specific CAM therapies were described. A multivariate logistic (logit) regression model was used to estimate the relationship between the nurse work environment and the availability of CAM therapies. This method of analysis was appropriate because of the binary nature of the outcome variable. All analyses are conducted using Stata 11.0 software and results presented as adjusted odds ratios (ORs) and 95% confidence intervals (CIs) (Statcorp LP, College Station Texas).

Results

Table 1 shows the characteristics of the nurse work environment in perinatal hospices in the study. Less than half of the nurses worked in an environment where CAM therapies were available (43.2%). Most hospices were non-freestanding (60.4%), provided service in a metropolitan area (45.7%) and were small (88.9%). On average, hospices had operated for 16 years. They were commonly non-profit/government owned (84.9%). The work environment was generally a teaching institution (87.5%) and seldom accredited by Joint Commission (37.4%). Although the nursing unit size ranged from less than 0.02 RN per patient to almost 10 RNs per patient, the average was 0.66 RNs per patient. Very few nurses worked in a hospice where patients received continuous home care because of the acuity of their health condition (12.5%). The work environment was also characterized as generally having RN leadership in the executive ranks (71.3%) and BSN-educated (90.2%) and certified (70.1%) nurses. Few nurses had nursing support from advanced practice nurses and clinical nurse specialists (21.6%). The work environment was often safety (95.6%) and technology (63.7%) focused; however, often not career (24.9%) focused.

For those perinatal hospices that made CAM therapies available, the specific therapies are shown in Figure 1. The most common therapy was massage (86.5%), with supportive group therapy s close second (81.6%), and the least common therapy was acupuncture (8.8%). A smaller majority of CAM-providing perinatal agencies delivered aromatherapy (54.9%), guided imagery/relaxation (60.9%), music therapy (66.5%), pet therapy (56.7%), and therapeutic touch (55.6%).

The analyses estimating the associations between the work environment and the availability of CAM therapies in perinatal hospice and palliative care are shown in Table 2. With respect to the work environment, the results revealed significant facilitators. The odds of CAM therapies available was over 3 times higher for teaching perinatal hospices (OR = 3.15, 95% CI: 1.06–9.38) and high patient acuity hospices (OR = 3.41, 95% CI: 1.50–7.78). Perinatal hospices with RN support from advanced practice nurses and clinical nurse specialists also

had greater odds of having CAM therapies available compared to agencies without RN support (OR = 3.29, 95% CI: 1.21–8.92). Perinatal hospices with BSN educated RN staff had greater odds of availability of CAM (OR = 2.94, 95% CI: 1.11–7.77). We also found that as RN unit size increased, the odds of available CAM therapies diminished (OR = 0.24, 95% CI: 0.11–0.52). No other work environment variables were significantly related to the availability of CAM.

Discussion

The goal of our study was to identify the nurse work environment facilitators to the availability of perinatal hospice and palliative care CAM therapies. Using a national database of perinatal hospice and palliative care providers, we described the types of CAM therapies available and explored the influence of the nurse work environment on the availability of CAM therapies with multivariate regression analysis. Our study reports two major findings.

Our first major finding was that the most common CAM therapy available by perinatal hospice and palliative care providers was massage, followed by supportive group therapy, music therapy, guided imagery/relaxation, pet therapy, aromatherapy, and therapeutic touch. Findings from our study largely agreed with reports from adult hospices, which also found that massage therapy was very common among adult hospices.^{7, 8, 9, 10, 11} Our findings suggest that CAM therapies are often employed as appropriate adjuncts with pharmaceuticals.^{14, 15, 16, 17, 13, 18, 19} In addition, CAM therapies may promote comfort and wholeness for both the infant and the family at end of life.^{7, 8, 9, 10, 11} As additional complementary and alternative therapies gain acceptance in the medical community, further data will be need to examine the use of these therapies in perinatal hospice and palliative care.

The second major finding was that the educational environment in the workplace, as evidenced by the facility's teaching status, highly educated support services, and BSN education levels, was an important facilitator in the availability of CAM therapies. One possible explanation is that facilities that are teaching institutions may encourage staff and students to explore CAM therapies in order to learn and practice adjunct therapies for their patients. Alternatively, nurses with higher levels of education, such as a Bachelor's of Science degree or advanced practice licensure have training that lends itself more towards translating evidence into practice. Such a tendency may explain the increase in CAM delivery work environments with higher levels of nurse education. It is also possible that higher level of nursing education may be associated with an increased interest in learning CAM therapies. This may also relate to findings previously reported by adult hospice surveys that indicated 'lack of trained personnel' and insufficient knowledge about CAM as a barrier for hospices to deliver CAM therapies.^{7, 8, 9, 10, 11} These findings seems to point at the relationship between an education-enriched environment and higher CAM availability. Additional research might explore the specific role of nurses in the planning and delivery of CAM therapies for perinatal hospice and palliative care patients.

Although this is one of the first studies to examine CAM therapies in perinatal and palliative care, we acknowledge a number of limitations in the study. The data from the 2007 National Home and Hospice Care Survey were self-reported by hospices. Hospice administrators may have been reluctant to report negative information through a government survey, which could have caused reporting bias. However, the CDC conducted quality checks on the data. In addition, these data were cross-sectional rather than longitudinal. No causal conclusions can be drawn. Our measure of CAM includes also lacked specificity. The survey data included CAM available to all patients, not just perinatal patients. Although we were able to identify perinatal hospice provider, we were unable to report which specific CAM therapies were used or provided to perinatal patients. Finally, 2007 National Home and Hospice Care Survey was the most recent data available from the CDC. Our data may be dated, given the significant changes in the hospice industry including the updated 2008 Conditions of Participation (COPs). However, this study represents one of the first attempts to examine CAM therapies nationally among perinatal hospice and palliative care providers using these data. Our study reinforces the need for ongoing data collection and analysis related to understanding perinatal hospice and palliative care CAM therapies.

Despite the study limitations, this study has clinical implications for hospice and palliative nurses caring for infants and their families. Understanding CAM therapies may assist nurses in identifying patients in their clinical practice who might benefit from CAM therapies. Nurses can also use this information to target additional educational opportunities with the medical team, child, and family. For example, staff may benefit from a demonstration of pet therapy and how it might fit the needs and wishes of the infant and family at end of life. Furthermore, integrating CAM education within palliative and hospice nursing curricula and developing practice guidelines for CAM delivery through perinatal hospice care may be important to facilitate access to CAM for families receiving perinatal hospice care.

In summary, understanding the unique role of the nurse work environment in facilitating the availability of CAM therapies in perinatal hospice and palliative care is essential for advancing knowledge and compassion in this area of end-of-life care. This study showed that having an education environment where clinicians are trained, along with a highly educated RN support staff, and a BSN educated staff were critical to the availability of CAM therapies. With this knowledge, hospice administrators and nurses can collaborate to secure the resources needed and improve the nursing work environment to care for this population, and ultimately influencing infant and family outcomes.

Acknowledgement

Special thanks to Beth Schewe for her assistance with the manuscript.

Funding: This publication was made possible by Grant Number K01NR014490 from the National Institute of Nursing Research. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Institute of Nursing Research or National Institutes of Health.

References

1. de Jong A, Dondorp WJ, Frimts SG, de Die-Smulders CE, de Wert GM. Advances in prenatal screening: the ethical dimension. *Nat Rev Genetic*. 2011; 12(9):657–663.

2. Mathew TJ, MacDorman MF. Infant mortality statistics from the 2010 period linked birth/infant death data set. National Vital Statistics Report. 2013; 62(8) http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_08.pdf.
3. American College of Obstetricians and Gynecologists, Committee on Ethics and American Academy of Pediatrics, Committee on Bioethics. Clinician report: Maternal-Fetal Intervention and Fetal Care Centers. *Pediatr*. 2011; 128(2):e473–e478.
4. Wool C. State of the Science on Perinatal Palliative Care. *JOGNN*. 2013; 42(3):372–382. [PubMed: 23578106]
5. Munson D, Leuthner SR. palliative care for the family carrying a fetus with a life-limiting diagnosis. *Pediatr Clin North Am*. 2007; 54(4):787–798. [PubMed: 17933623]
6. Bercovitz, A.; Sengupta, M.; Jones, A.; Harris-Kojetin, LD. National Health Statistics Reports. Vol. 33. CDC; 2011. Complementary and alternative therapies in hospice: The national home and hospice care survey: United States, 2007. <http://www.cdc.gov/nchs/data/nhsr/nhsr033.pdf>
7. Demmer C. A survey of complementary therapy services provided by hospices. *J Palliat Med*. 2004; 7(4):510–516. [PubMed: 15353094]
8. Kozak LE, Kayes L, McCarty R, Walkinshaw C, Congdon S, Kleinberger J, Standish LJ. Use of complementary and alternative medicine (CAM) by Washington State hospices. *Am J Hosp Palliat Med*. 2009; 25(6):463–468.
9. Olotu BS, Brown CM, Barber JC, Lawson KA. Factors associated with hospices' provision of complementary and alternative medicine. *Am J Hosp Palliat Med*. 2014; 31(4):385–391.
10. Running A, Shreffler-Grant J, Andrews W. A survey of hospices use of complementary therapy. *JHPN*. 2008; 10(5):304. [PubMed: 19756253]
11. Van Hyfte GJ, Kozak LE, Lepore M. A survey of the use of complementary and alternative medicine in Illinois Hospice and Palliative Care Organizations. *Am J Hosp Palliat Med*. 2013; 31(5):553–561.
12. Dain AS, Bradley EH, Hurzeler R, Aldridge MD. Massage, Music and Art Therapy in Hospice: Results of a National Survey. *J Pain Symptom Manage*. 2015 [Epub ahead of print].
13. Standish LJ, Kozak L, Congdon S. Acupuncture is underutilized in hospice and palliative medicine. *Am J Hosp Palliat Med*. 2008; 25(4):298–308.
14. Henneghan AM, Schnyer RN. Biofield Therapies for Symptom Management in Palliative and End-of-Life Care. *Am J Hosp Palliat Care*. 2013 Nov 20. [Epub ahead of print].
15. Jane SW, Chen SL, Wilkie DJ, Lin YC, Foreman SW, Beaton RD, Fan JY, Lu MY, Wang YY, Lin YH, Liao MN. Effects of massage on pain, mood status, relaxation, and sleep in Taiwanese patients with metastatic bone pain: a randomized clinical trial. *Pain*. 2011; 152(10):2432–2442. [PubMed: 21802850]
16. Kutner JS, Smith MC, Corbin L, Hemphill L, Benton K, Mellis BK, Beaty B, Felton S, Yamashita TE, Bryant LL, Fairclough DL. Massage therapy versus simple touch to improve pain and mood in patients with advanced cancer: a randomized trial. *Ann Intern Med*. 2008; 149(6):369–379. [PubMed: 18794556]
17. Pan CX, Morrison RS, Ness J, Fugh-Berman A, Leipzig RM. Complementary and alternative medicine in the management of pain, dyspnea, and nausea and vomiting near the end of life: a systematic review. *J Pain Symptom Manage*. 2000; 20(5):374–387. [PubMed: 11068159]
18. Stephenson NL, Swanson M, Dalton J, Keefe FJ, Engelke M. Partner-delivered reflexology: effects on cancer pain and anxiety. *Oncol Nurs Forum*. 2007; 34(1):127–132. [PubMed: 17562639]
19. Tavares, M. National Guidelines for the Use of Complementary Therapies in Supportive and Palliative Care. London: The Prince of Wales's Foundation for Integrated Health; 2003.
20. Lindley LC, Fornehed ML, Mixer SJ. A comparison of the nurse work environment between perinatal and non-perinatal hospice providers. *Int J Palliat Nurs*. 2013; 19(11):535–540. [PubMed: 24263897]
21. The relationship between the nurse work environment and delivering culturally-sensitive perinatal hospice care. *Int J Palliat Nurs*. XXXX. (under review).
22. The influence of nursing unit characteristics on RN vacancies in specialized hospice and palliative care. *Am J Hosp Palliat Med*. XXXX. (under review).

23. Field, M.; Behrman, R. When children die: Improving palliative and end-of-life care for children and their families. Washington, DC: National Academies Press; 2003.
24. Vohra S, Surette S, Mittra D, Rosen LD, Gardiner P, Kemper KJ. Pediatric integrative medicine: pediatrics' newest subspecialty? BMC Pediatr. 2012 Aug 15;12:123. [PubMed: 22894682]
25. Jones JE, Kassity N. Varieties of alternative experience: complementary care in the neonatal intensive care unit. Clin Obstet Gynecol. 2001; 44(4):750–768. [PubMed: 11600855]
26. Livingston K, Beider S, Kant AJ, Gallardo CC, Joseph MH, Gold JI. Touch and massage for medically fragile infants. Evid-Based CAM. 2009; 6(4):473–482.
27. United States Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Health Statistics. National Home and Hospice Care Survey, 2007. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (distributor); ICPSR28961-v1. Published 2010-09-01.
28. Centers for Disease Control and Prevention. Survey methodology, documentation, and data files. 2011. http://www.cdc.gov/nchs/nhhcs/nhhcs_questionnaires.htm.

Figure 1.
Percent of CAM Services Available Among Perinatal Hospices

Table 1

Summary Statistics for Sample (Weighted N=995)

Characteristics	Number	Mean/Proportion	Min	Max
Complementary and Alternative Therapies (CAM)	430	43.2%	0	1
RN Work Environment				
Affiliation				
Non-Freestanding	601	60.4%	0	1
Freestanding	394	39.6%	0	1
Service Area				
Metropolitan	455	45.7%	0	1
Micropolitan	304	30.6%	0	1
Rural	236	23.7%	0	1
Facility Size				
Small	885	88.9%	0	1
Large	110	11.1%	0	1
Organizational Age	995	16.13	1	28
Ownership				
Non-profit/Govt.	845	84.9%	0	1
For-profit	150	15.1%	0	1
Teaching Status	871	87.5%	0	1
Accreditation	372	37.4%	0	1
RN Unit Size	995	0.66	0.02	9.69
Patient Acuity	124	12.5%	0	1
RN Leadership	709	71.3%	0	1
RN Support Services	215	21.6%	0	1
RN Proportion	995	0.87	0.33	1.50
RN Education -BSN	897	90.2%	0	1
RN Certification	697	70.1%	0	1
Safety Climate	951	95.6%	0	1
Career Climate	248	24.9%	0	1
Technology Climate	634	63.7%	0	1

Note. RN = registered nurse. BSN = Bachelors of Science in Nursing.

Table 2

Association between RN Work Environment and Availability of Complementary and Alternative Therapies
(Weighted N=995)

	OR	(95%CI)
RN Work Environment		
Freestanding	1.23	(0.52668–2.87043)
Service Area		
Metropolitan	(ref)	
Micropolitan	1.03	(0.43415–2.45866)
Rural	0.71	(0.26405–1.92675)
Large Size	1.20	(0.37572–3.85982)
Organizational Age	0.98	(0.92962–1.04097)
For-profit	0.32	(0.99252–1.03664)
Teaching Status	3.15 *	(1.06001–9.38071)
Accreditation	0.90	(0.38913–2.05901)
RN Unit Size	0.24 ***	(0.10627–0.52138)
Patient Acuity	3.41 **	(1.49825–7.77847)
RN Leadership	1.46	(0.60939–3.52218)
RN Support Services	3.29 *	(1.21099–8.92398)
RN Proportion	5.61	(0.72033–43.6766)
RN Education -BSN	2.93 *	(1.10520–7.77112)
RN Certification	0.74	(0.30638–1.80785)
Safety Climate	0.76	(0.15520–3.69516)
Career Climate	0.45	(0.17912–1.14058)
Technology Climate	0.64	(0.29662–1.36740)

Note. OR = odds ratio. CI = confidence interval. RN = registered nurse. BSN = Bachelors of Science in Nursing.

*
 $p < 0.05$,

**
 $p < 0.01$,

 $p < 0.001$