

## Evaluation of Comfort and Confidence of Neonatal Clinicians in Providing Palliative Care

Niang-Huei Peng, PhD, RN,<sup>1,\*</sup> Hsiu-Feng Liu, RN, MSN,<sup>2</sup> Teh-Ming Wang, MD,<sup>3</sup> Yue-Cune Chang, PhD,<sup>4</sup> Ho-Yu Lee, RN, MBA,<sup>5</sup> and Hwey-Fang Liang, RN, PhD<sup>6,7</sup>

### Abstract

**Background:** Research found that low levels of professional confidence and personal comfort among neonatal clinicians regarding palliative care may indicate a lack of competence and hesitancy to offer neonatal palliative care services.

**Purpose:** This study evaluated the factors associated with the confidence and comfort levels of neonatal clinicians providing neonatal palliative care.

**Methods:** A cross-sectional survey and questionnaire were used to investigate the confidence and comfort levels of neonatal clinicians regarding neonatal palliative care.

**Results:** Research subjects included 154 neonatal clinicians. Clinicians' confidence in providing neonatal palliative care was significantly impacted by age, marital status, years of professional experience ( $p < 0.05$ ), and prior palliative care training. Comfort levels were significantly impacted by educational degree, marital status, and years of working experience. Clinicians with a supportive workplace reported increases in both professional confidence ( $r = 0.286$ ,  $p < 0.001$ ) and personal comfort ( $r = 0.521$ ,  $p < 0.001$ ).

**Conclusion:** Research reveals the importance of neonatal palliative education and suggests further development of interdisciplinary neonatal palliative care teams to improve clinicians' professional confidence and personal comfort.

**Keywords:** confidence and comfort; neonatal palliative care; neonatal professional

### Introduction

NEONATAL PALLIATIVE CARE is defined as the provision of comfort and bereavement interventions for neonates with life-limiting or life-threatening conditions and for their families. According to the World Health Organization,<sup>1,2</sup> palliative care is focused on the pursuit of increased quality of life; it usually begins simultaneously with curative care.<sup>2</sup> Both curative and comfort interventions may coexist for patients with life-limiting conditions.<sup>1-3</sup> Unfortunately, few neonates in neonatal intensive care units (NICUs) in Taiwan currently receive palliative care or pain/symptom management.<sup>4</sup> Although the needs of dying neonates and their families are known, caring for them can be challenging and

stressful.<sup>3,5</sup> Available evidence suggests that most neonatal clinicians are often uncomfortable providing palliative care to dying infants,<sup>6,7</sup> and many have stated that they lack confidence in implementing some interventions of neonatal palliative care.<sup>6-8</sup> This discomfort not only affects the quality of care but can also lead to compassion fatigue and burnout and may even compromise the care provided.<sup>9,10</sup> Low confidence among pediatric clinicians may indicate a lack of competence and lead to hesitancy in offering neonatal palliative care services.<sup>9,11</sup>

In this study, "confidence" was defined as the clinician's belief that she/he possesses the professional skills to appropriately care for patients and their families<sup>11-14</sup> and "comfort" was the clinician's emotions and attitudes regarding

<sup>1</sup>Department of Nursing, Chang Jung Christian University, Tainan, Taiwan, R.O.C.

<sup>2</sup>Neonatal Intensive Care Unit, Taichung Veterans General Hospital, Taichung, Taiwan, R.O.C.

<sup>3</sup>Division in Neonatology, Taichung Veterans General Hospital, Taichung, Taiwan, R.O.C.

<sup>4</sup>Department of Mathematics, Tamkang University, Tamsui, Taiwan, R.O.C.

<sup>5</sup>Shanghai Changtai Medical Technology Co. Ltd., Shanghai, China.

<sup>6</sup>Department of Nursing, Chang Gung University of Science and Technology, Chang Gung Memorial Hospital, Chiayi, Taiwan.

<sup>7</sup>Chang Gung Memorial Hospital, Chiayi, Taiwan.

\*Current affiliation: Putian University School of Nursing, Putian University, Fujian, China.

Accepted February 27, 2018.

neonatal palliative care and their ability to provide care in a natural manner without a sense of risk or anxiety.<sup>6,12–15</sup> Clinicians' professional confidence and personal comfort are keys to providing high-quality end-of-life care<sup>10,11</sup>; however, no investigation has yet evaluated factors that are related to the levels of confidence and comfort of neonatal clinicians in Taiwan when providing neonatal palliative care. Assessment of these areas is critical to the quality of neonatal end-of-life care in Taiwan. Therefore, this study evaluated the factors associated with professional confidence and comfort levels of neonatal clinicians providing neonatal palliative care.

## Methods

A cross-sectional survey design was used to collect data between 2013 and 2014. This study was reviewed and approved by the Institutional Review Board of four research hospitals and a consent form was obtained from each participant before data were collected.

The research participants were neonatologists and neonatal nurses recruited through a convenience sampling method from NICUs at four hospitals in two cities in central and northern Taiwan. The inclusion criteria included neonatal clinicians who had worked for at least a year in one of four Level III NICUs and had been directly involved with the care of dying infants. Participation was voluntary. Before answering the questionnaire, all participants signed a consent form. Both the questionnaire and consent form were prepared in a hard copy format for all research subjects who worked in the research hospitals at the time of research.

This study used a modified version of the Comfort Level Caring for Dying Infants Scale (CLCDI).<sup>13</sup> The modified version of CLCDI was developed by Babgi et al.<sup>13</sup> to assess comfort levels of neonatal professionals regarding caring for dying neonates and their families. The validity and reliability of the initial CLCDI scale were analyzed by its developers and yielded a Cronbach alpha of 0.73, but the content validity index (CVI) was questionable.<sup>13</sup> Therefore, we requested and received permission from Babgi et al.<sup>13</sup> to use the modified version of CLCDI. The questionnaire was composed of 9 demographic questions and 30 items measuring two subscales: confidence (15 items) and comfort (15 items) when providing neonatal palliative care. Two questions asked participants about the supportiveness of their work environment and teammates.

The questionnaire was translated from English into traditional Chinese characters. The accuracy of the Chinese translation was checked by a forward-backward translation back into English and simultaneously reviewed by a physician whose native language was English. The CVI for the Chinese version of CLCDI was evaluated by a panel of five experts in the field of neonatal intensive care; the total CVI was 0.86. Internal consistency reliability evaluated with Cronbach's alpha coefficient for all the subscales (confidence, comfort, and workplace) was 0.9.

The questionnaire comprised four parts, as follows: (i) 9 questions related to participants' backgrounds, (ii) 15 questions regarding participants' level of confidence in providing end-of-life and bereavement care to dying neonates and their families, (iii) 15 questions regarding participants' level of confidence in providing end-of-life and bereavement care to dying neonates and their families, (iv) 15 questions regarding

participants' level of comfort providing end-of-life and bereavement care, and (v) 2 questions regarding the supportiveness of the workplace. Of a total of 32 questions, five were worded negatively: questions 12, 13, 23, 24, and 25. Participants' levels of confidence and comfort were self-reported on a Likert scale (1 = never, 2 = seldom, 3 = unsure, 4 = sometimes, 5 = often, 6 = always).

## Statistical analysis

The possible values for both "level of confidence" and "level of comfort" were 15–90. In other words, both values were scale data, but not ordinal data. The possible values of "supportiveness of workplace" ranged from 2 to 12. From a statistical point of view, the Central Limit theorem and Slutsky's theorem,<sup>14</sup> both parametric and nonparametric statistical methods were appropriate ways to analyze these data. In this study, the results obtained from both methods were quite similar. However, since the results obtained by using parametric statistics usually are more efficient, we used these methods in our research data analysis.

Participant demographics were analyzed by Fisher's exact tests. Respondent characteristics within each subscale were averaged to create subscale means and standard deviations (SDs). Data were analyzed using descriptive statistics and one-way analysis of variance (ANOVA) with *post hoc* Bonferroni's correction. Group comparisons between nurses and physician respondents, and between female and male gender, were tested with the independent *t*-test. Relationship between the levels of comfort and levels of confidence was tested by the Pearson Correlation. Relationships between the levels of confidence, personal comfort, and supportiveness of workplace were tested by the Pearson Correlation. Significant test results are reported with *p*-value <0.05.

## Results

### Demographic description

One-hundred sixty neonatal clinicians were invited to participate in this study and 154 valid questionnaires were received, giving a 96% response rate (119 neonatal nurses and 35 neonatologists). Most participants were female (83.8%). Table 1 shows participant demographics and Table 2 displays the means and SDs for each subscale.

### Main Results

Results revealed factors impacting clinicians' professional confidence and personal comfort levels. There was a statistically significant relationship between confidence and comfort, as well as between supportiveness of the workplace and both comfort and confidence. Table 3 displays the statistically significant factors related to participants' confidence and comfort, as derived by ANOVA evaluation. The results of analysis by way of an interdependent *t*-test are displayed in Table 4.

Impact Factors on Professional Confidence and Personal Comfort

### Age

The ANOVA of the six confidence subscales indicated a statistically significant relationship between participants'

TABLE 1. CHARACTERISTICS OF PARTICIPANTS

Variables	Neonatologists n	Neonatologists %	Nurses n	Nurses %	p-Value <sup>a</sup>
Gender					
Male	25	74.1	0	0	<0.001
Female	10	28.6	119	100	
Age (years/old) <sup>b</sup>					
20–30	14	40	56 (47.1%)		0.725
31–40	17	48.6	52(43.7%)		
Over 40	4	11.4	11 (9.2%)		
Professional degree					
Associate bachelor	0		28	23.5	0.002
Bachelor	33	94.3	86	72.3	
Master	2	5.7	5	4.2	
Religious beliefs					
Buddhist or Taoist	14	40	52	43.7	0.604
Christian or Catholic	4	11.4	7	5.9	
No special beliefs	17	48.6	57	47.9	
No answer	0		3	2.5	
Personal religious belief may impact personal willingness to apply neonatal palliative care practice					
Strongly/somewhat affect	19	51.3	64	53.6	
No effect	10	21.6	42	35.3	
No answer/no religion	6	17.1	13	10.9	
Marital status					
Married	21	60	45	37.8	
Single	13	37.1	73	61.3	
Divorced	1	2.9	1	0.8	
Child-rearing experience					
Yes	16 (45.7%)	45.7	38	31.9	
No	19 (54.3%)	54.3	81	61.8	
Years of professional experience <sup>b</sup>					
<5 years	31	88.6	49	41.5	
6–10 years	2	5.7	45	38.1	
Over 10 years	2	5.7	24 <sup>b</sup>	20.3	
Previous education in neonatal palliative care is adequate for clinical care <sup>b</sup>					
Disagreement	6	17.2	28	24.1	
Unsure	17	50	44	37.1	
Agreement	12	32.8	46	38.8	

*N* = 154, neonatologists = 35; nurses = 119.

<sup>a</sup>Fisher's exact test.

<sup>b</sup>Missing data from one participant (neonatal nurse).

confidence and age,  $F=3.412$ ,  $p=0.035$  (Table 3). The Bonferroni correction showed that older participants (older than 40 years) had higher confidence than the youngest participants, those between the ages of 20 and 30 ( $p=0.04$ ); but there was no difference in confidence between the over-40 group and the participants aged between 30 and 40 ( $p=0.316$ ). The ANOVA of the six comfort subscales indicated a nonstatistical relationship between levels of comfort and age,  $F=2.506$ ,  $p=0.085$  (Table 3).

#### Years of professional experience

The ANOVA of the six confidence subscales indicated a statistically significant relationship between confidence of participants and the extent of professional experience,  $F=8.879$ ,  $p<0.001$  (Table 3). The Bonferroni correction showed that participants with 11–15 years of experience had significantly higher confidence than participants with either

1–5 years of experience ( $p<0.000$ ) or 6–10 years of experience ( $p=0.013$ ). Participants with experience exceeding 16 years had higher confidence than participants with 1–5 years of experience ( $p=0.012$ ).

The ANOVA of the six comfort subscales also indicated that the extent of professional experience had a statistically significant relationship with levels of comfort,  $F=3.096$ ,  $p=0.029$ . The Bonferroni correction showed that participants with 11–15 years of experience had significantly higher levels of comfort than did participants with 1–5 years of experience ( $p=0.018$ ).

#### Marital status

The ANOVA of the six confidence subscales indicated a statistical relationship between participants' confidence and marital status,  $F=5.737$ ,  $p=0.004$ . The Bonferroni correction showed that married participants had significantly higher confidence than unmarried participants did ( $p=0.003$ ). The

TABLE 2. DESCRIPTION OF RESEARCH DATA

	<i>Confidence</i>	<i>Mean</i>	<i>SD</i>
1	I possess adequate knowledge and skill to perform my duties in my area of practice and expertise.	4.66	1.043
2	I have a solid foundation of knowledge, which has prepared me to work with infants with life-limiting conditions.	4.75	1.07
3	I am confident in my ability to provide pain relief to infants with life-limiting conditions.	4.27	1.115
4	I am confident in my ability to provide relief from a variety of symptoms to infants with life-limiting conditions.	4.43	1.002
5	I understand the principles for making ethical decisions when dealing with infants with life-limiting conditions and their families.	4.12	1.173
6	I am educationally and practically prepared in legal issues pertaining to the care of infants with life-limiting conditions.	3.86	1.31
7	I am confident in my ability to effectively deal with emerging situations that arise in my practice.	4.71	0.952
8	I am confident in my ability to comfort families of infants with life-limiting conditions.	4.06	1.139
9	I consider myself an expert and competent neonatal care professional.	4.25	1.234
10	I believe in my ability to contribute to and make a difference in my work with life-limiting conditions.	4.26	1.089
11	I am competent in comforting a family of an infant who is actively dying.	4.06	1.139
12	I feel discouraged that other coworkers are more competent than I am in some areas of care. <sup>a</sup>	2.96	1.236
13	I feel frustrated that other healthcare professionals do not understand the difficulty and distress that I face in dealing with infants with life-limiting conditions. <sup>a</sup>	3.27	1.28
14	I take time to practice self-care, which includes taking care of my physical, social, emotional, and spiritual health.	4.12	1.249
15	I make time to listen to the experiences of colleagues who are affected by caring for infants with life-limiting conditions and their families.	4.68	0.914
Comfort in providing neonatal palliative care			
16	I believe that there is a clear mechanism for conveying information to patients and their families regarding their prognosis.	4.73	1.12
17	I understand and respect medical choices made by the families of infants with life-limiting conditions, even if these decisions are different than the beliefs or decisions I might make.	4.83	1.007
18	I understand and respect medical physicians provide to families of infants with life-limiting conditions that are based on acceptable standards of care, even if this advice is different from my beliefs or the advice I might give.	4.82	0.882
19	I am comfortable taking care of dying infants.	3.92	1.026
20	I am comfortable dealing with natural grief on a regular basis.	3.87	1.219
21	I am comfortable talking to families about how the dying process may look.	3.57	1.267
22	I am comfortable helping a family deal with extreme emotional distress.	3.68	1.66
23	I feel frustrated by my inability to change the outcomes of infants with life-limiting conditions, who were born with severe medical problems. <sup>a</sup>	4.1	1.037
24	I consider my work with infants with life-limiting conditions to always be very sad. <sup>a</sup>	4.32	1.298
25	After the death of one of the infants that I took care of, I experienced the inability to work or sleep and had difficulty caring for other infants. <sup>a</sup>	3.27	1.280
26	I am not comfortable allowing aggressive treatment to take place for infants with life-limiting conditions.	3.45	1.258
27	I am not comfortable allowing death to take place for infants with life-limiting conditions, who were born with severe medical problems.	3.36	1.22
28	I am able to find satisfaction and meaning in my work with infants with life-limiting conditions and their families.	4.4	1.013
29	If I disagree with medical choices made by families, I have colleagues with whom I can discuss my concerns.	4.48	1.005
30	If I disagree with medical advice provided by physicians, I know and I am comfortable following the steps developed by the team to address my concerns.	4.12	1.114
Questions regarding the working environment			
31	I always share with and use the help of my colleagues to cope or deal with new situations, on a regular basis.	4.68	0.914
32	My place of work is always a supportive environment for neonatal healthcare professionals.	4.56	0.977

<sup>a</sup>Negatively worded items; coding number: 1 = never, 2 = seldom, 3 = unsure, 4 = sometimes, 5 = often, 6 = always. These questions were referred from the Comfort Level Caring for Dying Infants scale (CLCDI).  
SD, standard deviation.

ANOVA of the six comfort subscales also indicated a statistical relationship between marital status and the levels of comfort,  $F=4.041$ ,  $p=0.02$ . The Bonferroni correction showed that married participants had significantly higher comfort scores than did unmarried participants ( $p=0.021$ ).

#### **Professional educational degree and religious beliefs**

The ANOVA of the six confidence subscales indicated that both educational degree ( $F=2.724$ ,  $p=0.069$ ;

TABLE 3. FACTORS ASSOCIATED WITH CONFIDENCE AND COMFORT IN CLINICIANS

Variable	Mean <sup>a</sup>	SD	F	p Value
Factors were significantly related to the level of confidence of participants				
Age (years/old)				
20–30	72.544	12.103	3.421	0.035*
31–40	75.768	13.624		
>40	81.733	12.435		
Marital status				
Married	78.848	12.019	5.737	0.004*
Never married	71.797	13.173		
Divorced	76	9.899		
Years of professional experience				
1–5	71.215	12.522	8.879	<0.001*
6–10	75.468	13.009		
11–15	87	6.793		
Over 16	83	10.401		
Adequate prior palliative care education				
Strongly disagree	68.4	19.6	6.665	<0.001*
Disagree	71.724	13.231		
Unsure	71.541	11.964		
Agree	79.411	11.119		
Strongly agree	91.833	10.361		
Facts were significantly related to the level of comfort of participants				
Professional degree				
Master	46.428	3.258	5.104	0.007*
Bachelor	41.634	4.018		
Associate bachelor	41.5	3.872		
Marital status				
Married	44	4.24	4.041	0.02*
Never married	40.941	3.799		
Divorced	42.72	2.828		
Years of professional experience				
1–5	41.162	3.953	3.096	0.029*
6–10	41.766	4.414		
11–15	44.642	3.629		
Over 16	42.25	2.49		

<sup>a</sup>Mean indicates the value of “the level of confidence” and “the level of comfort” of participants.

\* $p < 0.001$ . Analyzing data by ANOVA

<sup>#</sup>Post hoc analysis by Bonferroni’s correction (“not significant”) ANOVA, analysis of variance.

Table 3) and religious beliefs ( $F = 0.931, p = 0.448$ ; Table 3) had a nonstatistically significant relationship with participants’ confidence.

The ANOVA of the six comfort subscales showed a statistical relationship between the levels of comfort and edu-

cational degree,  $F = 5.104, p = 0.007$  (Table 3). The Bonferroni correction showed that participants with a master’s degree reported significantly greater levels of comfort providing neonatal palliative care than did participants with a bachelor’s degree ( $p = 0.005$ ) or those with an associate bachelor’s

TABLE 4. RESULTS OF ANALYSIS BY INTERDEPENDENT T-TEST

Variables	Mean (SD)**	Mean (SD)**	t Value	p-Value
Occupation	Neonatologists	Nurses		
Level of comfort	41.886 (4.384)	41.712 (3.991)	0.221	0.825
Level of confidence	74 (10.949)	75.188(13.651)	-0.471	0.638
Gender	Female	Male		
Level of comfort	41.742 (3.946)	41.8 (4.743)	-0.65	0.948
Level of confidence	75.204 (13.29)	73.44 (11.923)	0.617	0.538
Prior training experience	Yes	No		
Level of comfort	41.944 (4.008)	40.931 (4.3)	1.208	0.229
Level of confidence	75.984(12.846)	70.178(13.146)	2.151	0.033*

\* $p < 0.001$  analyzing date by T-test.

\*\*Mean indicates the value of “the level of confidence” and “the level of comfort” of participants.

degree did ( $p=0.011$ , Table 3). The ANOVA of the six comfort subscales also indicated a nonsignificant relationship between religious beliefs and levels of comfort,  $F=1.136$ ,  $p=0.342$  (Table 3).

#### **Adequate prior palliative care training experience**

A significant difference appeared between confidence levels of participants with or without prior palliative care training ( $t=2.151$ ,  $p=0.033$ ; Table 4). Participants with prior palliative care education (mean=75.983) showed greater confidence than those without such education (mean=70.178). In addition, the ANOVA of the six confidence subscales indicated a statistically significant relationship between confidence and agreement with the statement "have adequate previous palliative care education,"  $F=6.665$ ,  $p<0.001$  (Table 3). The Bonferroni correction found that participants who strongly agreed had significantly higher confidence than participants who disagreed ( $p=0.003$ ) or who strongly disagreed ( $p=0.018$ ). However, the difference in comfort scores related to prior palliative care training was nonsignificant ( $t=1.208$ ,  $p=0.229$ ; Table 4) as was the relationship between comfort and the statement "previous palliative care education is adequate."

#### **Occupation and gender**

Analysis of an independent  $t$ -test indicated a nonsignificant difference between neonatologists and neonatal nurses in both confidence ( $t=-0.471$ ,  $p=0.638$ ) and comfort ( $t=0.221$ ,  $p=0.825$ ). Analysis of independent  $t$ -test indicated nonsignificant differences between genders in both confidence ( $t=0.617$ ,  $p=0.538$ ) and comfort ( $t=-0.65$ ,  $p=0.948$ ).

#### **Relationship between professional confidence and personal comfort**

Pearson's correlation was used to explore the relationships between participants' professional confidence and personal comfort regarding provision of neonatal palliative care. We found a significantly positive correlation between professional confidence and personal comfort ( $r=0.47$ ;  $p<0.001$ ).

#### **The impacts of a supportive work environment**

Pearson's correlation was used to explore the relationships between participants' professional confidence and the supportiveness of their workplaces. Research found a significantly positive relationship between the level of support received in the workplace and professional confidence ( $r=0.286$ ;  $p<0.001$ ). In addition, Pearson's correlation was used to explore the relationships between the level of personal comfort and supportiveness of workplace, revealing a significantly positive relationship between these two factors ( $r=0.521$ ,  $p<0.001$ ).

#### **Discussion**

Neonatal palliative care is important for improving the quality of life of dying neonates and their families. Research revealed factors impacting professional confidence and levels

of comfort of Taiwanese neonatal clinicians regarding neonatal palliative care.

First, we found that clinicians' confidence was significantly associated with prior palliative care training (Table 3). Research found that participants with advanced degrees enjoyed greater levels of comfort than others when providing neonatal palliative care. These results are likely consistent with previous studies conducted in other countries.<sup>7,11,16,17</sup>

In Taiwan, neonatal palliative care is not included on the syllabus for formal academic medical or nursing bachelor education. However, participants with higher professional degrees may be better informed regarding neonatal palliative care because end-of-life care training is often provided at the graduate level. In graduate school, medical or nursing students are taught principles of neonatal palliative care, which may increase their comfort providing palliative care to neonates, but may not instill the professional skills (confidence) to provide this care. Moreover, in Taiwan, palliative care training often focuses on knowledge and skills, but rarely discusses emotional support for clinicians providing neonatal palliative care, which may explain why most participants reported that prior palliative care training boosted their professional confidence without significantly enhancing their comfort, while providing care. Our research points to the need for education, which imparts professional skills without neglecting the emotional aspects of providing neonatal palliative care.<sup>16-18</sup>

Second, both professional confidence and personal comfort were significantly correlated with the extent of work experience. These results are consistent with previous studies conducted in the United States of America and Japan.<sup>16,17</sup> However, in this research, most participants were junior clinicians with <5 years of professional neonatal experiences (51.9%). A particularly high number of participating neonatologists had <5 years of professional neonatal experiences (88.6%). Based on our findings, junior clinicians may need greater support to enhance their professional knowledge and experiences in providing neonatal palliative care. Therefore, we propose the development of interdisciplinary education and collaborative learning programs to encourage the sharing of experiences and information between different disciplines, and senior clinicians and junior clinicians, thereby promoting their confidence and comfort when providing neonatal palliative care.<sup>9,18,19</sup>

In this research, life experiences such as marriage, and age of participants seem to be important factors in elevating the confidence or comfort of neonatal clinicians regarding neonatal palliative care. We assure that older participants may have longer working experience than younger participants. Therefore, participants older than 40 years showed the most confidence compared to their younger colleagues (Table 3). In addition, married participants showed higher professional confidence and presented comfortable providing neonatal palliative care than did single or divorced participants. Sixty-six participants (42.85%; 21 neonatologists and 45 neonatal nurses) were married, and 54 participants (35.06%) had parenting experience. We propose that married participants showed more confidence and felt more comfortable to provide neonatal palliative care may base on their parenting experience. Further research is needed to investigate above hypotheses.

Third, although most participants were uncomfortable caring for dying neonates and dealing with the emotional distress associated with such care (Table 2, q19–q24), they reported greater levels of confidence and comfort in a more supportive workplace. A previous study<sup>19</sup> has also found that junior clinicians caring for dying neonates often suffer from the stress of inadequate communication within the healthcare team as well as from grief and moral distress. In addition, other studies also suggest that support, compassion, and open communication within the healthcare team facilitate clinicians' confidence and comfort in offering neonatal palliative care.<sup>18–21</sup> Our results confirm the value of colleagues' support to clinicians providing such care.

### Limitations

Although these data have contributed to the knowledge of neonatal palliative care and demonstrated the importance of supportive workplace, several limitations should be noted. The research is based on a self-reported structured questionnaire. Participants may potentially respond superficially to questions, introducing bias to the research. Since the questionnaire included only two questions regarding participants' perceptions of workplace support, the results may not fully represent clinicians' expectations concerning their work environment.

### Conclusion

As we know, providing neonatal palliative care can be stressful and emotionally challenging. This study represents the first understanding of clinicians' professional confidence and personal comfort providing neonatal palliative care in Taiwan, demonstrating not only the factors associated with confidence and comfort but also the close association between the two. The value of neonatal palliative care training revealed in this study suggests that junior neonatal clinicians with less professional experience in palliative care may need additional training and support. In addition, the contents of training may need to adjust to enhance clinicians' confidence and comfort providing neonatal palliative care practice for critically ill or dying neonates. Based on results suggesting the importance of colleagues' support, we also recommend establishing an interdisciplinary neonatal palliative care team to support junior clinicians and facilitate mentoring by senior clinicians of their younger colleagues. Further studies are needed to assess strategies of promoting the professional confidence and personal comfort of pediatric clinicians when providing neonatal palliative care.

### Author Disclosure Statement

No competing financial interests exist.

### References

1. World Health Organization: Global atlas of palliative care at end of life. World Health Organization. Worldwide palliative care alliance. [www.who.int/nmh/Global\\_Atlas\\_of\\_Palliative\\_Care.pdf](http://www.who.int/nmh/Global_Atlas_of_Palliative_Care.pdf) pp.34 (Last accessed August 27, 2014).
2. Parravicini E. Neonatal palliative care. *Curr Opin Pediatr* 2017;29:135–140.
3. Zargham-Boroujenu A, Zoafa A, Marofi M, Badiie Z: Compilation of the neonatal palliative care clinical guideline in neonatal intensive care unit. *Iran J Nurs Midwifery Res* 2015;20:309–314.
4. Peng N-H, Chen C-H, Liu H-L: To explore the conditions of dying infants in NICU in Taiwan. *J Crit Care* 2011;27:102.e7–102.e13.
5. Foster C, Monterosso L: The ventilator-dependent infant requiring palliative care in the neonatal intensive care unit: A literature review. *Neonatal Paediatr Child Health Nurs* 2012;15:8–19.
6. Ewing A, Carter BS: Once again, Vanderbilt NICU in Nashville leads the way in nurses' emotional support. *Pediatr Nurs* 2004;30:471–472.
7. Hirooka K, Miyashita M, Morita T, et al.: Regional medical professionals' confidence in providing palliative care, associated difficulties and availability of specialized palliative care services in Japan. *Jpn J Clin Oncol* 2014;44:249–256.
8. Melin-Johansson C, Day A, Axelsson I, Forslund I: Supportive interventions and their impact on pediatric health care professionals' emotional well-being: A systematic literature review. *Clin Nurs Stud* 2014;2:60–73.
9. Huggard J, Nichols J: Emotional safety in the workplace: One hospice's response for effective support. *Int J Palliat Nurs* 2011;17:611–617.
10. Sheetz MJ, Bowman M-A: Pediatric palliative care: An assessment of physicians' confidence in skills, desire for training, and willingness to refer for end-of-life care. *Am J Hosp Palliat Med* 2008;25:100–105.
11. Wool C: Clinician confidence and comfort in providing perinatal palliative care. *J Obstet Gynecol Neonatal Nurs* 2013;42:48–58.
12. White A: From comfort zone to performance management. Understanding development and performance. April, 2008. [www.whiteandmaclean.eu/uploaded\\_files/120120109110852performance\\_management-final290110\(2\)-preview.pdf](http://www.whiteandmaclean.eu/uploaded_files/120120109110852performance_management-final290110(2)-preview.pdf) (last accessed April 2008).
13. Babgi A, Rogers S, Gomez C, McMahon R: Educational interventions in end-of-life care: Part II: Psychometric development of an instrument to measure nursing comfort after an educational intervention in end-of-life care: The "Comfort Level Caring for Dying Infants" (CLCDI). *Adv Neonatal Care* 2008;8:66–70.
14. Paouris G, Pivovarov P, Zinn J: A central limit theorem for projections of the cube. *Probab Theory Relat Fields* 2014;159:701–719.
15. Engler AJ, Cusson RM, Brockett RT, et al.: Neonatal staff and advanced practice nurses' perceptions of bereavement/end-of-life care of families of critically ill and/or dying infants. *Am J Crit Care* 2014;13:489–498.
16. Michelson KM, Ryan AD, Jovanovic B, Frader J: Pediatric residents' and fellows' perspectives on palliative care education. *J Palliat Med* 2009;12:451–457.
17. Jones BL, Sampson M, Legett S, et al.: Comfort and confidence levels of health care professionals providing pediatric palliative care in the intensive care unit. *J Soc Work End Life Palliat Care* 2007;3:39–58.

18. Zhang W and Lane BS: Promoting neonatal staff nurses' comfort and involvement in end of life and bereavement care. *Nurs Res Pract* 2013;1-5.
19. Figueroa MI, Sepanski R, Goldberg SP, Shah S: Improving teamwork, confidence, and collaboration among members of a pediatric cardiovascular intensive care unit multidisciplinary team using simulation-based team training. *Pediatr Cardiol* 2013;34:612-619.
20. Rushton CH, Reder E, Hall B, et al.: Interdisciplinary interventions to improve pediatric palliative care and reduce health care professional suffering. *J Palliat Med* 2006;9:922-933.
21. Chen C-H, Huang L-C, Liu H-L, et al.: To explore the neonatal nurses' beliefs and attitudes towards caring for

dying neonates in Taiwan. *Matern Child Health J* 2012;17:1793-1801.

Address correspondence to:  
*Niang-Huei Peng, PhD, RN*  
*Putian University School of Nursing*  
*Putian University*  
*No. 1133 Xueyuanzhongjie*  
*Chengxiang District*  
*Putian, Fujian*  
*China*

*E-mail:* forever.pal.lily@gmail.com