Knowledge, Attitudes, Workplace Learning Conditions and Nurses' Competence towards Palliative Care in a Cancer Hospital in China

Yuhan Shen

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Nursing Science (International Program)
Prince of Songkla University
2018

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I hereby certify that this work has not been accepted in substance for any degree, and is not being currently submitted in candidature for any degree.

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ABSTRACT

The aims of this research were to describe palliative care competence and examine the correlations of palliative care knowledge, attitudes, and workplace learning conditions with palliative care competence among oncology nurses. This cross-sectional correlation study was carried out in a cancer center in China. A total of 220 nurses with more than six months of experience, and who worked in inpatient wards, were invited to participate in this study; the response rate was 96.36% (212 nurses). Four questionnaires were administrated to collect data—the Palliative Care Quiz for Nurses (PCQN), the Attitudes towards Palliative Care Scale (ATPC), the Learning Conditions Scale (LCS), and the Palliative Care Nursing Self-competence Scale (PCNSC). The data were analyzed using descriptive statistics and Pearson's correlations.

A moderate level of competence was generally reported among nurses in this cancer hospital. The scores concerning professional cooperation and communication, spiritual care, and ethical and legal issues were lower than those of the other aspects of competence. Moreover, competence was positively related to

workplace learning conditions (r = .46, p < .001) and knowledge (r = .16, p < .05); however, this was not the case for the attitudes towards palliative care.

The findings highlighted the necessity of improving the overall palliative care competence among nurses. The optimization of workplace learning conditions in the hospital would also be a vital force in strengthening their competence. Further efforts should focus on planning palliative care educational programs, at the same time, managing human resources better in order to build a more conducive learning environment.

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CHAPTER 1

INTRODUCATION

This chapter presents the background, objectives of the study, research questions, conceptual framework, research hypothesis, definition of terms, scope of the study, and its significance. The details for each section are as follows:

Background and Significance of the Problem

Palliative care is an essential way to improve the patients' and their families' quality of life (QOL) when they face problems linked to a life-threatening disease as defined by the World Health Organization (WHO). The key aspects of palliative care are focused on relieving suffering and preventing pain, as well as managing problems related to other physical, psychosocial and spiritual aspects (WHO, 2010). Palliative care was initially developed to provide better care for cancer patients, but it has gradually become the universal approach of caring for patients with chronic diseases (Clark, 2007). Recently, the integration of palliative care into oncological care has been emphasized, particularly at the early stage of cancer diagnosis (Bauman et al., 2014; Ferrell et al., 2016b; Greer et al., 2013). As Kaufmann and Kamal (2017) highlighted, this integration is fundamental to providing successful, high-value, and high-quality cancer care. Palliative care has significantly improved the cancer patients' and their families' spiritual well-being, QOL, satisfaction with the care received, and healthcare resource utilization (De Lima et al., 2012; Ferrell et al., 2016b; Zimmermann et al.,

2014) as well as extended the length of survival of cancer patients (Bauman et al., 2014).

Hence, the demand for palliative care among cancer patients also cannot be ignored. Firstly, cancer is one of the leading causes of morbidity and mortality globally, with approximately 14 million new cases in 2012 (Ferlay et al., 2013). Close to 22% of new global cancer cases occur in China, making it a major public health problem there (Chen et al., 2016). Secondly, there are major consequences for cancer patients—both physical and psychological (Wu & Harden, 2015). Cancer patients' experiences of serious suffering vary with treatment (Brant et al., 2011; Kluthcovsky et al., 2012) and illness trajectory (Brant et al., 2011), and are also relevant to the type of cancer (Wu et al., 2015). For example, in patients with breast cancer, the most serious symptom was found to be sleep disturbance and fatigue (Berger et al., 2012; Goldstein et al., 2012), while the suffering experienced by patients with lung or colorectal cancer was primarily due to pain, with symptoms still lasting more than a year after the diagnosis (Brant et al., 2011). Meanwhile, caregivers report increasing burdens related to providing physical care and symptom monitoring as well as illness-related financial difficulties (Lee et al., 2015). These situations make palliative care imperative for patients with all types of cancer and their families throughout the cancer trajectory. In order to improve the QOL of patients with cancer and their families, healthcare providers possess general palliative care competence (Gamondi et al., 2013).

The key element to offering high-quality palliative care is enhancing competence among health service providers (Gamondi et al., 2013). Nurses play an irreplaceable role in the palliative care service (Kang et al., 2013; Tait et al., 2015).

The palliative care nursing competence, as a guarantee of service, hinges on the nurses' capability to care for both the patients' and their family's needs until the end of the patient's life, addresses ethical issues, recognizes the necessary professional development in the palliative care context, and acquires good communication and collaboration skills (Desbiens & Fillion, 2011; Ferrell et al., 2016a; Gamondi et al., 2013). These competences are used throughout the process of assessment, treatment, and prevention of the course of nursing care (Gamondi et al., 2013). It has been reported that oncologists and nurses with inefficient palliative care competence lead to poor symptom management received by cancer patients (Amano et al., 2015), a poor level of spiritual well-being, and even a lower QOL (Zimmermann et al., 2014).

Previous studies have found the nurses' overall palliative care competence to be at a moderate level (Hayter, 2016; Nguyen et al., 2014; Pesut et al., 2015). However, the level of competence regarding the subdimensions of palliative care competence from those studies was different. For instance, pain management has been rated by nurses with the most appropriate level of competence among general nurses from the United Kingdom (Shipman et al., 2008) and acute-care nurses in the United States (Hayter, 2016), whereas it was reported as being one of the competences oncology nurses in Vietnam were the least prepared for (Nguyen et al., 2014). Other studies have yielded varying results concerning the aspects of psychological/social/spiritual care (Becker et al., 2007; Nguyen et al., 2014; Pesut et al., 2015; Shipman et al., 2008; Wang, 2015), and competence regarding ethical and legal issues (Hayter, 2016; Nguyen et al., 2014). Hence, the reported findings on nurses' competences have indicated different levels of perceived competence in the subdimensions of palliative care that vary by country and nursing group.

Several factors have been found to be associated with the nurses' palliative care competence—palliative care knowledge (Nguyen et al., 2014), attitudes towards to palliative care (Ayed et al., 2015; Schlairet, 2009), and workplace learning conditions (Kyndt et al., 2016). A research from Vietnam found that a higher competence level was significantly enhanced by an advanced level of palliative care knowledge (Nguyen et al., 2014). In addition, a large number of education programs have been conducted to modify the practitioners' knowledge in order to enhance their palliative care competence (Montagnini et al., 2012; Nguyen et al., 2014). Regarding attitudes towards caring, a negative attitude has also been found to correlate with inadequate palliative care practice (Huijer et al., 2009). Negative feelings can further impact nurses adversely when accepting patients and their family members as primary decision makers (Braun et al., 2010; Pesut et al., 2014).

Meanwhile, it is the consensus that competence grows with working experience (Chang et al., 2011; Lakanmaa et al., 2015; Nguyen et al., 2014). Workplace learning conditions could be one method to probe the phenomenon of how work experience in the environment exerts an influence on nurses' competence (Takase et al., 2015). Recently, the relationship between workplace learning conditions and nursing competence has attracted more attention. A positive association between workplace learning and nurses' general competence has been identified (Isidro-filho et al., 2013; Kyndt et al., 2016; Takase et al., 2015). One study indicated that all of the components of workplace learning (reflection, cooperation, practical application) contribute to nurses' work-oriented competence, excluding "learning from materials" (Isidro-filho et al., 2013). Another study from Belgium highlighted that workplace learning significantly impacted the communication and

problem-solving competences among mixed-specialty nurses [e.g. oncology, cardiology, radiology, etc.] (Kyndt et al., 2016).

The development of palliative care in mainland China has proven challenging due to the rapidly increasing demands and the limited available services for patients (EIU, 2015). Moreover, palliative care has still not been recognized as an important discipline in the medical education system (Gu et al., 2016). The quality of death reports show that patients do not receive a high quality of palliative care at the EOL in China. Their quality of death ranked 71st out of 80 countries (EIU, 2015). Similar to those in many other countries, Chinese nurses need to be educated and trained in improving the palliative care quality for patients and caregivers (Lu et al., 2018). Several research studies have evidenced a lack in palliative care skills among nurses (Shen et al., 2014; Zhang et al., 2013). Furthermore, they still possess an unsatisfactory level of palliative care knowledge due to the absence of palliative care courses in the nursing education curriculum (Shen, 2014; Zou, 2007). Under these conditions, the gap of knowledge regarding the nurses' palliative care competence and the relevant factors need to be explored. The results of this study would be beneficial to healthcare providers in improving their competence in caring for cancer patients.

Objectives of the Study

The two specific aims of the study were as follows:

1. To describe the level of palliative care nursing competence perceived by nurses in the cancer hospital.

2. To examine the relationships among palliative care knowledge, attitudes towards palliative care, workplace learning conditions, and palliative care nursing competence among nurses in the cancer hospital.

Research Questions

The research questions of this study were:

1. What is the level of palliative care nursing competence perceived by nurses in the cancer hospital?

2. Are there any associations among palliative care knowledge, attitudes towards palliative care, workplace learning conditions, and palliative care nursing competence among nurses in the cancer hospital?

Conceptual Framework of the Study

As it was purposed to describe the status of palliative care nursing competence and examine its relevant factors, the concept of palliative care nursing competence (Desbiens & Fillion, 2011) was used to explain the key components of the nurses' palliative care competence comprehensively. Evidence from literature review was used to support the choice of relevant factors for investigation, namely palliative care knowledge (Nguyen et al., 2014), attitudes (Huijer et al., 2009; Nguyen et al., 2014), and workplace learning conditions (Kyndt et al., 2016).

Palliative Care Nursing Competence

In palliative care nursing, "competence involves the integration of disciplinary knowledge to provide quality care to patients and families" (Desbines & Fillion, 2011,

p. 230). Desbines and Fillion (2011) further defined palliative care nursing self-competence as the judgment of the nurses' own capability and the perceived palliative care competence that is specific to delivering quality care to patients with a life-threating illness even at the end of life.

The domains of palliative care nursing competence by Desbines and Fillion (2011) have been utilized and serve as the guidelines and conceptual framework of hospice and palliative care in Canada, the United States and some European countries. They comprise ten major domains that were used to drive this study as the following details delineate:

(1) Physical care on pain management and (2) physical care on other symptom management. Physical care refers to proving care and supporting for physical needs. It is divided into physical care for pain management and management of other symptoms such as nausea, constipation, fatigue and so on.

(3) Psychological care: Psychological care refers to the support of needs of both patients and their families through assessing and providing emotional support throughout the disease trajectory, including the grieving process around death, and orienting for resources when needed.

(4) Social care: Meeting the patients' and their families' social needs appropriately as it regards their social roles and culture aspects, and provide help to access appropriate resources.

(5) Spiritual care: Care for spiritual needs involves evaluating the patients' and their families' needs regarding adopting spiritual interventions, and assisting in reaching resources related to the expression, and practice of religion.

(6) Care related to functional status: Care related to patient' is based on precise assessment and assistance. The focus points are the maintenance of personal capabilities of daily function (eating, dressing, etc.) and independence.

(7) Ethical and legal considerations: Nurses need to recognize the ethical and legal aspects of palliative care as well as make appropriate ethical decisions. This is related to assisting patients and their families how to deal with ethical issues related to EOL and collaborate to ensure the patients' autonomous decision-making.

(8) Inter-professional collaboration and communication: Nurses are required to use skills in their work process to facilitate collaboration and practice in an inter-professional team. Furthermore, they also need to promote communication either within the team or between patients and families.

(9) Personal and professional issues related to nursing care: Here, nurses are required to recognize the contribution of values and beliefs in the nursing services. In addition, they need to understand stress in the palliative care context in order to develop coping strategies in the long run.

(10) Care at the last hours of life: In the last dimension points to EOL care, nursing services focus on assisting patients with comprehensive comfort (pain and/or other symptoms) and supporting their families during the death stage of patient care.

Factors Related to Palliative Care Nursing Competence

Based on literature review, the factors related to the nurses' perceived competence were palliative care knowledge, attitudes towards palliative care, and workplace learning conditions. A study conducted by Nguyen et al. (2014) determined the posture relationships of nurses' palliative care knowledge and their

attitudes towards it, and perceived competence. However, only the association between knowledge and competence has been proved in their study. Desbines et al. (2012) also believed that perceived competence corresponded to their competence and attitudes. Another factor related to nursing competence in general is workplace learning.

Workplace learning, as the process of individual capacity developing in a context (Jacobs & Park, 2009), has been found to have a strong relationship with competence among many professions (Nikolova et al., 2014), including the nursing profession (Isidro-Filho et al., 2013; Kyndt et al., 2016; Takase et al., 2015).

Palliative care knowledge. Knowledge is described as “the culmination of the integration of what is known and understood through learning and experience” (Johnson & Webber, 2005, pp.11-12). Nurses’ palliative care knowledge has been reported to have a statistically positive correlation with palliative care nursing competence among oncology nurses ($r = 0.26$, $p <.0001$) (Nguyen et al., 2014).

Attitudes towards palliative care. Attitudes while delivering palliative care refers to whether or not the providers prefer caring for patients with life-threatening illness and their families (Ayed et al., 2015). Huijer et al. (2009) highlighted a positive relationship between the attitude towards caring and nurses’ rating scale of palliative care practice, which could reflect their competence in some aspect. Moreover, the correlation of attitudes towards spiritual care with perceived spiritual care competence has also been reported (Azarsa at al., 2015; Chan, 2010).

Workplace learning conditions. Workplace learning refers to the process individuals use to obtain knowledge, develop skills, enhance positive attitudes, and demonstrate caring behavior subsequently appropriate in the context (Jacobs & Park,

2009; Kyndt et al., 2016). A statistically positive correlation between workplace learning conditions and nurses' competence has been identified (Isidro-Filho et al., 2013; Kyndt et al., 2016; Takase et al., 2015). Findings thus far suggest that several workplace learning conditions (opportunities for reflection, evaluation and cooperation, being coached) in the hospital significantly contribute to nurses' level of competence (Kyndt et al., 2016).

Thus, in this study, nurses' palliative care knowledge, attitude towards palliative care, and workplace learning conditions were included in order to determine any possible association with palliative care nursing competence. The conceptual framework of this study is presented in Figure 1.

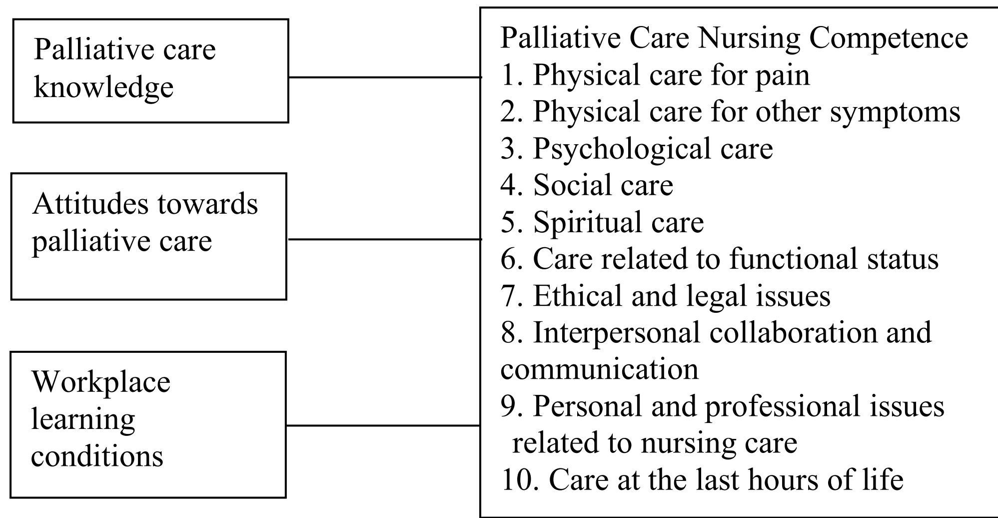

Figure 1. Conceptual Framework of This Study

Hypothesis

In light of the research questions, this investigation tested the following hypothesis:

The scores measuring palliative care knowledge, attitude towards palliative care, and perceived workplace learning conditions will be associated with the scores measuring palliative care nursing competence among nurses.

Definition of Terms

Palliative Care Nursing Competence

Palliative care nursing competence refers to the nurses' perception of their capabilities to provide quality care to patients and their families experiencing cancer. The competence was assessed in terms of ten components related to providing holistic palliative care for (1) physical care on pain and (2) other symptoms, (3) psychological care, (4) social needs, (5) spiritual care, (6) care related to functional status, and being competent in (7) ethical and legal issues, (8) inter-professional collaboration and communication, (9) personal and professional issues related to nursing care, and (10) care at the last hours of life. The Palliative Care Nursing Self-Competence Scale (PCSNC) (Desbiens & Fillion, 2011) modified by Sawatzky, Desbiens, and Fillion (2014) was used to measure the level of palliative care nursing competence among nurses in this cancer hospital.

Palliative Care Knowledge

Palliative care knowledge refers to a culmination of the integration of what is known and understood about the part under the scope of palliative care specifically. This includes specific knowledge regarding (1) philosophy and principles of palliative care, (2) management of pain and symptoms, followed by (3) psychosocial and spiritual care aspects. Knowledge was assessed using the Palliative Care Quiz for Nursing (PCQN) Chinese version (Zou, 2007), which is translated from the questionnaire developed by Ross et al. (1996).

Attitudes towards Palliative Care

Attitudes refer to the nurses' perception of what they believe and how they intend to behave regarding taking care of patients with terminal illness and their families. Attitudes were divided into three dimensions covering (1) professional responsibility in palliative care, (2) the efficacy of palliative care, and (3) communication about dying. The attitudes towards palliative care in this study were assessed using Attitudes Towards Palliative Care (ATPC) questionnaire (Bradley et al., 2000) Chinese version (Zou, 2007).

Workplace Learning Conditions

Workplace learning conditions refer to the nurses' perception of surrounding learning conditions, which support their development of palliative care competence during daily practice in the hospital. The components of conditions consist of their perception of opportunities for cooperation, evaluation, feedback, reflection, knowledge acquisition, access to information, and being coached. These factors were

assessed using the modified Learning Condition Scale (LCS) developed by Kyndt et al. (2016).

Scope of the Study

This descriptive correlation study examined the nurses' perception of palliative care nursing competence and its relevant factors. This study was conducted among nurses who work at the inpatient wards of Yunnan Cancer Hospital. The duration of this study was from January 15 to 26, 2018.

Significance of the Study

The investigation of the level of palliative care nursing competence will be beneficial to healthcare professionals and policymakers in understanding the current situation regarding palliative care nursing competence among nurses in the Cancer Hospital in Yunnan Province, China. In addition, the understanding of the relationship between palliative care nursing competence and its relevant factors as mentioned above could help the nursing managers devise strategies for competence development such as education programs to further improve the service received by cancer patients and their families. Meanwhile, the evidence collected can help improve workplace learning conditions to better optimize human resource management, and be conducive to an environment that is propitious for capacity development. Finally, this study has provided baseline data for expanding research concerning palliative care nursing in the context of China.

CHAPTER 2

LITERATURE REVIEW

This chapter presents a review of the relevant literature that underpins this study. The literature and evidence focused on palliative care nursing competence and its relevant factors. The details for each topic is presented according to the following outline.

1. Palliative Care Nursing Competence

    1.1 Concept of Palliative Care

    1.2 Concept of Nursing Competence

    1.3 Concept of Palliative Care Nursing Competence

    1.4 Instruments Used to Assess Palliative Care Nursing Competence

2. Factors Related to Palliative Care Nursing Competence

    2.1 Demographic Factors

    Age

    Years of working experience

    Experience of caring for terminally-ill patients

    Work setting

    Experience of attending palliative care training

    2.2 Modifiable Factors

    Palliative care knowledge

    Attitudes towards palliative care

    Workplace learning conditions

3. Palliative Care in China

    3.1 Palliative care integrated into nursing practice

3.2 Palliative care integrated into nursing education

3.3 Palliative care nursing in research studies

4. Summary of Literature Review

Palliative Care Nursing Competence

The requirement of nursing competence in a palliative care context has been adjusted according to the nursing competence and attributes of palliative care. In order to know the phenomenon better, this section presents the concept of palliative care followed by the situation of palliative care in China, palliative care nursing competence, and the existing situation of nurses' palliative care competence is also included.

Concept of Palliative Care

The concept of palliative care is an important concept widely used to guide nurses and other professionals to achieve high-quality health care for patients with life-threatening illness. In this section, the definition of palliative care and its attributes are explained.

Definition. Palliative care, as defined by the World Health Organization (WHO, 2010), refers to an essential way to improve the QOL of patients and their families who encounter problems linked to life-threatening diseases, through infallible assessment, early identification, pain treatment, and management of other issues regarding the patients' physical, psychosocial, and spiritual needs. The main purpose of palliative care is to prevent and relieve suffering (WHO, 2010).

Additionally, palliative care, as defined by the American National Hospice and Palliative Care Organization (NHPCO), refers to a comprehensive professional care provided by interdisciplinary teams. Patients, families, palliative and non-palliative healthcare providers not only collaborate and communicate about the patient's needs, but also facilitate the patient's autonomy. The support patients to achieve more

appropriate peaceful and uphold dignity ranges from early intervention to improve the QOL and helping patients facing death to helping families cope with bereavement after the death (NHPCO, 2017).

Multiple terms have been mentioned along with palliative care, including supportive care and hospice care; these terms vary by the duration of illness trajectory (Hui et al., 2013). Generally, palliative care is provided to patients since they are diagnosed with a life-threatening illness (Hui et al., 2013), inclusive of advanced cancer (Ferrell et al., 2016a). In addition, in palliative care, time is limited, so the delivery of services is focused on QOL more, and there is more volunteer involvement, and an increasing stigma compared with supportive care (Hui et al., 2013). Concerning stigma related to death and dying in a palliative context, patients (and families) usually think they will not be discharged alive (Miyashita et al., 2008). Therefore, more attention is given to supportive care while patients receive treatments, but the multidisciplinary team and bereavement services are not often mentioned. Furthermore, hospice care is one stage of palliative care provided when a patient's life expectancy is 6 months or less, and volunteers, bereavement care, and community care are frequently emphasized (Hui et al., 2013).

In conclusion, palliative care is focused on improving QOL, and attending to the patients' and their families' needs rather than treating the disease. It is provided by a multidisciplinary team to ensure a comprehensive patient- and family-centered care throughout the illness trajectory. Thus, collaborating and communicating either within the team members or between the healthcare providers and clients is important.

Level of palliative care. The palliative care specializations can be classified into two levels, including the primary palliative care level and the specialist palliative

care level (Quill & Abernethy, 2013). At the primary palliative care level, it is the principle of palliative care that should be practiced in every clinical setting in the hospital. At the specialist palliative care level, the service focuses on care for individuals with more complex and demanding care needs. Professionals in specialist level require a greater degree of palliative care training and more supportive resources. The oncologist, one of the specialists, should obtain basic knowledge about palliative care and practice it. Furthermore, the triage system of palliative care specialists should be available when necessary (Quill & Abernethy, 2013).

Attributes of palliative care. The core attributes of palliative care have been reviewed based on the study of Guo, Jacelon and Marquard (2012) and other relevant studies. These consist of five attributes: holistic care, patient- and family-centered care, multidisciplinary team work, integrated approach, and effective communication.

***1) Holistic care*.** Holistic care refers to care addressing the needs of the patients' physical, psychological, social, spiritual and daily practical aspects and also their families' emotional, social, and spiritual suffering (Guo et al., 2012). Holistic care is used to ensure the achievement of the best QOL. Each dimension in holistic care is a comprehensive care service throughout the process from identification to management, outcome evaluation, and support for issues which cannot be treated directly (De Lima et al., 2012).

Firstly, the physical care aspect consists of pain management and symptom relief. All types of pain have been emphasized as central focus issue of physical care. Meanwhile, other symptoms in physical care include respiratory problems (dyspnea, cough), gastrointestinal problems (nausea, vomiting, constipation, and diarrhea), delirium, wound care and insomnia (Rosser & Walsh, 2014). These symptoms should

be assessed and treated. Further support (or treatment) for fatigue, anorexia, anemia, drowsiness and sweating is needed when possible (De Lima et al., 2012).

Secondly, psychological care refers to addressing the patients' psychiatric symptoms such as depression, anxiety, and delirium. The process is completed by screening for symptoms, using assessment tools, and providing interventions. Furthermore, support for family and caregivers is needed, which helps reduce suffering, grief, and bereavement (De Lima et al., 2012; NCPQPC, 2013).

Thirdly, social care concerns the address and assessment of the patients' and their families' social functional needs. Similar to other domains, the service here consists of assessment, intervention support, and referral to appropriate resources when needed. In addition, continually assessing social aspects should link to goals, social strengths, well-being and cultural issues (NCPQPC, 2013).

Spiritual care is a form of support covering both the patients' and their families' spiritual needs in order to improve their spiritual well-being. The comprehensive process of spiritual care includes screening for problems related to one's spiritual dimension, assessment of religion and/or spiritual background and/or preferences, and facilitating religious, spiritual and cultural practices (NCPQPC, 2013).

When it comes to the last hours of life, the focus point of holistic care for patients and their families mentioned frequently includes bereavement care (Hui et al., 2013). Care at the last hours of life is one stage of palliative care that focuses on planning and caring for the weeks and months before and after death (Becker, 2010). It is care for dying patients and their families in all aspects at the EOL stage. More specifically, this service helps patients maintain the best QOL and minimize suffering

from symptoms in order to promote a peaceful, dignified and respectful death. Comprehensive care is provided through symptom relief in collaboration with care plan implementation and bedside attendance (NCPQPC, 2013).

2) Patient and family-centered care. One of the elements of holistic care mentioned above, patient-centered care is reflected in many aspects (psychological, social and spiritual care). While family-centered care involves the support of the person who takes care of and has a significant relationship with the patient, services related to family-centered care comprise the promotion of decision making, provision of information, and learning of skills involved in caring for the patient; bereavement service is also included (Hui et al., 2013). The scope of patient- and family-centered care also includes supporting and helping both the patients and their families to access and utilize the resources available to them (Guo et al., 2012).

Another essential point in the care for both patients and their families is ethical and legal considerations surrounding palliative care (NCPQPC, 2013). Ethical principles in palliative care consist of beneficence, non-maleficence, justice, and autonomy. The healthcare provider should command ample knowledge and skills in ethical, legal and medical decision-making to enhance nursing practice (NCPQPC, 2013), especially when end-of-life issues arise (Becker, 2010).

3) Multidisciplinary teamwork. Multidisciplinary teamwork refers to the team-oriented method in care delivery. Teamwork is the foundation of palliative care. The professionals within the multidisciplinary team consist of physicians, nurses, social workers and professionals from many other disciplines. These different professions bring a different perspective to help patients achieve the goal of palliative care together. Additionally, the services should be provided by specialists who have

experience in the field of taking care of patients with a life-threatening disease (Guo et al., 2012). Meanwhile, the acknowledgement of psychosocial and spiritual needs of self and other professionals in the team is essential to teamwork (De Lima et al., 2012).

4) An integrated approach (of optimal medical management). Palliative care is a method integrated with optimal medical management when a serious disease is diagnosed (Guo et al., 2012; Ryan, 2014). Palliative care could be widely present in the area of holistically optimizing the patient's comfort. As an essential component of comprehensive cancer care, the integration of palliative care into cancer care purposes to provide high-quality, comprehensive care in the whole illness trajectory (Ferrell et al., 2016b; Guo et al., 2012).

5) Effective communication. Communication runs through the whole process of care and requires prepared professionals in terms of both knowledge and skills in order to ensure that the information provided is appropriate and safe (De Lima et al., 2012). Establishing effective communication methods in the service process involves appropriate information sharing, taking the initiative to listen, and clearly knowing the patient's and family's goals and preferences in order to assist decision-making (Guo et al., 2012).

Needs of palliative care among cancer patients. It is recommended that palliative care be integrated into cancer care routinely (Kaufmann & Kamal, 2017; Rangachari et al., 2013) since it is specially focused on optimizing the patients' and their families' QOL (Guo et al., 2012). This approach regularly evaluates and manages their needs throughout the illness trajectory (Kaufmann & Kamal, 2017). Hence, palliative care provides important support for cancer patients and their

families as their experience with cancer may lead them to face the following problems.

Physical needs. Physical problems of cancer patients are mainly associated with pain and other unpleasant symptoms such as fatigue and sleep disturbance (Wu & Harden, 2015). These symptoms have a significant impact on their QOL, functional status, and hospital utilization (Green et al., 2011; Wu & Harden, 2015). Evidence shows that pain is the most commonly reported symptom among cancer patients (Tai et al., 2016). According to Meegoda et al. (2015), more than three-quarters of cancer patients report a need for pain management while receiving healthcare.

Furthermore, another issue is functional status, since physical and psychosocial symptoms (distress) significantly interfere with the cancer patients' daily function and enjoyment of life (Berger et al., 2012; Goldstein et al., 2012; Wu et al., 2015). For example, fatigue results in the need for assistance with work, even causing significant disability among breast cancer patients. The patient's functional status is significantly related to the needs of palliative care, which increase before death onwards (Weingaertner et al., 2014).

The focus points of supporting the patients' physical needs need to slightly adjust at the last hours of life. With the progress of the disease, problems increase in maintaining the desired level of comfort (Becker, 2010). Cancer patients experience distress from multiple symptoms such as fatigue and anorexia (del Río et al., 2012). Spiritual problems are also perceived to increase at this stage (Phelps et al., 2012).

Psychological needs. Numerous studies have highlighted that a significant psychological symptoms burden (depression, anxiety, and cancer-related stress etc.) affects the patients' QOL, which subsequently impact physical function even one year

after the diagnosis (Goldstein et al., 2012; Wu et al., 2015). The psychological needs of patients are important to be dealt with since they impact the patients' attitude towards their illness and motivation in self-care (Meegoda et al., 2015).

Social needs. The life-limiting consequences of the disease and its treatment affect the relationship between patients and their families, which can increase their anxiety and perceived burden, and it may even affect their EOL care preference, including the patient's autonomy (Lee et al., 2015). The demand of seeking help regarding relationships has reached 60% in cancer patients (Meegoda et al., 2015). Regarding this, support for social problems is meaningful to patients since it significantly contributes to better mental health, QOL (Matthews et al., 2012) and improves the patients' experiences when receiving palliative care (Ferrell et al., 2016b).

Spiritual needs. Facing terminal illness often contributes to the rise of questions of deeper existential issues because the patient's self-esteem and spiritual faith are threatened (Hatamipour et al., 2015). Spiritual problems influence how the patients cope with stress, and how they perceive their illness and experience of treatment (Hatamipour et al., 2015). Hence, spiritual well-being is the core element which is significantly related to the patients' QOL (Matthews et al., 2012). In one study, the majority of patients (86%) perceived spiritual care as essential in nursing care (Balboni et al., 2013).

Besides offering better support for cancer patients' needs, the benefits of palliative care become more obvious for cancer patients the earlier it takes place during care. The exhibition of benefits consists not only in helping the patients meet the goal of improving their QOL, but also in extending their survival (Bakitas et al.,

2015), improving their satisfaction and experience with the received service (Meegoda et al., 2015; Zimmermann et al., 2014), shortening hospitalization, and reducing healthcare costs (Scibetta et al., 2016).

Concept of Nursing Competence

With the aim of achieving a better understanding of palliative care nursing competence, the concept of nursing competence has been reviewed. Thus, the following contents consist of the definition, attributes, and methods used to assess nursing competence.

Definition of nursing competence. The term "competence" is generally defined as "the capacity to handle events and challenges effectively" (Huston, 2014, p. 293). Thus, the nurse's clinical competence specifically refers to "the ability of the registered nurse to integrate and apply the knowledge, skills, judgments and personal attributes required to practice safely and ethically in a designated role and setting" (Black et al., 2008, p. 173). Nursing competence is also related to one's personal capacity and proficiency in the nursing discipline (Lin et al., 2017). The terms "competence" and "competency" are used interchangeably (Axley, 2008; Huston, 2014). However, the most commonly used term in the nursing profession is competence (Garside & Nhemachena, 2013; Licen & Plazar, 2015; Pijl-Zieber, et al., 2014) since it points to the ability to perform skills and the required attribute appropriately (Khan & Ramachandran, 2012), while the term "competency" mainly focuses on the level or standard of performance that nurses are required to exhibit regarding their working contexts and professional directions (Huston, 2014).

Attributes of general nursing competence. Attributes of nursing competence vary according to the specific area of nursing. In particular, general nursing competence consists of assessment and intervention, communication, critical thinking, teaching, human caring relationships, management, leadership, and knowledge integration skills (Tilley, 2008). The major attributes of nursing competence in Taiwan, however, have been identified as critical thinking and reasoning, communication and teamwork capability, general clinical skills, basic biomedical science knowledge, caring, ethics, accountability, and life-long learning (Lin et al., 2017). Smith (2012) provides more details about attributes based on the concept analysis; he mentions a total of nine attributes. Above all, the attribute of competence has been widely classified. A common ground point is the diversity of competence. Such diversity ensures the comprehensive qualities of nurses allow them to cope with complex scenes.

Based on the above literature reviewed, the attribute of competence could be classified as the following details:

1. Knowledge integration skill refers to the skill required to integrate knowledge into practice (Smith, 2012), have a sufficient knowledge base (disease, assessment, and treatment), and enhance the provision of safe and adequate nursing care (Tilley, 2008).

2. The experience from clinical practice is essential for competence development (Smith, 2012).

3. Critical thinking is the ability of nurses to use knowledge, experience, analysis, and other resources to make the care effective and individual. This helps

nurses adapt to the patient's changes in condition and a stressful workload (Smith, 2012).

4. Proficient skill points to the general clinical skill that nurses need to possess in order to perform in nursing care (Lin et al., 2017).

5. Caring in nursing discipline consists of human caring relationships and interpersonal skills in a clinical context. It is an essential attribute for improving the patient's perception of nurse competence (Smith, 2012).

6. Communication of the nurse with both patients and healthcare team (Lin et al., 2017; Smith, 2012) impacts the patients' healthcare experience and the efficiency of teamwork (Smith, 2012).

7. The environment refers to the surrounding work environment, which has also been identified to affect the nurses' competence (Smith, 2012; Tabari-Khomeiran et al., 2007).

8. Motivation helps individuals seek out knowledge and develop and maintain competence (Smith, 2012).

9. Professionalism and the acknowledgment of the nursing discipline requires each nurse to take the responsibility of being professional. Professionalism brings benefit to the development of the overall ability of nurses (Smith, 2012).

Methods used to assess nursing competence. The assessment of nursing competence could be done in both practice and research. The universal principle of assessing nursing competence is measuring the nurses' ability to perform effectively (Garside & Nhemachena, 2013), and to maintain patient safety (Licen & Plazar, 2015; Smith, 2012). Regarding practice, three methods were used to assess nursing

competence— observation, particular mode of assessment, and professional portfolio (Bahreini et al., 2013; Yanhua et al., 2011).

The nursing self-assessed competence is the method used most frequently in research (Licen et al., 2015; Yanhua et al., 2011). It refers to the nurses' perception and judgment of their own competence (Takase et al., 2015). It is generally believed to be a valuable and feasible method to assess nursing competence (Garside & Nhemachena, 2013), since a correlation has been found between the perceived competence of nurses and nursing managers, which also varies according to the length of work experience (Meretoja & Leino-Kilpi's, 2003) and work setting (Meretoja et al., 2004). The advantage of the self-assessment method is its reliability and consistency due to it rarely being affected by the number of participants assessed (Garside & Nhemachena, 2013). On the contrary, the limitation of the self-assessment method involves objectivity and the potential for evaluator bias (Smith et al., 2013). Currently, self-assessment has been used to assess competence in many specific nursing areas such as disaster (Baack & Danita, 2013) and palliative care (Desbiens & Fillion, 2011).

Concept of Palliative Care Nursing Competence

Palliative care nursing self-competence is defined as "the nurses' judgment of their capabilities to provide quality care to patients and their families who are experiencing life-limiting illness or are at the end-of-life stage" (Desbiens & Fillion, 2011, p. 230). Generally, the palliative care competence has been categorized as bringing physical, psychosocial, and intrapersonal care, team work skills, communication, and life closure skills into the collective practice (Becker, 2010). Its

components, however, are different from the competence framework used in many countries. In this review, the required palliative care core competences for meeting the patients' needs and professional requirements were included based on the study conducted by Desbiens and Fillion (2011) with support from other resources as the following details.

Physical care on pain management. As an essential component of the holistic care domain, nurses need to support the physical needs of the patient, including addressing all types of pain (De Lima et al., 2012). Nurses as an inter-professional team member should be able to tailor a care plan that consists of the identity, assessment, treatment application, and solution measures for the pain and along the illness trajectory (De Lima et al., 2012; Ferrell et al., 2016a; Gamondi et al., 2013). Specifically, the nurses' capacities of using the standardized assessment tools, interviewing and clinical examination skills, and intervention skills for managing pain based on both pharmacological and nonpharmacological approaches are frequently required (Ferrell et al., 2016a).

Physical care on other symptoms. In order to enhance patients' QOL, nurses need to manage patients' other physical symptoms such as respiratory problems, gastrointestinal problems, and fatigue (De Lima et al., 2012). Nurses need to promote the prevention of suffering for all level of burden experienced by patients, the caring process also consists of making the plan for anticipating potential complications, assessment, and treatment application into care routine until the end-of-life (Gamondi et al., 2013).

Psychological care. Providing care to manage psychological problems refers to acknowledging the patients' emotional status and their needs, including psychological distress, depression, and delirium, as well as fostering their coping mechanisms and providing support for the families' grief and bereavement (Desbiens & Fillion, 2011). Similar to the process in physical care, delivering psychological care consists of identity, evaluation, appropriate intervention (Ferrell et al., 2016a; Gamondi et al., 2013;), and the referral of diagnosis and treatment when needed (De Lima et al., 2012). Additionally, the care providers' good communication skills are essential to meet the patients' psychological needs, and other skills regarding sensitive questioning and clinical discernment will also contribute to high-quality psychological care (Gamondi, et al., 2013; Ferrell et al., 2016a).

Social care. Care supporting patients' social needs is associated with their role, family conditions, social and cultural networks, and also the practice in death aspects (Desbiens & Fillion, 2011). The process of meeting patients' social needs through information support concerns the available benefits and resources from health and social care, and managing personal affairs as necessary (Gamondi, et al., 2013). Nurses need to complete social care while being able to assess, make a care plan, and coordinate treatment (Ferrell et al., 2016a).

Spiritual care. Nurses provide care to meet the patients' and families' spiritual needs with the aim of relieving spiritual distress (Desbiens & Fillion, 2011). Religion is also one domain of spiritual care that may or may not be included (Gamondi et al., 2013). The process of spiritual care is completed by assessing and assisting patients and their families with the gathering of resources (Desbiens & Fillion, 2011). Integrating spiritual care competence requires nurses to be aware of the

spiritual values and beliefs of the patients and their families (Ferrell et al., 2016a), and then be able to discuss spiritual issues confidently, build a supportive and caring environment, and adapt the nursing care plan according to the patients' spiritual, existential and religious needs (Gamondi et al., 2013).

Care related to functional status. As one part of holistic care, the importance of functional support is related to improving patients' capacities of daily living (eating, washing) in order to maintain independence through assessment and assistance (Desbines & Fillion, 2011), and eventually to achieve a better QOL. Healthcare providers should be able to enhance the patient's self-care strategy of their conditions while respecting their autonomy. At the same time, support needs to be provided for improving families' skills to cope with suffering and compassion fatigue (Desbines & Fillion, 2011; Gamondi et al., 2013).

Ethical and legal issues. Ethical issues are particularly challenging during service delivery (Hui et al., 2012).There is much stigma present in the palliative care context (Hui et al., 2012). The challenges are also complex and changeable with palliative care development. The most difficult aspects of ethical issues among Chinese nurses are different from those of western countries and significantly higher than they were 15 years ago (Chih et al., 2016). Thus, the capability of applying ethical principles is also important in palliative care competence.

The ethical principles consist of anatomy, benevolence, non-maleficence, and justice (Becker, 2010; Gamondi et al., 2013). The actions related to caring should respect bioethical, national and international legal frameworks as well as the patients' values (Gamondi et al., 2013). The nursing practice should be carried out in accordance with sound both ethical and legal standards as the nurse assesses the

clinical issue, assists the decision-making, and seeks consensus (Becker, 2010, p.62). Nurses should be able to apply principles in practice by knowing and being able to apply legal guidelines (Ferrell et al., 2016a), supporting the patients' preference expression, and engaging and assisting decision-making (Gamondi et al., 2013).

Inter-professional collaboration and communication. Palliative care is a multidisciplinary approach, which is limited neither by setting nor discipline (physicians, nurses, volunteers etc.). Teamwork is the fundamental aspect of multidiscipline, and it requires the team members to be able to foster cooperation, identify the responsibilities of the professionals of each discipline, and tailor the model of care to meet the patients' and families' needs (Gamondi et al., 2013). Greater personal contact between team members has been linked with enhancing specialist caring competence (Shipman et al., 2008). In particular, the service benefits from skillful team cooperation (Gamondi et al., 2013).

Furthermore, effective communication competence is essential to the application of the palliative care principles and service delivery. Communication should be conducted within the team members, between healthcare professionals and patients, and among patients and family (Desbines & Fillion, 2011; Gamondi et al., 2013). The healthcare provider should also be able to adapt language throughout the illness in order to provide information appropriately (Gamondi et al., 2013).

Personal and professional issues related to nursing care. In the palliative care context, this competence is an important part of care in terms of therapeutic relationship rather than representing caring for patients directly. Nurses should understand the stress involved in providing palliative care (Desbines & Fillion, 2011). They are also required to be able to consider their personal strengths and beliefs, and

develop methods to improve resilience and prevent compassion fatigue. Additionally, they need to recognize early signs of and colleagues who are in distress (Gamondi et al., 2013).

Care at the last hours of life. When life is close to its end, the nurses' skills are crucial to the dignity of both the patients and their families. Here, the initiatives undertaken by the nursing personnel focus on planning and caring for the weeks and months before and after death (Becker, 2010). Moreover, basic nursing care pays more attention to personal hygiene, mouth care with regular evaluation when needed (del Río et al., 2012; Rosser & Walsh, 2014), and medical management (Becker, 2010; De Lima et al., 2012). At this stage, communication to help patients lessen their feeling of loneliness is essential, and religious and cultural beliefs should be integrated (del Río et al., 2012; Desbines & Fillion, 2011). Furthermore, dealing with coordination issues after the patient's death, such as preparing for the transfer of the body, is also required (Rosser & Walsh, 2014). Seamless holistic care for dying patients and their families in all aspects helps patients to maintain the best QOL, minimize suffering from symptoms, and maintain dignity at the EOL (Becker, 2010).

Nurses' Palliative Care Competence

The nurses' palliative care competence has been explored in several countries. The major finding of such studies was that competence was at a moderate level among nurses from Vietnam (Nguyen et al., 2014), Canada (Pesut et al., 2015), and the United States (Hayter, 2016). One study identified that the nurses' competence in Australia was at a high level (Becker et al., 2007). Other studies conducted in Japan (Nakazawa et al., 2010), the UK (Shipman et al, 2008), and China (Wang, 2015) used

the terms of “confidence in palliative care competence” and “self-report practice” in their attempts to provide some information that reflects the nurses’ competence. In addition, two studies investigated competence among nurses working in specific areas of medicine (oncology nurses, and acute care nurses; Hayter, 2016; Nguyen et al., 2014).

Using the palliative care nursing self-competence scale (PCNSC), a moderate-to-strong perceived self-competence (mean score 126.81 out of a total 204) was reported among 251 oncology nurses in Vietnam (Nguyen et al., 2014). Oncology nurses who were unlikely to judge themselves, achieved appropriate competence in three domains—pain management, social care, and spiritual care. On the contrary, the highest score was associated with personal and professional issues like personal belief, coping with stress from palliative care tasks, followed by ethical and legal issues. Another study in the United States found a moderate-level competence (mean score of subdomain 236.34 from a total of 340) among acute care nurses (Hayter, 2016). The opposite of the Vietnamese study was found in these acute care nurses; the highest scores was achieved in the pain management domain and the lowest in the ethical and legal issues domain. Furthermore, Pesut et al. (2015) used the modified version of PCNSC to analyze the effect size of the education intervention among 35 nurses and healthcare workers. The results showed that the participants perceived to have a higher competence regarding personal and professional issues. Both before and after education, their lowest scores were associated with the social and spiritual care domain.

In Australia, a higher level of competence was found using the self-assessed palliative care competence scale (SPCC) among 546 registered nurses, assistant

nurses and staff nurses. In the study, 63% of staff nurses reported as not being adequately prepared for caring for terminally-ill or dying patients. Particularly, the perceived competence regarding pain management was the lowest scoring domain (less than 40% of nurses felt having sufficient competence). Dramatically, when facing psychosocial issues, staff nurses perceived their competence as lower than both assistant nurses and general practitioners (Becker et al., 2007). In China, one study found that nurses had a moderate level of palliative care nursing competence, particular in the domains of physical, psychological and social care practice (3.8±0.72 of total 5) using a researcher-developed self-reported practice scale. Nurses were perceived more satisfied with their practice in psychological care, but not in the physical or social care aspects (Yang, 2013). However, the assessment tool used in Yang's study was not tested for validity and reliability, which casts doubt upon the confidence level one can have regarding the findings.

In conclusion, the findings concerning nurses' competence vary by countries and nurse group. In other words, the results of these reviewed studies were weak in terms generalizability between different groups of nurses. In the context of China, a unique study has been found to assess the nurses' practice, which could accurately reflect the nurses' competence (Wang, 2015). However, its findings (perceived the higher score in psychological care) contradicted those of earlier studies. Future surveys that can offer more information to explain this situation is needed.

Tools Used to Assess Palliative Care Nursing Competence

Based on the author's review, self-evaluation is the most commonly used form of assessment for palliative care competence, which concurs with the study by Ferry

et al. (2011). Furthermore, several tools have been developed to measure palliative competence. They are: (1) the Self-assessed Palliative Care Competence Questionnaire (SPCC); (2) Palliative Care Nursing Self-competence Scale (PCNSC); and (3) the Nurses' Core Competence in Palliative Care (NCPC) instrument. The similarities of all assessment tools are the format of measurement as designed by using a Likert scale and the dimension of pain and symptom management. On the contrary, some different dimensions composed to measure palliative care nursing competence are found among these three instruments, such as spiritual care and ethical legal issue in palliative care. Considerately, of these instruments, the PCSNC has been noted as a comprehensive tool to assess the palliative care nursing competence with satisfactory validity and reliability. Also, it has been developed more specifically for nurses and tested among a large number of participants. The summery of each measurement tool is presented in Table 1.

Table 1

Tools to Assess Palliative Care Nursing Competence

Citation, tool, country	Objective	Number of dimensions/items, Scoring	Participants, RR	Psychometric properties	S / L
Becker et al., 2007 The Self-assessed Palliative Care Competence (SPCC) Questionnaire Austria	Assess professional, education, competency and educational needs in palliative care of the professional group	Competency of professional group: 1)Pain control and symptom management 2) Communication and addressing psychosocial needs of patients and families 3) Coping with work-related distress 4-point Likert scale Score range:-	A sample of 523 comprising general practitioners, nurses and assistant nurses. RR 61.8%	Pretested with GPs and nurses for face and content validity	(L) No information about total items (L) The reliability was not tested
Sawatzky Desbiens & Fillion, 2014 Palliative Care Nursing Self-Competence scale (PCSNC) Canada	Evaluate nurses' perceived self-competence in palliative care delivery	Self-perceived competence: 1) Psychical needs of pain 2) Psychical needs of other symptoms 3) Psychological needs, 4) Social needs 5) Spiritual needs 6) Needs related to functional status 7) Ethical and legal issues 8) Inter-professional collaboration and communication 9) Personal and professional issues related to nursing care 10) Last hours of life 6-point Likert scale: 0 (not at all capable) – 5 (highly capable) Score range: 0-250	908 nurses RR 71.7% (Nguyen et al., 2014)	Content validity (CFA): 0.90-0.96 Internal consistency: 0.85-0.93	(S) Covered Relatively comprehensive dimension in palliative care (L) General low RR

Note. RR= response rate; L = limitation; S = strength; CFA = confirmatory factor analysis.

(continued)

Table 1 (continued)

Citation, tool, country	Objective	Number of dimensions/items, scoring	Participants, RR	Psychometric properties	S / L
Slåtten, Hatlevik & Fagerström 2014 The Nurses' Core Competence in Palliative Care (NCPC) question-naire Norway	Explore nurses' core competence in clinical palliative care setting	Self-assess competence: 1) Knowledge in symptom management 2) Systematic uses of Edmonton Symptom Assessment System 3) Team work skill 4) Life closure skill 5-point Likert scale: 1 (disagree at all) to 5 (not relevant) Score range:26-130	122 nurses RR not reported	Construct validity (factor analysis): between 0.54 and 0.96.	(L) Lack of popularity (more suited to Norway's condition) (L) No informa-tion about reliability

Note. RR= response rate; L = limitation; S = strength; CFA = confirmatory factor analysis.

Factors Related to Palliative Care Nursing Competence

Factors that may relate to the nurses' palliative care competence based on the literature review are divided into demographic factors and modifiable factors.

Demographic Factors

Demographic factors that have been found related to nursing competence are age, years of working experience, experience of caring for terminally-ill patients, work setting, and experience of attending palliative care training.

Age. A strong correlation has been found between age and competence both in general (Chang et al., 2011; Hamström et al., 2012; Numminen et al., 2015) and palliative care aspects (Nguyen et al., 2014). With increasing age, healthcare providers are considered experienced; this enhances experiential learning and is a major factor in palliative care nursing competence development (Nguyen et al., 2014). In contrast, the study conducted by Becker et al., (2007) did not find any relationship between age and palliative care competence among the participants. This might be due to general practitioners, staff nurses and assistant nurses all being included in the study.

Years of working experience. The positive relationship between work experience and nursing competence has been pointed out by many studies (Chang et al., 2011; Hamström et al., 2012; Lakanmaa et al., 2015; Takase et al., 2015). This is true for the palliative care competence domain as well (Nguyen et al., 2014; White et al., 2014). As nurses develop their skills through daily practice throughout their professional career, the cut-off point of five years of experience has been identified as making a significant difference in their competence level (Takase et al., 2015). Within

the setting of a cancer center, the specific duration of experience in an oncology and palliative care unit further contributes to the nurses' competence (Nguyen et al., 2014). However, no correlation between the palliative care nursing competence and years of working experience was found in a study conducted in Australia (Becker et al., 2007).

Experience of caring for terminally-ill patients. Nurses who have working experience in the palliative care unit (Shipman et al., 2008) or caring for terminally-ill patients have a high level of perceived palliative care competence (Nakazawa et al., 2010). This influence is observed across all domains of the nurses' palliative care delivery, and it is very significant in Japan (Nakazawa et al., 2010). Nevertheless, Nguyen et al. (2014) suggested that the experience of both caring for patients at the EOL and having a friend or relative suffering from life-threatening disease does not influence how nurses perceive their competence.

Work setting. Work setting has been identified to relate to nurses' competence significantly both in the general (Hamström et al., 2012; Numminen et al., 2015) and palliative care aspects (Nguyen et al., 2014; Shipman et al., 2008). Accordingly, the environment is the basis for nursing competence development (Smith, 2012). Hamström et al. (2012) believe the nurse's higher competence is supported by interpersonal information dissemination and multi-professional working. Specific to palliative care, the study indicated that nurses with experience of work in a palliative care unit increase their competence (Nguyen et al., 2014; Shipman et al., 2008). Furthermore, groups of chemotherapy and radiotherapy nurses perceived the lowest competence level, since the stage or progress of patients they were caring for depended on work setting. Chemotherapy and radiotherapy units focus on providing

aggressive treatments, which is different from work in the palliative care unit where nurses could learn from daily practice to extend their specific knowledge (Nguyen et al., 2014).

Experience of attending palliative care training. The nurses' palliative care competence is significantly related to their experience of attending palliative care training (Becker et al., 2007; Nakazawa et al., 2010; Nguyen et al., 2014; Shipman et al., 2008). Self-assessed practice (the term reflects competence) increased after attending a palliative care education program, which also added evidence to this opinion (Wang, 2015). Specifically, Nakazawa et al. (2010) maintain that in "dying-phase care" and "family- and patient-centered care," the extent of the impact of training is more significant. Nevertheless, an educational program developed in Canada indicated that nurses' communication (both with patients and other healthcare professionals) was improved, and nurses perceived palliative care in a more positive way as expressed by the qualitative data (Pesut et al., 2015).

Modifiable Factors

Other factors have been identified as having a significant correlation with palliative care nursing competence. These factors include palliative care knowledge, attitudes towards palliative care, and workplace learning conditions. Moreover, workplace learning conditions, organization's climate, and critical thinking ability have been found to associate with nurses' competence in general. However, critical thinking was a major factor among graduate nurses (Chang et al., 2011; Lee et al., 2015). Workplace learning conditions and organizational climate have both been used to analyze how the healthcare environment impacts nurses. Nevertheless, workplace

learning conditions have been found as predictors of the nurses' competence (Kyndt et al., 2016), which is stronger compared with organizational climate (Ying et al., 2007). Hence, the modifiable factors in this review covered palliative care knowledge, attitudes towards palliative care and workplace learning conditions. The details for each are explained in the following sections.

Palliative care knowledge. The definition of knowledge is "the culmination of the integration of what is known and understood through learning and experience" (Johnson & Webber, 2005, p.11-12). However, the definition of knowledge in palliative care from previous studies is inconclusive regarding what knowledge should or should not be included in palliative care. The domain of knowledge regarding palliative care defined and assessed depends on the context such as matching with the contents of training which participants received. Generally, knowledge regarding palliative care principles, physical care, and psychological/spiritual care is assessed (Ross et al., 1996).

The relationship between palliative care knowledge and palliative care nursing competence. A limited number of studies have analyzed the relationship between knowledge and competence specified to palliative care. A statistically strong correlation between these two variables has been reported among oncology nurses ($r = 0.26$, $p < 0.0001$) (Nguyen et al., 2014). The correlation interpreting nurses felt more capable of delivering services when they obtaining a higher level of palliative care knowledge. Meanwhile, a great number of education programs have shown the improvement of competence by modifying the knowledge of the practitioner from another point of view (Montagnini et al., 2012; Nguyen et al., 2014; Schlairet, 2009). Nurses reported that better knowledge, particularly about how to use drugs, enhanced

their confidence in their competence to deal with complex symptom problems and improve communication with patients (Shipman et al., 2008).

However, one educational program enhanced the nurses' perceived knowledge level but failed to increase their perceived competence statistically (Puset et al., 2015). One potential reason supported by the findings of Lakanmaa et al. (2015) is that the nurses' perceived competence might be affected by many other factors such as value and experience. Meanwhile, Brazil et al. (2012) found discrepancies in results (lower score in palliative care knowledge but a high score of perceived palliative care competence), which might be influenced by the instruments used not being specific for the group of nurses in the long-term-care home in their study.

Tools used to assess palliative care knowledge. Various tools have been utilized to assess palliative care knowledge among general nurses including (1) the Palliative Care Quiz for Nursing (PCQN), (2) the Palliative Care Test (PCKT) questionnaire, and (3) the Rotterdam MOVE2PC questionnaire. As shown in Table 2, the knowledge about pain and symptom management is the focal point of evaluation and has been included in all tools. The "true or false" answer format is generally used. The PCKT and MOVE2PC were more suitable to the countries' conditions where these tools were developed. However, the PCQN is the most commonly used to measure the nurses' palliative care knowledge worldwide, compared with the other two measurement tools identified in this review. Because PCQN comprehensively assesses domains necessary for palliative care knowledge— the philosophy and principles of palliative care, physical, psychosocial and spiritual care—among nurses (Choi et al., 2012; Nguyen et al., 2014). Even though PCQN does not cover the domain of communication and teamwork, its sensitivity for classifying the level of the

nurses' knowledge status has been shown to be of a satisfactory level by the results of pre-posttest of an educational intervention (Ross et al., 1996). The comparison of each tool in details is shown in Table 2.

Table 2

Tools Used to Assess Nurses' Palliative Care Knowledge

Citation, tool, country	Objective, development process	Number of dimensions/items, scoring	Participants, RR	Psychometric properties	S /L
Ross, Hayes, Carey & Aggar, 1996 The Palliative Care Quiz for Nursing (PCQN) Canada	To measure nurses' knowledge of palliative care Item generation by experts	20 items assessing: (1) Philosophy and principles of palliative care (4 items) (2) Management of pain and symptoms (13 items) (3) Psychosocial and spiritual care (3 items) Answer format: true, false, or "do not know." Correct answer = 1 score Incorrect and "do not know" = 0 score Total score range: 0 - 20	396 nursing students and registered nurses. RR 80.5% Chinese version: 939 oncology & general nurses RR 96.51% (Zou, 2007)	The internal consistency (KR-20) of the 20 items was 0.78 The test-retest reliability (3 weeks) reported as 0.56 Chinese version: The test-retest reliability was 0.78, internal consistency was 0.76 (Zou, 2007)	(S) Time efficient, sensitive to change in pre/post test (L) More focused on terminal care
Nakazawa, Miyashita, Morita, Umeda, Oyagi & Ogasawara, 2010 The Palliative Care Test (PCKT) Japan	To evaluate a wider range of palliative care knowledge among general physicians and nurses Items from LR and discussion among nine experts	20 items assessing: (1) Philosophy (2 items) (2) Pain (6 items) (3) Dyspnea (4 items) (4) Psychiatric problems (4 items) (5) GI problems (4 items) Answer format: "Yes", "No", or "do not know" Correct = 1 score Incorrect and "do not know" = 0 score Total score range: 0 - 20	773 nurses RR 85%	The internal consistency (KR-20) was 0.81 The test-retest reliability was 0.88	(S) More symptoms assessed (delirium and GI problems) (L) Not specific to assess general nurses

Note. RR = response rate, GI = gastrointestinal, LR = literature review, "-" = no detail provided, S = strength, L = limitation. (continued)

Table 2 (continued)

Citation, tool, country	Objective, development process	Number of dimensions/items, Scoring	Participants, RR	Psychometric properties	S /L
Witkamp, Zuylen, van der Rijt, van der Heide, 2013 The Rotterdam MOVE2PC Questionnaire Netherlands	To assess nurses' knowledge, opinions, subjective norms, and perceived difficulties related to providing palliative care Items from FATCOD, PCQN, Dutch national guidelines for palliative care and Dutch version of the pain knowledge questionnaire partly	20 out of a total 63 items used to assess knowledge regarding: (1) Symptoms (2) Symptom treatment (3) Caring Answer format: "True", "False", or "do not know" Correct = 1 score Incorrect and "do not know" = 0 score Total score range: 0 - 20	223 nurses RR: -	The internal consistency (Cronbach's alpha) of the total 63 questions among 119 hospital nurses was .77	(S) Country-specific design (L) The develop ment and psychom etric propertie s tested in Dutch

Note. RR = response rate, FATCOD = the Frommelt Attitude toward Care of the Dying Scale, "-" = no detail provided, S = strength, L = limitation.

Attitudes towards palliative care. Eagly and Chaiken described attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 2007, p. 582). Attitudes while delivering palliative care refer to whether the providers favor caring for patients with terminal illness and their families or not (Ayed et al., 2015). The innate disposition related to caring for dying individuals is absent till they learn psychological behavior from social and cultural experiences (Mallory, 2003). Particularly in the EOL phase, attitudes are considered as personal dispositions associated with caring for the dying.

The relationship between attitudes towards palliative care and palliative care nursing competence. Many studies have investigated the nurses' attitude and their

perceived competence (other terms such as practice are also used) (Anteneh et al., 2016; Ayed et al., 2015; Nguyen et al., 2014; Yang, 2013); a few of them have analyzed the relationship between attitudes and competence. A positive correlation has been found between the nurses' attitudes towards palliative care and the practice score (Huijer et al., 2009). Furthermore, other studies have discovered that the nurses' attitudes impact the comfort of discussing death with patients and families (Tait et al., 2015) and whether to include the family in the scope of caring (Ayed et al., 2015). Additionally, earlier research has indicated that the nurses' attitudes towards care has a positive significant correlation with competence (self-reported practice) in the specific domain of spiritual care (Azarsa et al., 2015; Chan, 2010). This is in addition to other specialist areas of nursing competence such as disaster nursing (Jiang et al., 2015).

However, attitudes towards palliative care in oncology nurses have not been shown to relate to self-competence. A potential explanation is that experienced nurses are affected by compassion fatigue along with more negative attitudes occurring even if they possess more skills (Nguyen et al., 2014).

Tools used to assess attitudes regarding palliative care. There were three instruments used to measure attitudes toward palliative care identified during this review: (1) Attitudes Towards Palliative Care (ATPC) questionnaire; (2) Frommelt Attitude Toward Care of the Dying Scale (FATCOD); (3) Nurses' Attitudes for Caring Advanced Cancer Patient (NACACP) questionnaire. All instruments share the similarity in the way that they have been used to measure attitudes towards palliative care among oncology nurses while the different points found among these three instruments are specific domains composed to measure attitudes related to palliative

care. In particular, the nurses' perception about professional responsibility in palliative care is found only in the measures of the ATPC and the NACACP. Additionally, with the ATPC questionnaire, different results when using shorter items were found in China (Zou, 2007) and the US (Cramer et al., 2003). This might be due to the cultural differences regarding caring at the stage of death and dying as well as the development of culturally-focused palliative care training (Abudari et al., 2014). Another factor that might have led to these contrary results is that Zou (2007) used the term "palliative care" to replace "hospice care" in Bradley's questionnaire Chinese version. Nevertheless, the Chinese version is also validated and reliable (Zou, 2007). The ATPC was selected in the study due to the consideration of its number of assessment items and satisfactory psychometric properties. The summary of components for all instruments along with their strengths and/or limitations is illustrated in Table 3.

Table 3

Tools Used to Assess Attitude regarding Palliative Care

Citation, tool, country	Objective, development process	Number of dimensions/items, scoring	Participants, RR	Psychometric properties	S / L
Bradley, et al., 2000 Attitudes Towards Palliative Care (ATPC) questionnaire Canada	To assess clinicians' attitudes while caring for patients with terminal illness. Items selected by LR and interview with nurses and physicians. To assess nurses' attitudes towards palliative care (Zou, 2007).	12 items assessing: (1) Professional responsibility in caring for dying patients; (2) The efficacy of hospice; (3)Communication about dying; 5-point Likert scale: 1 = strongly disagree to 5 = strongly disagree Total score range: 12 – 60	50 clinicians (25 nurses, 25 physicians) RR: - Chinese version: 939 oncology & general nurses RR: 96.51% (Zou, 2007)	The test-retest reliability was 0.86, internal consistency above 0.61 Chinese version: the test-retest reliability was 0.853, the construct validity between 0.59 and 0.76 (Zou, 2007)	(S) shorter items used and more domains of attitudes assessed
Frommelt, 1991 Frommelt Attitude Toward Care for the Dying Scale (FATCOD) US	To assess the attitudes of nurses towards caring for dying patients and their families Items from previous questionnaire combined with nurses personal experience	30 items assessing: (1) Caring for dying patients with a positive attitude (15 items) (2) The perception of patient- and family-centered care (15 items) 5-point Likert scale form1 (strongly disagree) to 5 (strongly disagree) Total score range: 30 to 150	34 licensed nurses RR:- Chinese version: 265 oncology nurses RR: 94.6% (Yang et al., 2016)	The test-retest reliability was 0.90, CVI was 1.00. Chinese version: internal consistency was 0.80, satisfied construct validity [KMO = 0.78] (Yang et al., 2016)	(S) Higher tool validity (L) Longer items used

Note. RR = response rate, LR = literature review, "-"= no information provide, S = strength, L = limitation.

(continued)

Table 3 (continued)

Citation, tool, country	Objective, development process	Number of dimensions/items, Scoring	Participants, RR	Psychometric properties	S / L
Lu, Guo & Liu, 2011 Nurses' Attitudes towards Caring for Advanced Cancer Patients (NACACP) China	To assess nurses' perception of professional responsibility and perceived comfort in clinical hospice practice. Items based on Frommelt's study and literature review	24 items assessing: (1) Professional responsibility (2) Perceived comfort 5-point Likert scale: 1 (totally agree) to 5 (totally disagree) Total score range: 24-120	463 oncology nurses RR: 98.1%	CVI was 0.89, internal consistency reliability reported at 0.754.	(S) Tested a big sample of oncology nurses with a higher RR. (L) The questionnaire was developed in Chinese, making it less comparable with other populations or countries

Note. RR = response rate, LR = literature review, "-"= no information provide, CVI = content validity index, KMO = Kaiser-Meyer-Olkin, S = strength, L = limitation.

Workplace learning conditions. Workplace learning is defined as the process in which individuals obtain attitude, skill, and knowledge to further enable them to demonstrate if their behavior pattern is appropriate in the context (Jacobs & Park, 2009). Furthermore, Kyndt and Beausaert (2017) classified learning from existing workplace learning conditions into two parts: formal and informal workplace learning. Formal learning refers to the part of learning more structured or well-planned in terms of place and time (Kyndt et al, 2009). Informal learning on the other hand, happens during everyday practice and mostly depends on the learners and social context (Kyndt et al., 2016).

The relationship between workplace learning and nurses' competence. Workplace learning has been used in other areas of study and has been shown to be significantly related to an employee's competence enhancement (Nikolova et al., 2014). The same goes for nursing; recently, a strong positive correlation has been reported (Isidro-Filho et al., 2013; Kyndt et al., 2016; Takase et al., 2015). In the hospital, the opportunities available for nurses regarding cooperation, coaching, and opportunity for reflection and evaluation significantly contribute to their performance in caring (Kyndt et al., 2016). The various methods used and the characteristics of support are investigated by different instruments used.

However, studies investigating how workplace learning influences palliative care nursing competence are limited. The related information found is that most nurses (96%) do not attend any educational program on palliative care, but they (99%) believe the experience gained through working was more important to providing palliative care for cancer patients (Meegoda et al., 2015). Moreover, evidence about how workplace learning conditions support palliative care is limited. One study has provided some information that reflects the palliative care environment in the hospital. In a study analyzing the appropriateness and demand of workplace education in EOL, the polarized views found among 40% of nurses indicated that they never received education in the workplace regarding EOL care, and 34% stated they obtained a variety of knowledge in the workplace (Schlairet, 2009). Unfortunately, the impact of workplace learning conditions on palliative care nursing competence has not been analyzed.

Tools used to assess workplace learning conditions. Three tools have been identified to assess workplace learning occurring in the nurses' daily practice—(1)

Learning Experience Scale (LES), (2) Workplace Learning Strategies Scale (WLSS), and (3) The Learning Condition Scale (LCS). All of them are newly-developed (less than 5 years) and share some similarities in terms of the targeted population, the domains composed in the instruments (reflection, coaching, practice, cooperation, and the way nurses obtain knowledge in the workplace), and the scoring format for each item within the assessment tools. However, the points of view asked in items are different, either asking about individual behaviors or perceptions of the workplace learning conditions. In particular, the LES and WLSS scales used a view of methods that nurses used to obtain support from the surrounding environment individually. On the other hand, the LCS asked for the nurses' perception of support from the workplace, which is considered more suitable to the research question of this study. Meanwhile, the LCS achieved the highest validity and reliability among the three tools reviewed. Thus, LCS is selected to assess workplace learning conditions in this study. The details of each tool are shown in Table 4.

Table 4

Tools Used to Assess Workplace Learning Conditions

Citation, tool, country	Objective, development process	Number of dimensions/items, Scoring	Partici-pants, RR	Psychometric properties	S / L
Takase, Imai & Uemura, 2016 Learning Experience Scale (LES) Japan	To evaluate what learning methods nurses used during work and their frequency Items based on LR	20 items assessing: (1) Learning from experience, (2) Feedback, (3) Training, (4) Learn from others, (5) Learning through reflection. 6-point Likert scale ranging between 1 (not at all) and 6 (always) Total score range: 24-144	954 nurses RR: 52.6%	The internal consistency was .914. The author reported the reliability of training subscale was below the acceptable level (.70); the other domains were above .70	(S) Conducted in eastern country; might have more similar learning conditions to China (L) A lower RR Questions asked for individual usage of strategy.
Pantoja, 2004 (as cited in Isidro-Filho et al., 2013) Workplace Learning Strategies Scale (WLSS) Brazil	To assess the workplace learning strategy used by nurses in daily practice. Items based on cognitive and behavioral learning strategies.	26 items assessing: (1) Extrinsic and intrinsic work reflection, (2) Seeking help from an interpersonal relationship, (3) Obtain from written material, (4) Reproduction, (5) Practical application. 10-point scale: 1 (never does) to 10 (always does). Total score range: 26-260	-	Construct validity: CFI = .929 RMSEA = .065 Reliability:-	(L) No detailed reliability available in research study. The language used in developing this tool is also absent.

Note. RR = response rate, LR = literature review, “-” = no detail provided, CFI = comparative fit index, RMSEA = root-mean-square error of approximation, S = strength, L = limitation.

(continued)

Table 4 (continued)

Citation, tool, country	Objective, development process	Number of dimensions/items, Scoring	Participants, RR	Psychometric properties	S / L
Kyndt et al., 2016 The Learning Condition Scale (LCS) Belgium	To assess nurses' perception of available learning conditions specifically. Items from previous study and LR.	24 items assessing: (1) Cooperation, (2) Participation in work evaluation activities, (3) Opportunities for feedback, (4) Reflection opportunities, (5) Knowledge acquisition and access to information (6) Being coached. 5-point Likert scale ranging from 1 (totally disagree) to 5 totally agree Total score range: 24-120	218 multispecialty nurses RR: 93.12%	Construct validity testing (CFI = 0.917; RMSEA = 0.073), Internal consistency was 0.66-0.87 (Cronbach's α)	(S) High validity and reliability. Assess workplace learning condition from nurses' perception (L)Nurses might not realize the learning process happened in workplace; this might lead to over or underestimation of score.

Note. RR = response rate, LR = literature review, "-" = no detail provided, S = strength, L = limitation.

Palliative Care in China

The term "palliative care" was put forward by Balfour Mount in 1977 and was introduced in China 20 years after (1998; Lin, 1998). The normative terms for "palliative care" in Chinese have not been unified so far (Ma, 2016). Compared with western countries, the coverage of palliative care service is limited, and it is offered by fewer service agencies (Ma, 2016). In order to manage the aging population condition, the National Health and Family Planning Commission of the People's Republic of China (NHFPC) promulgated facilities and management standards for palliative care units, and the practice guideline for clinicians (NHFPC, 2017). This could be considered as pointing out the great need for its development. However, in this process, some problems need to be resolved further.

Studies published about palliative care in China tend to focus on cancer patients (Ma, 2016). This could related to the fact that cancer is a leading cause of death and a major public health problem in the country (Chen et al., 2016). Furthermore, according to the quality of death index 2015, China was ranked near the bottom of the countries investigated (71st out of 80 countries). This shows the available palliative care services for patients are at an unsatisfactory level. The challenge of palliative care in China is related to slow localization while facing a huge aging population. With the public awareness of palliative care improving, the quality of palliative care and human resources for it are generally still low (EIU, 2015).

Palliative Care Integrated into Nursing Practice

During the development of palliative care in China, the scope of palliative care is expanding, and multidisciplinary teams have also been reported in some hospitals

(Ma & Shen, 2016). Some aspects of palliative care need to be further improved in the service process. Firstly, the service reported in nursing practice paid less attention to families and caregivers. Ma (2016) conducted a systematic review, which found that the main objects of palliative care programs were the patients; the family was not included. As family members take the responsibility of taking care of patients in daily life, their well-being influences the patients' well-being directly. The second issue is that palliative care service is involved in the care plan almost at the advanced stage of the illness trajectory.

Palliative Care Integrated into Nursing Education

Palliative care in the Chinese nursing educational curriculum has not been included as a major course but as a domain of nursing education (Ye & Yin, 2014). China's improvements in educating methods have developed slowly and have not been satisfactory. Only a few medical universities conduct palliative care nursing as a major course (the only one reported is the Shanxi Traditional Chinese Medical University; Ma, 2016). Mostly, the form of palliative care in nursing education appears as a subdomain under fundamental nursing, which is insufficient. Inadequate education leads to a lack of practical experience regarding palliative care among nursing students (Ye & Yin, 2014). As well as opportunities for ongoing education being insufficient, they are also ineffective for medical staff to acquire palliative care skills (Ma, 2016). Furthermore, the outcome evaluation of palliative education programs is absent (Liu, 2008). Nurses are more likely to obtain partial knowledge related to palliative care from attending conferences (Lu, 2018).

Palliative Care Nursing in Research Studies

Existing research studies in the palliative care nursing area mainly focuses on the nurses' knowledge and attitudes towards palliative care (Shen, 2014; Zhang et al., 2013; Zou, 2007); however, in terms of competence, it is lacking. Similarly, Wang (2015) researched the nurses' palliative care practice, and the result showed that nurses working in oncology units achieved a significantly higher score of self-reported practice than other nurses. Meanwhile, higher scores in practice are significantly related to the experience of attending palliative care training. Moreover, nurses have less practice in physical care, but more practice in psychological care (Yang, 2013).

In conclusion, palliative care has attracted more attention with the social development in China. It has confirmed that palliative care knowledge in research projects and education is deficient. However, as an important element for the service improvement, a lack of strong evidence supports the status of nurses' palliative care competence.

Summary of Literature Review

Palliative care is an essential way to improve the QOL of patients (and their families) with a life-threatening disease. The importance of palliative care for cancer patients enjoys a broad consensus. It ensures the cancer patients receive a more comprehensive healthcare support. During the palliative care service delivery, the nurses' palliative care competence is the guarantee of a high-quality care throughout the process. Previous studies have investigated the palliative care nursing competence

in many countries, and the findings have yielded different highest/lowest scores in sub-dimensions such as pain management and the physiological care aspect.

Furthermore, factors that might relate to palliative care nursing competence consist of palliative care knowledge, attitudes towards it, and workplace learning conditions. More specifically, palliative care knowledge is an inconclusive factor; both a positive correlation and no correlation with nurses' competence have been reported. The nurses' attitudes towards caring are believed to support their competence; yet recently, one study focusing on practice score has identified a stronger correlation with the spiritual care aspect. In the palliative context, this needs to be further researched. Equally important, workplace learning conditions have a strong correlation with the nurses' general competence and help us understand how nurses' competence improves during daily practice. However, how the surrounding conditions in the hospital help nurses enhance their palliative care competence has not yet been investigated.

However, the palliative care service and quality of palliative care need further development since the quality of death is still low among Chinese patients. Currently, palliative care is developing rapidly in nursing education, practice and research in China. Nevertheless, there is a lack of reliable evidence regarding palliative care nursing competence to depict the existing situation in China accurately. This is particularly true among oncology nurses, who play an important role in the cancer patients' medical experience. This group needs to be trained and educated regarding palliative care. Moreover, the factors that are related to palliative care also need to be further studied in order to provide topics for further development.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presents the details of the research methodology comprising research design, setting, samples and participants, research instruments, data collection procedure, and data analysis. The ethical considerations of the study are also included in this chapter.

Research Design

In the current study, the cross-sectional correlation design was used to explore the level of palliative care nursing competence and examine the relationships among palliative care knowledge, attitudes towards palliative care, workplace learning conditions and palliative care nursing competence. A cross-sectional correlation study is an appropriate study design to explain the situation. According to Polit and Beck (2012, p. 226), “the aim of descriptive correlational research is to describe the relationships among variables rather than to support inferences of causality.” Moreover, the association between independent variables and dependent variables is sometimes difficult to manipulate. The findings from this study design cannot be set to explain causal effects, but they can explain which factors are related to palliative care nursing competence among nurses who work in a cancer hospital. However, based on the research questions, the strength of this design is that it ensures the collection of existing information about the palliative care nursing competence and another three variables while remaining strong in realism (Polit & Beck, 2012).

Study Setting

The study was conducted in Yunnan Cancer Hospital, a top-level referral hospital and a unique cancer center in the province. The healthcare services provided for cancer patients there involve oncology integrated medical services and cancer prevention. Patients who receive healthcare service from this hospital mainly come from all regions of Yunnan Province and other provinces nearby.

Yunnan Cancer Hospital is a 1530-bed, tertiary-level, teaching hospital, which consists of 24 clinical departments and 13 medico-technical departments (e.g. the department of pathology, department of endoscopy, etc.). The palliative care unit in the hospital is combined with the emergency department to provide acute care for advanced cancer patients. Meanwhile, there are 815 registered nurses who are qualified to care for cancer patients. As new graduate nurses work in the hospital, they work under the supervision of senior nurses for six months.

Samples Size and Participants

The target population for this study was nurses who deliver service to hospitalized patients in the selected hospital. Thus, nurses who work in the inpatient unit were invited to participate in the study, but not nurses who do not take the responsibility of providing holistic care to patients and their families such as nurses working in the OPD (outpatient department) and OR (operation room).

The sample size was determined by the power analysis using the acceptable level of significance at $\alpha < .05$ and power of test at .08 (Polit & Beck, 2012). The effect size was taken from a previous study conducted in Vietnam (Nguyen et al., 2014) that analyzed the correlation between the nurses' palliative care knowledge and

their palliative care nursing competence ($r = .26$, $p < .001$), and their attitudes and competence (no correlation). Since two variables (attitudes and workplace learning condition) have not been reported to have a correlation with the nurses' palliative care competence, and since the context in Vietnam is different from that of China, the researcher considered the use of a small effect size of .20 in order to increase the power of the study, yielding a sample size of 194 according to the approximate sample size table (Polit & Beck, 2012, p.425). With the consideration of the non-response rate (20%) (Polit & Beck, 2014, p.261), the total sample size in this study was 220.

Sampling Technique

Stratified random sampling was used with proportionate sampling based on the total number of nurses in each ward. This technique ensures the representativeness of nurses from different care units in the random sample (Polit & Beck, 2012, p. 282). The total number of nurses in each ward when the research was conducted is shown in Table 5. The sampling plan is presented in Figure 2. The researcher prepared a list of the nurses' names who met the inclusion criteria and then classified them into ward setting in order to achieve random sampling using the RAND function in Microsoft Excel. The sample in each ward was chosen using the formula:

$$N_{sample} = n_{unit} * 220 / N_{total}$$

Note. N_{sample}: Number of samples in this study, n_{unit}: the total number of nurse in the unit, 220 is the number of samples in this study, N_{total}: Number of total nurses in inpatient wards ($N_{total} = 669$).

Example: samples from Breast Surgery Unit I in this study

The total number of nurses in the Breast Surgery Unit I was 37. The samples from this unit was calculated as shown here:

Breast Surgery Unit I = 37*220/669 = 12 nurses

Inclusion Criteria

The following inclusion criteria were used to select the sample:

1. Licensed as registered nurses (RN) working in this hospital for at least six months
2. Working in the inpatient ward
3. Willing to participate in the study

Table 5

Number of Nurse and Sample Size for Each Ward

Code	Department	Number of nurses	Samples in the study
Surgical units			
1	Gynecologic Oncology Surgery Unit	53	17
2	Colorectal Surgery Unit	43	14
3	Head and Neck Surgery Unit	38	12
4	Breast Surgery Unit I	37	12
5	Thoracic Surgery Unit I	37	12
6	Thoracic Surgery Unit II	36	12
7	Urology Unit	32	11
8	Abdominal Tumor Surgery Unit	29	10
9	Neurosurgery Unit	26	9
10	Breast Surgery Unit II	22	7
11	Orthopedics Unit II	20	7
12	Orthopedics Unit I	18	6
Internal medicine units			
13	Radiotherapy Unit	52	17
14	Geriatric Care Unit	23	8
15	Interventional Therapy Unit	23	8
16	Biological Therapy Unit	22	7
17	Chinese Traditional Medicine Oncology Unit	19	6
18	Internal Medicine Unit III	18	6
19	Internal Medicine Unit II	17	6
20	Internal Medicine Unit 1	16	5
21	Hematology Unit	13	4
Other units			
22	Palliative Care Unit & Emergency Department	34	11
23	Intensive Care Unit	32	11
24	Nuclear Medicine Unit	9	3
	Total	669	220

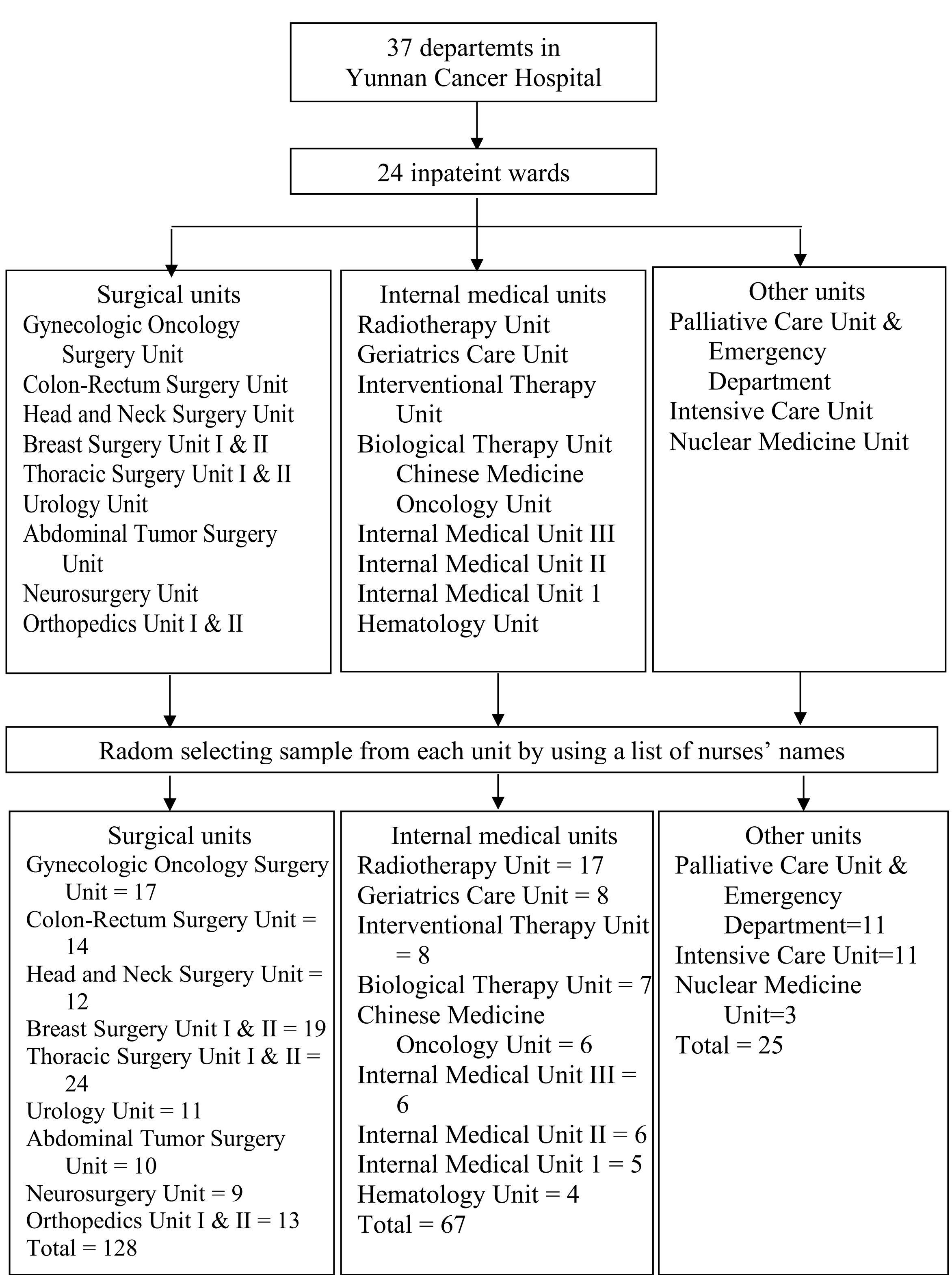

Figure 2. Sampling Plan

Instrumentation

The instruments (Appendix A) used to measure variables in this study were divided into five sections. Each section of the instrument is described as follows.

Part 1: Demographic Characteristics

The demographic characteristics of the participants were collected using the demographics questionnaire. This instrument was developed by the researcher and is composed of 7 items—age, gender, hospital department where employed, level of education, years of working experience, experience of caring for patients with advanced cancer in the past year (and the number of patients), experience of attending palliative care training, and experience of providing palliative care to cancer patients.

Part 2: Palliative Care Knowledge

The nurses' palliative care knowledge was measured by the Palliative Care Quiz for Nursing (PCQN). This questionnaire, designed by Ross et al. (1996), has been translated into Chinese by Zou (2007). It consists of 20 items which are divided into three main components: (1) philosophy and principles of palliative care (items No. 1 - 4); (2) management of pain and symptoms (items No. 5 - 17); (3) psychosocial and spiritual care (items No. 18 - 20). The format of the answers for each item was "True", "False" and "I don't know." The correct answer was marked as one score, and the incorrect or other answers (I don't know) were marked as no score. The total score ranged from 0 to 20. A higher score indicated a higher level of knowledge.

The PCQN was applied to measure the palliative care knowledge in 396 Canadian general nurses, and 939 Chinese general and oncology nurses. The internal

consistency of the English version was .78 using Kuder-Richardson formulas (KR-20), and the test-retest reliability was .56 at the time of development (Ross et al., 1996). The test-retest reliability and internal consistency of the Chinese version was .78 and .75 respectively, with a satisfactory construct validity (Zou, 2007).

Part 3: Attitudes toward Palliative Care

Nurses' attitudes toward palliative care was measured by the Attitudes toward Palliative Care Scale (ATPC). Zou (2007) translated the questionnaire designed by Bradley et al. (2000) into Chinese, and she used the term "palliative care" to replace "hospice care" to assess the healthcare provider's attitudes towards palliative care. It is a 12-item, 5-point Likert scale, which is classified into three attitudinal constructs: (1) professional responsibility in palliative care (items No. 1 - 4), (2) the efficacy of palliative care (items No. 5 - 9), and (3) communication about dying (items 10 - 12). The score of each item ranged from 1 (strongly agree) to 5 (strongly disagree). The summed score ranged from 12 to 60. A higher score pointed to a more positive attitude.

The ATPC questionnaire was tested in 50 clinicians (doctors and nurses) in Canada and 939 Chinese general and oncology nurses. The test-retest reliability of the English version was .86, and the construct validity showed a Cronbach's alpha coefficient above .61 (Bradley et al., 2000). Meanwhile, the test-retest reliability of the Chinese version was .85 and the construct validity reported for the three constructs was between .59 and .76 (Zou, 2007).

Part 4: Palliative Care Nursing Competence

Palliative care nursing competence was measured by the Palliative Care Nursing Self-Competence (PCSNC) scale. This instrument was developed by Desbiens and Fillion (2011) and modified later (Sawatzky, Desbiens & Fillion, 2014). This questionnaire has a total of 50 items, covering ten domains of palliative care competence: (1) psychical needs of pain (5 items) and (2) other symptom management (5 items), (3) psychological needs (5 items), (4) social needs (5 items), (5) spiritual needs (5 items), (6) needs related to functional status (5 items), (7) ethical and legal issues (5 items), (8) inter-professional collaboration and communication (5 items), (9) personal and professional issues related to nursing care (5 items), and (10) last hours of life (5 items). Each item was scored by means of a 6-point Likert scale from 0 (not capable at all) to 5 (highly capable). The summed score ranged from 0 to 250. A higher score represented a higher sense of self-competence. As in a similar study in Vietnam (Nuygen et al., 2014), the score obtained from this study was interpreted using the formula of grouped frequency distribution (maximum-minimum/number of category; Grove, Burns & Gray, 2013, p.551). Therefore, the level of palliative care nursing competence in this study was categorized as:

Level of competence	Mean of total score
Low competence	0 – 83.33
Moderate competence	83.34 – 166.67
High competence	166.68 – 250

The PCSNC was tested in 908 Canadian nurses. The content validity (factor analysis) was found to fit the factors well (Cronbach's alpha coefficient for the 9

factors ranged from .90 to .96), with satisfactory internal consistency (Cronbach's alpha value ranging from .85 to .93; Sawatzky, Desbiens & Fillion, 2014).

Part 5: Workplace Learning Conditions for Palliative Care

The workplace learning conditions was measured using the Learning Condition Scale (LCS) (Kyndt et al., 2016). Kyndt et al. (2009) developed this tool with the aim to evaluate formal and informal workplace learning conditions. It was revised to be more specific to assess the nurses' perception of the available learning conditions within (state specific types of workplace that were measured by this questionnaire) (Kyndt et al., 2016). In this study, the researcher also modified some items of this questionnaire to make it more specific to learning about palliative care, such as learning materials and opportunities of receiving feedback regarding palliative care. The 24-item questionnaire consists of six subscales: (1) opportunities for cooperation (items No. 1 - 6), (2) knowledge acquisition and access to information (items No. 7 - 10), (3) opportunities for feedback (items No. 11 - 13), (4) opportunities for reflection (items No. 14 - 16), (5) opportunities for work evaluation (items No. 17, 18), and (6) being coached (items No. 19 - 24). The scoring format for each item was a 5-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). The total score ranged from 24 to 120. The higher score indicates a greater opportunity available for nurses in the healthcare institution.

The LCS was applied to measure the workplace learning conditions in 203 Belgian nurses. Construct validity testing showed a satisfactory fit of the measurement model (CFI = .92; RMSEA = .07; Kyndt et al., 2017, p. 211).

Meanwhile, the internal consistency reliability was also acceptable (Cronbach's alpha coefficient between .60 and .87; Kyndt et al., 2016).

Translation of the Instruments

Both the PCQN and ATPC questionnaire have already been translated into Chinese by Zou (2007). In the current study, the PCSNC and LCS questionnaires were translated into Chinese using the back-translation method developed by Brislin (1970). The translators consisted of three bilingual English experts who are familiar with both the English and Chinese languages, with a background in medical education, and capable of understanding the variables in this study. This method proceeded in three phases:

(1) The English version of the instrument was translated into a Chinese version by one bilingual translator.

(2) The Chinese version then was translated back into English by the second bilingual translator.

(3) The original instruments and the English back translated instruments were evaluated by the third bilingual English expert for discrepancies and to ensure that the content of the translated instrument has equivalent meaning as compared with the original version.

Validity of the Instrument

The content validity of the modified LCS (English version) was validated by three experts (Appendix C)—two of them are researchers in the area of palliative care from the Adult and Elderly Nursing Department, Faculty of Nursing, Prince of

Songkla University, Thailand. The other expert is an associate professor from the Kunming Medical University with experience and expertise in the areas of oncology and palliative care. The experts accessed the contents to determine if the items included were accurate, appropriate and congruent to the construct being measured in the setting. Some modifications were done in the questionnaires based on the recommendations from the experts and the existing palliative care education context in China. The content validity index (CVI) value of the LCS questionnaire was 1.0; this was an excellent score for the scale's content validity.

Reliability of the Instruments

Twenty participants with the same characteristics in the sample of this study were considered as determinable for a pretest of the instruments (Radhakrishna, 2007). Thus, 20 nurses from the Yunnan cancer hospital were randomly selected in a pilot study in order to test the reliability of the instruments. The Chinese version PCNSC and LCS were tested for internal consistency using the Cronbach's alpha coefficient. This could lend support to the majority of the items in each scale that measured one attribute and nothing else (Polit & Beck, 2014). Furthermore, the test-retest reliability was tested for all questionnaires using measure variables, including the PCQN and ATPC tools, which were already translated into Chinese. The *r* values of the four instruments computed from the test-retest were all above .70 and perceived as acceptable (Polit & Beck, 2012). The results of reliability testing from the pilot study are presented in Table 6.

Table 6

Results of Reliability Testing for the Four Instruments

Instrument	Reliability	
	Test-retest (*r*)	Internal consistency (*α*)
PCQN	.79	NA
ATPC	.83	NA
PCNSC	.77	.97
LCS	.84	.95

Note. NA = not applicable

Ethical Considerations

The study was conducted in accordance with the ethical considerations in nursing research and ethical principles. The ethical principles in nursing research include benefits, the right to freedom from harm and discomfort, the right to protection from exploitation, respect for human dignity, the right for self-determination, right for full disclosure, and justice (Polit & Beck, 2014). The ethical issues in this study concern the right to full disclosure and justice, and the right to self-determination. Permission for data collection was obtained from both the Health and Social Science Institutional Review Board (SBS-IRB), Prince of Songkla University, Thailand (2017NSt-Qn046) and the IRB of the Yunnan Cancer Hospital (Appendix D).

Firstly, considering full disclosure, the researcher provided comprehensive information about the study including its benefits and risks. Each subject received a brief explanation of the study where it was made clear that the study might not benefit the participants directly, but the knowledge gained from this study might be valuable for the development of the nurses' palliative care competence in the hospital at hand and in an even wider context.

At the same time, the risks of participating in this study are associated with the breach of confidentiality. More specifically, the questionnaire asks participants to share their perception of competence with the potential risk of influencing their occupational evaluation, through the unauthorized dissemination of the data to other parties. For example, the nurse might feel stressed since answering "not capable at all" will influence the total score of the department for which the nursing manager is accountable. Based on this consideration, the researcher will explain explained that the study was not confined to institution and the risk for affecting evaluation is limited. They were then informed that a total of 220 participates were included in this study, and that the final report would only contain aggregate data and not information that would identify individuals.

Secondly, the right to self-determination involves the participants' right to ask questions or decide whether or not to participate. The nurses were clearly informed of their right and ability to discontinue their participation at any time without penalty or loss of benefits to which they are otherwise entitled.

Furthermore, the steps of promote confidentiality were explained to each respondent. For example, the identifiers would be removed as soon as possible after data collection with substitute codes subsequently used to replace the identifiers, and that the data would be saved in a computer and protected by passwords.

Data Collection Procedures

The data collection was conducted in the period from January 15 to 26, 2018. The procedure consisted of three phases—preparation phase, recruitment phase and data collection phase.

Preparation Phase

1. Obtaining permission and approval from both the Health and Social Science Institutional Review Board (SBS-IRB), Prince of Songkla University and the IRB of Yunnan Cancer Hospital.

2. The demographic questionnaires, PCNSC and LCS scales, were translated into Chinese.

3. Three experts tested the content validity of LCS.

4. Conducting pilot study to test the reliability of the instruments (PCQN, APTC, PCNSC, and LCS). Four instruments and the informed consent (Appendix E) were provided when testing for reliability.

Recruitment Phase

1. The objectives of the study were explained to both the chief and head nurse in each ward. Then they were asked to provide the list of names of the nurses in their ward to identify nurses who met the inclusion criteria with the help of the head nurses in each ward.

2. Random sampling was performed using the RAND function in Microsoft Excel to select participants randomly. In the case when the potential participant rejected to be involved in the survey, the following ID number of the nurse from the RAND function was invited to participate into the study in order to fulfill the sample size requirement of each ward.

Date Collection Phase

1. The researcher contacted each participant individually. The strategy of individual distribution was used in order to yield a relatively high response rate (Polit & Beck, 2012, p. 311). The researcher explained the purposes of the study and data collection process to each participant in order to obtain their consent. In addition, the participant was required to fill in the questionnaire independently.

2. The researcher provided the informed consent and instruments, and recycled the questionnaire after one week. In cases when the questions had not been completed, the researcher asked the respondent to complete them within one week, while asking for the reasons or inconvenience issues that hindered the completion of the questionnaire and providing assistance.

After collecting all questionnaires, the top sheets of the questionnaire were removed from the original questionnaire; thus, removing the identification of the participants.

Data Analysis

Data Management

After data collection was completed, all data were entered, checked, and cleaned. They were then transferred into a data file via keyboard entry. The double entry data method was used to prevent data entry error (Polit & Beck, 2012, p.456). This method compares two sets of data entry to ensure the accuracy, and data cleaning was done by checking outliers. All of the data collected in this study will be kept for a 5-year period.

Analyzing Data

The data were analyzed using statistical software in accordance with the methods related to a descriptive and inferential statistic in order to answer the research questions.

1. Description of the nurses' demographic characteristics were presented using frequencies, percentages, means (*M*), and standard deviation (*SD*). Age was presented as *M* and *SD*, maximum and minimum.

2. Regarding the first research question, i.e., to describe palliative care nursing competence, the scores of PCSNC in each dimension and a total were obtained by taking the *M* (*SD*) of the responses to the pattern of palliative care self-competence. Later the summed score was used to integrate the level of palliative care competence in the study and analyzing the association with the scores of the other variables.

3. As for the second research question, the Pearson's product-moment correlation was used to examine the relationship between the score of the nurses' knowledge, attitudes, and workplace learning condition scale and the score of palliative care nursing competence. Prior to performing the correlation study between variables, the assumption of normality, linearity, and homogeneity of data in each variable was tested (Appendix F). That is, the assumption of normality of each variable was checked through the value of Skewness and Kurtosis. If the values lay between $\pm$ 3.29 that was an indication that the data had a normal distribution. For the linearity testing, it was examined by a visual inspection of the scatter plot. The overall shape of the scatter plot should be rectangular if the assumption of linearity was met (Polit & Beck, 2012). Homoscedasticity is used to interpret the standard error of the

dependent variable exhibiting a similar variance across the independent variables. This assumption is not met if the band becomes wider at larger predicted values.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter consists of the results and discussion sections of the study. The relevant details and explanation are as follows.

Results

The results are presented according to the order of the research objectives of this study starting with the characteristics of the participants, followed by the level of palliative care nursing competence and the relationships between the nurses' palliative care competence and palliative care knowledge, attitudes, and workplace learning conditions.

Characteristics of Participants

A total of 212 nurses completed and returned the questionnaire (response rate 96.36%). The participants' age ranged from 22 to 51 years, with a mean age of 31.75 years (*SD* = 5.93). The majority of the participants were female (98.1%), and their ages ranged from 22 to 51 years. More than 95% were bachelor degree graduates. The length of their work experience as a registered nurse varied from 1 to 30 years, with a mean value of 10.42 years (*SD* = 7.12). However, their experience in their current hospital was generally shorter than their total work experience (*M* = 9.93, *SD* = 6.94). Nurses with experience caring for patients with advanced cancer in the year prior to the study accounted for 91%.

Regarding palliative care training, 172 nurses (81.1%) reported they had opportunities to attend relevant courses on palliative care. Three common topics were

often included in such training courses—pain management, the concept of palliative care and palliative care in hospice. Concerning their daily practice related to palliative care, the nurses reported that pain management was continually provided (94.81%) followed by psychosocial (69.81%) and hospice care (60.38%). The participants' characteristics are illustrated in Table 7.

Table 7

Participants' Characteristics (N = 212)

Variable	*n*	%
Gender		
Male	4	1.9
Female	208	98.1
Level of education		
Undergraduate	203	95.75
Master	9	4.25
Experience of caring for patients with advanced cancer during the past year		
No	20	9.4
Yes	192	90.6
Number of patients <10 [a]	64	33.33
Number of patients 10-50 [a]	65	33.85
Number of patients >50 [a]	63	32.81
Experience of attending PC training		
No	40	18.9
Yes (content of PC training related to):	172	81.1
Pain management [b]	157	91.28
Concept of PC [b]	116	67.44
PC in hospice [b]	114	66.28

Note. [a] n = 192, [b] n = 172, PC = Palliative care, TCM = traditional Chinese medicine

(continued)

Table 7 (continued)

Variable	*n*	%
Psychosocial care [b]	90	52.33
Communication in PC [b]	70	40.70
Nurses' role in PC [b]	66	38.37
Caring for patients' families [b]	57	33.14
Other symptom management [b]	51	29.65
Spiritual care [b]	33	19.19
Complementary and Alternative Medicine in PC [b]	25	14.53
Bereavement care [b]	20	11.63
Advanced care planning [b]	13	7.56
Living will [b]	1	0.58
Nurses' direct experience with providing PC		
Pain management	201	94.81
Psychosocial care	148	69.81
Hospice care	128	60.38
Caring for patient's family	116	54.72
Other symptom management	109	51.42
Symptom management using TCM	42	19.81
Acupressure	24	11.32
TCM topical or rubbed medications	13	6.13
TCM dietary guidance	18	8.49
Communication about dying	36	16.98
Spiritual care	23	10.85
Bereavement care	14	6.60
Advanced care planning	0	0

Note. [a] n = 192, [b] n = 172, PC = palliative care, TCM = traditional Chinese medicine, NA = Not applicable.

Level of participants' palliative care nursing competence. It was found that the reported nurses' palliative care competence in the investigated cancer hospital was

generally at a moderate level (*M* = 131.02, *SD* ± 34.11). The nurses felt more competent in assisting patients with their physical needs, both pain (*M* = 14.87, *SD* ± 4.03) and other symptoms (*M* = 16.06, *SD* ± 3.72) as well as providing care at last hour of life (*M* = 15.31, *SD* ± 4.72) than with the other aspects of palliative care. On the other hand, they perceived themselves less competent in ethical and legal issues (*M* = 10.29, *SD* ± 4.87) and serving the patients' spiritual needs (*M* = 10.32, *SD* ± 4.60). The scores of the total competence and those of each subdomain of palliative care are presented in Table 8.

Table 8

Summary of Score Range, Means, and Standard Deviations for Scores of Participants' Palliative Care Competence

	Range			
Domain	Potential	Actual	*M*	*SD*
Total score of PC competence	0 - 250	40 - 221	131.02	34.11
Physical care (other symptoms)	0 - 25	7 - 25	16.06	3.72
Care at the last hours of life	0 - 25	2 - 25	15.31	4.72
Physical care (pain)	0 - 25	5 - 25	14.87	4.03
Needs related to functional status	0 - 25	2 - 25	14.16	4.23
Psychological care	0 - 25	4 - 23	13.90	4.05
Personal and professional issues related to nursing care	0 - 25	0 - 24	12.30	4.43
Inter-professional collaboration and communication	0 - 25	0 - 25	12.20	5.31
Social care	0 - 25	1 - 21	11.42	4.38
Spiritual need	0 - 25	0 - 23	10.32	4.60
Ethical and legal issues	0 - 25	0 - 22	10.29	4.87

Note. PC = Palliative care.

Additionally, the top three-highest scoring items rated by the participants was found in providing oral care, pain assessment, and presence during the last hours of the patient's life. Regarding the items with the lowest scores, two of them were under the subdomains of ethical legal issues, namely, decision-making assistance and providing information specific to the legal issues associated with their illness (the only item rated at a low level; *M* = 1.56, *SD* = 1.19). Another item with a low score was discussion about death with patients and their families. These items are presented in Table 9; the scores obtained for each item of the PCNSC questionnaire are presented in Appendix G.

Table 9

Item Ranking: Three Highest Scoring and Three Lowest Scoring Competence Assessment Items

Ranking order	Content of item	*M*	*SD*
1	Provide proper mouth care to promote comfort in persons with life-limiting conditions.	3.71	1.01
2	Assess pain in persons with life-limiting conditions.	3.49	.97
3	Provide an authentic presence during the last hours of life to persons with life-limiting conditions and their families.	3.34	1.20
…			
48	Discuss death and dying with persons with life-limiting conditions and their families.	1.81	1.27
49	Assist persons with life-limiting conditions to make informed decision regarding end of life care.	1.69	1.19
50	Provide information to persons with life-limiting conditions concerning the legal issue associated with illness.	1.65	1.19

Relationships between knowledge, attitudes, workplace learning conditions and nurses' palliative care competence. A Pearson's product-moment correlation test was conducted to determine the relationships between the score of the nurses' knowledge, attitudes, workplace learning condition scale and the score on palliative care nursing competence. Upon correlation analysis, the assumptions of normality, linearity and homoscedasticity were all met. The Pearson's correlation showed a positive relationship between workplace learning conditions and nurses' palliative care competence at a moderate magnitude ($r = .460, p <.001$). Also, there was a positive statistically significant correlation between knowledge and palliative care nursing competence at a small magnitude ($r = .152, p = .027$). However, the relationship between attitudes and competence had no statistical significance. The scores and distributions of each variable assessed are presented in Appendix G. The results of Pearson's correlation analyses are displayed in Table 10.

Table 10

Correlation between Knowledge, Attitudes, Workplace Learning Conditions and Competence

Variable	1	2	3	4
1. PC knowledge	1			
2. Attitudes towards PC	.097	1		
3. Workplace learning conditions	.091	.116	1	
4. PC nursing competence	.152*	.007	.460**	1

Note. * $p < .05$, ** $p < .001$, PC = palliative care.

Discussion

In the discussion section, the interpretation of the findings of this study and arguments related to them will be stated, including suggestions and practical implications. The discussion is organized according to the research objectives and research questions. The participants' level of palliative care competence and its relationships with palliative care knowledge, attitudes towards palliative care, and workplace learning conditions are discussed sequentially.

Level of Participants' Palliative Care Nursing Competence

The oncology nurses' perception of their palliative care competence was found to be at a moderate level (mean value computed 52.41% of total score). Compared with findings regarding nurses' competence in other studies using the PCNSC scale, this finding is similar to that from Vietnam (54.59% of the total score; Nguyen et al., 2014). However, the participants' competence score in this study was lower than that of a group of nurses working in an acute care department in the United States (69.51% of the total score; Hayter, 2016) and of Canadian nurses working in rural areas (70.3% of total score; Pesut et al., 2015). This could point out that this study's participants perceived themselves as not fully competent in palliative care compared with nurses in more developed countries. The integration of palliative care in nursing practice is influenced by the level of palliative care development in the country through specific education and training (Abudari et al., 2014). Palliative care development in both US and Canada is more advanced than in China (Lynch, et al., 2013).

As one of the key factors affecting competence, education could bring essential information about palliative care to nursing students and nursing

practitioners (Malloy et al., 2018). However, the development of palliative nursing education in China is lagging. Palliative content is not fully incorporated into the nursing curriculum, so nurses have limited palliative knowledge and skills when they graduate (Lu et al., 2018). To illustrate, the majority of nurses' palliative care training course contents rarely cover the social and spiritual care aspects, caring for the patients' families and other symptom management. These aspects of palliative care account for a large proportion of the nurses' practice in this area, but they are unlikely to be supported by education. This lack reinforces the need of strengthening specialist competence development. This finding agrees with Zhan et al. (2018) in that specialist education should be holistically improved through curricula for nursing students, continued education for nurses, and qualification for nurse practitioners.

Another element for professional competence development could be guidelines for palliative care availability. Practice, as a guiding information resource, could help nurses link theory and nursing research to practice (Jerlock et al., 2003). In the United States, guidelines for advancing palliative care in different healthcare settings have been in place since 2004 (NCHPC, 2013). Furthermore, regarding palliative care service for cancer patients, the American Society of Clinical Oncology (ASCO) has also offered a guideline specifically for oncologists to integrate palliative care into the oncology care they provide. Regarding the guideline, the ASCO also highlights the importance of the team approach along with palliative care assessment integrated into the oncology care routine (Ferrell, et al., 2016b). In China, the NHFPC issued three documents that aim to further strengthen palliative and hospice care development in early 2017 (NHFPC, 2017). The documents are an initial national standard for palliative care involving human resources, environment, and structure of

palliative and hospice care service, with practice guidelines for healthcare providers and quality supervision standards. Due to this legislation, the construction of palliative care service can finally rely on a unified national standard.

Analyzing the ability of nurses in each aspect can also bring a deeper understanding of the oncology nurses' competence level. The highest scores were associated with care for the cancer patients' physical needs related to pain and other symptoms management, and care at the last hours of life. This could be interpreted as the nurses felt more capable when providing symptom management even at the EOL in their care practice. This result is similar to that reported in the United States (Hayter, 2016) where nurses who worked in an acute care department also perceived a level of higher competence in these three domains. Similarly, Vietnamese oncology nurses also reported a higher competence in caring at EOL and other symptom management, but not in pain management (Nguyen et al., 2014).

The participants in this study felt more competent while facing the patients' needs related to pain management, which resulted the highest overall competence. This could be understood as the nurses perceived they were capable of handling the pain aspect of care concerning cancer patients. This result is similar to a finding among Japanese nurses (Nekazawa et al., 2018). However, other studies in Vietnamese oncology nurses and Canada found that pain management competence was rated poorly (Nguyen et al., 2014; Pesut et al., 2015). This might owe to the fact that both policy and opportunities for education on pain management have been developed earlier than the other palliative care aspects in China. In 2011, NHFPC established pilot inpatient units for standard cancer-pain management regulations both for general and cancer-specialized hospitals. The number of qualified cancer-pain

management units across China reached 913 units in 2017 (Lu, 2018). In the same year, the national standard for palliative care units was announced (NHFPC, 2017). One unit in the study hospital also received the qualification certification for national standards in pain management. Physicians in that unit provide education and assistance with cancer-pain management all over the hospital. This is corroborated by the participants of the study reporting that pain management was the most commonly covered topic (91%) in their training and practice experience. Consequently, their perceived competence in providing pain management was relatively higher than the other areas of competence.

The lowest scoring competence reported in the study was dealing with ethical and legal issues. This finding points out that the nurses were unlikely to provide relevant information support in their care for and communication with patients. Especially, the lowest score out of the fifty items of competence assessment was presented in the item of "providing information … concerning legal issues associated with illness." This finding is also consistent with those of earlier related studies (Hayter, 2016; Nguyen et al., 2014; Pesut et al., 2015). For nurses, mastering ethical and legal knowledge in palliative care is essential, especially when facing complex cases that involve the application of the palliative care principle of beneficence through suffering relief and the obligation to build trust in a therapeutic relationship (McCabe & Costudy, 2014). It has been noted that competence in this specific area could be improved significantly through educational programs (Pesut et al., 2015). Palliative care-related laws still need to be improved in China. For instance, Advanced Care Planning (ACP) is still not a legal document, but some nonprofit organizations (e.g. the Beijing Living Will Promotion Association) started to promote

public education for advanced care planning and hospice care in 2013 (Lu, et al., 2018). A survey among Chinese oncologists showed that their knowledge regarding this topic was much lower than that reported by other Asian studies (Gu et al., 2016). In the present study, less than 10% (7.56%) of nurses had attended a course concerning advanced care planning, even though the major of them had received training about hospice care. In fact, none of the participants reported having any experience with practice in APC. Thus, during the process of integrating the legal system, education is also necessary for nurses.

Another noticeable point is that the nurses' competence in inter-professional collaboration and communication was generally perceived as low. This indicates that the nurses may be able to neither communicate well with other healthcare providers nor promote effective communication with patients and/or other professionals. This was true even though communication in palliative care was typically included in the palliative care training they attend. Moreover, this competence was found to be higher than symptoms management in previous studies (Nguyen et al., 2014; Pesut et al., 2015).

This result might be influenced by three potential reasons. Firstly, palliative care is a multidisciplinary approach where nurses need to collaborate in teams (Kang et al., 2013). Among the participants in the study, a limited proportion of them had received training concerning the nursing role in palliative care. Currently, along with the establishment of national palliative care guidelines, Chinese nursing managers and nurses need to be aware of their role in palliative care (Zhan et al., 2018). Secondly, the multidisciplinary team building should also be taken into consideration. One study suggested that strengthening palliative care teams contributes to the nurses' higher

competence significantly, along with increasing the availability of interpersonal information dissemination and multi-professional working (Hamström et al., 2012; Nakazawa et al., 2018). However, Ma (2016) found that only 22% of research about palliative care was conducted using a team approach through meta-analysis. The absence of a multidisciplinary team could limit the nurses' opportunity to practice inter-professional collaboration in teams as it regards to the scope of palliative care (Nakazawa et al., 2018). Finally, the participants reported they rarely communicated about death in their practice, even though communication in palliative care was a part of the training they attended. A cultural barrier could be at play here; Chinese patients are not often included in decision making at the EOL (Lu et al., 2018). This issue needs to be improved from both the healthcare professionals' and patients' (families) sides. Hence, public education is also essential to help the general population change the cultural mindset regarding talking about death.

Factors Associated with Palliative Care Nursing Competence

As mentioned above, in this study, the factors associated with palliative care nursing competence were knowledge and workplace learning conditions. Knowledge was positively related to competence indicating nurses felt more capable of delivering services when they had obtained a higher level of palliative care knowledge. Education contributes to the provision of excellent care, since "nurses cannot practice what they do not know" (Malloy et al., 2018). Nurses reported that a better knowledge of assessment tools and available resources for patients enhanced their competence in communication with both patients and other healthcare providers (Pesut et al., 2015). This finding concurs with that of Nguyen's study (Nguyen et al., 2014). Similarly,

Nekazawa et al. (2018) reported a relationship between improvement of the nurses' knowledge and self-reported practice competence level from a national investigation. Meanwhile, many educational programs have identified that the improvement of competence can be achieved by heightening the knowledge of the practitioner (Montagnini et al., 2012; Nguyen et al., 2014; Schlairet, 2009). However, some studies have failed to detect this correlation (Pesut et al., 2015), and one reason could be that the nurses' perceived competence might be affected by other factors such as experience (Lakanmaa et al. (2015).

The most striking result to emerge from this study's data is that workplace learning conditions were significantly associated with the nurses' palliative care competence. Learning conditions could be a way to explain how the nurses' capacity increases with clinical experience (Takase et al., 2015), even though nurses might not notice they are being educated while working (Kyndt et al., 2016). Kyndt et al. (2016) identified that opportunities for nurses to cooperate, receive feedback and evaluation, and be coached significantly predicted their general competence. Specifically, palliative care specialist support apparently helps nurses overcome difficulties faced during palliative care, and also promotes interactions among healthcare providers (Nikazawa et al, 2018). This study's data also suggested that more opportunities for cooperation, evaluation, feedback, reflection, coaching, knowledge acquisition and access to information are associated with a higher level of competence. This finding is consistent with those of previous studies (Isidro-Filho et al., 2013; Kyndt et al., 2016; Takase et al., 2015) showing a strong positive correlation between workplace learning and nurses' competence in general.

Additionally, the results further confirm the importance of workplace learning conditions in the development of palliative care competence among nurses. However, the score of workplace learning conditions was computed as 48% of the total LCS score in the study. It is noteworthy that opportunities for cooperation were perceived by nurses as the weakest aspect of the workplace learning aspect. This result also evidenced that nurses were unsatisfied with inter-professional collaboration. Thus, improving the support procedures concerning the points mentioned above, especially regarding professional cooperation should be contained in the construction of service along with improving the learning environment in the hospital specifically for palliative care service.

This study was unable to demonstrate that the nurses' attitudes towards palliative care were associated with their competence. It could be inferred that the way nurses perceive palliative care does not relate to their perceived capability of providing care. Noticeably, the attitudes score in this study was not very positive (*M* computed 62% of the total score) even though it was higher than the findings of previous Chinese studies (Shen, 2015; Wan, 2013). In particular, the scores of communication about dying were the lowest out of the three domains assessed. This could be the reason for the lack of association between nurses' attitudes and palliative care competence. This finding is different from those of some studies, which suggested that nurses with positive perceptions regarding care, more frequently include care practice in their daily work (Huijer et al., 2009). But in Huijer's study, the participants' attitudes towards palliative care were more positive overall (*M* value computed 73% of the total score). Nevertheless, this study's result is consistent with Nguyen's research (Nguyen et al., 2014); nurses with more experience in oncology

care experienced greater compassion fatigue, which further affected their attitudes towards caring for cancer patients.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

In this chapter, the summary of the study findings, strengths and limitations, and recommendations are included.

Conclusion

This cross-sectional correlation study was conducted to identify the level of palliative care competence and its relevant factors among nurses working in a cancer hospital in China. The concept of palliative care nursing competence was based on a previous research in Canada (Desbines & Fillion, 2011). The data was collected from 212 nurses, who had at least six months of experience in their existing hospital in January 2017. A demographics questionnaire and the Palliative Care Quiz for Nurses (PCQN), Attitudes towards Palliative Care Scale (ATPC) Scale, the Workplace Learning Conditions Scale (LCS), and the Palliative Care Nursing Self-competence Scale (PCNSC) Scale were used to assess the nurses' palliative care competence, knowledge, attitudes and perceptions of learning conditions as it regards palliative care in the hospital. The demographic questionnaire and the LCS were validated by three experts. The internal consistency (Cronbach's alpha) and the test-retest reliability of the Chinese versions of PCNSC and LCS were tested and yielded satisfactory values. For the questionnaires already translated by previous authors (PCQN and ATPC), the test-retest reliability was also tested and they were shown to be reliable.

Descriptive statistics were used to describe the participants' palliative care competence. Inferential statistics (Pearson's correlation) were used to identify the

association between the nurses' competence and knowledge, attitudes, and workplace learning conditions.

The majority of the participants were nurses who had graduated with a bachelor degree and the mean working experience as a nurse was 10.42 years. The study findings illustrated that the nurses' perception of their palliative care competence was at a moderate level (M = 131.02, SD = 34.11). The nurses were the most likely to provide appropriate care for the patients' physical needs. However, the rating scores for providing care in regards to communication, spiritual care, and ethical and legal matters were lower than in other aspects. The factors associated with the nurses' palliative care competence were workplace learning conditions ($r = 0.46$, $p < 0.001$) and palliative care knowledge ($r = 0.152$, $p = 0.03$), which were both significantly and positively related to competence. On the other hand, the correlation between the participants' attitudes and palliative care competence was not statistically significant.

Strengths and Limitations of the Study

There are some noticeable strengths and limitations in this study.

Strengths of the Study

First of all, this is a pioneer study on nurses' competence in palliative care in Mainland China. Its findings could provide meaningful baseline data regarding the status of palliative care competence among nurses there. Another strength of the study is related to the sampling method used. Stratified random sampling with proportionate sampling was used based on the total number of nurses in each ward. This technique

could ensure the representativeness of nurses from internal medicine, surgery, and others care units in the randomized sample. Finally, the individual distribution strategy used by the researcher also enhanced the understanding of the research goal on the part of the participants while, at the same time, yielding a satisfactory response rate.

Limitations of the Study

There were limitations to this study, which should be noted and discussed. Firstly, self-assessed competence is a widely-used method in nursing competence research, but it is weak on objectivity. As pointed out by Takase et al. (2015), the nurses' self-assessed competence is influenced by the individual's self-esteem. Some of the nurses rated their competence "0," which refers to not being capable in regards to all of the items. Obviously, this depends on the way they perceived their level of ability. Secondly, some of the items did not cut deeply into how the participants perceived the concepts. For example, for the item "assess the spiritual needs of patients with life-threatening illness and their families," some nurses might not have extensive knowledge in regard to what spiritual needs entails, as a few of them had received education pertaining to spiritual care. Without clear understanding of the subject matter, their evaluation might have been biased. Thirdly, the finding of the study could reflect only a part of the situation pertaining to a cancer hospitals in Western China. However, in the eastern part of China, palliative care development is more advanced (Ma, 2016); this needs to be taken into consideration when applying the findings of this study to guide further research in hospitals with a different context of palliative care development.

Recommendations

This study could provide valuable baseline data and evidence that can be applied into nursing practice, and utilized in education and further nursing research.

Nursing Practice

The study's findings show that the nurses' palliative care competence level in the cancer hospital under investigation was lower than that reported by studies in more developed countries. This could serve to raise both awareness and concern about the quality of care they provide to cancer patients and their families. As suggested in the discussion section, the nurses' comprehensive palliative care competence should be improved. More specifically, the competence of dealing with the ethical and legal matters in palliative care, offering support for spiritual care needs, as well as professional cooperation and communication require more attention in the existing context. Strategies should be created in order to establish better educational support due to the observed association between knowledge and competence. Additionally, the nurses' attitudes need to be further improved, especially in the part of communication on the topics of death and dying.

The findings also suggest that strengthening the learning environment in the hospital brings benefits in the advancement of palliative care service. Increasing the palliative care specialist availability in practice will also be beneficial for nurses, providing more opportunity for them to receive feedback and practice self-reflection. At the same time, the points mentioned above need to be considered when creating hospital management policies.

Nursing Education

Firstly, this study investigated the education needed to comprehensively support the nurses' palliative care development. Basic knowledge regarding the philosophy and principles of palliative care, symptom management, and psychological care involvement is believed to be beneficial, as the association between basic palliative care knowledge and nurse competence level was demonstrated by the current study. Under existing conditions, the knowledge about social care, spiritual care and ethical and/or legal considerations in palliative care should be paid more attention to.

Secondly, both educational support for nursing students in early nursing education and continued educational opportunities for nurses in a healthcare setting are necessary. Palliative care needs to form part of the nursing education curricula for the bachelor degree. Concerning continued educational programs, specific education helping nurse practitioners to identify their role in palliative care, communication with other healthcare professionals, spiritual care skills and knowledge of ethical/legal issues in palliative care should remain in focus in the hospital. Finally, the nurses' palliative care competence could be improved through both formal and informal education (workplace learning) in the hospital. At the same time, the nurses' knowledge, their perception of workplace learning conditions, and palliative care competence could serve as indicators that can be measured in order to facilitate the process.

Nursing Research

In future nursing research, self-evaluation could be the way to explore palliative care nursing competence. Therefore, it should be included in educational programs as an outcome evaluation approach. Additionally, a cross-sectional design was used in this study in order to obtain baseline data concerning the existing status of nurses' competence in a cancer hospital. Based on the findings, further longitudinal research related to competence development along with the strengthening of palliative care education and establishing supportive workplace learning conditions are needed. Finally, further study including nurses from cancer hospitals across different provinces is needed in order to obtain evidence with a stronger generalizability.

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APPENDIX

APPENDIX A

Instruments

Subject No. :   Date:

Given our aging population and the growing epidemic of life-limiting chronic conditions such as cancer, research about a palliative approach is more important than ever. **The ultimate goal is to advance the integration of a palliative approach into all settings where nurses care for people with cancer (life-limiting chronic conditions)**.

We believe that nurses can and will contribute to a better and more supported experience for Yunnan Province toward the end of their lives.

We need to understand your perspective to help develop a palliative care services in Yunnan Cancer Hospital. The purpose of this survey is to gather information relevant to a palliative approach from nurses in the cancer hospital. The survey will take about 30-40 minutes to complete. This instruments is divided into **5 sections**.

Section 1 is about your personal data,

Section 2 is about knowledge about palliative care,

Section 3 is to assess your attitudes towards palliative care,

Section 4 will ask how you perceive your competence regarding palliative care service delivery

Section 5 is to measure your perception of workplace learning conditions related to individual palliative care competence development.

Please read the enclosed consent form and keep a copy for your records. Note that as this is a survey, when you submit your response, this action implies consent.

Section 1: Demographic Data

Please fill the blank space or mark the answer by "√" in the bracket and indicated what reflects your personal information.

1. Age………………..years old
2. 2. Gender: ( ) Male ( ) Female
3. Ward: ( ) Medical unit ( ) Surgical unit ( ) Other unit (palliative care unit & emergency department, nuclear medicine unit, and intensive care unit)
4. 4. How long have you been working as a nurse? …………years
5. How long have you been working in Yunnan Cancer Hospital? …………years
6. Level of education: ( ) Bachelor ( ) Master ( ) PhD
7. Do you have experience of taking care of patient with advanced cancer (e.g. metastatic or cancers cannot be cured) in the past 1 year?

   ( ) Yes (Number of patients: □<10, □10-50, □ >50) ( ) No

8. Have you ever attended training or practice in conference regards palliative care?

   ( ) No

   ( ) Yes (please specific, can answer more than one option)

   Content included:

   □ Concept of palliative care
   □ Pain management
   □ Other symptom management
   □ Complementary and Alternative Medicine (CAM) in palliative care
   □ Psychosocial care
   □ Spiritual care
   □ Communication in palliative care
   □ Advance care planning
   □ palliative care in hospice
   □ Nurse's role in palliative care
   □ Bereavement care
   □ Care for patient's family
   □ Others (please specify)

9. Direct experience of providing palliative care to cancer patients? (Please specific, can answer more than one option)

( ) Pain management

( ) Other symptom management

( ) Symptom management by using Traditional Chinese Medicine (TCM)

(□ Acupressure; □ TCM topical, rubbed; □ TCM dietary guidance)

( ) Psychosocial care

( ) Spiritual care

( ) Communication about dying

( ) Advance care planning

( ) Hospice care

( ) Bereavement care

( ) Caring patient’s family

( ) Others (please specify)

Section 2: Palliative Care Quiz for Nurse

This section is aimed to examine knowledge related to palliative care. Please read each item carefully and mark √ in an appropriate column that you think it is either 'correct' or 'incorrect'. If you don't know information provided in the item, you can mark at the column 'I don't know.'

For example,

No	Item	Yes	No	I don't know
	Cancer is a leading cause of death in China			√

Please mark the answer by "√" in the bracket.

No	Item	Yes	No	I don't know
1	Palliative care is appropriate only in situations where there is evidence of a downhill trajectory or deterioration			
2	The provision of palliative care requires emotional detachment			
3	The philosophy of palliative care is compatible with that of aggressive treatment			
	…			
18	The pain threshold is lowered by anxiety or fatigue			
19	Men generally reconcile their grief more quickly than women			
20	The accumulation of losses renders burnout inevitable for those who seek work in palliative care			

Section 3: Attitudes Towards Palliative Care

This section is aimed to examine your attitudes towards palliative care. Please read each item carefully and consider how you feel about each statement. There are no right or wrong answers to any of these statements. Also respond by using the following scale by marking " √ " in an appropriate column that reflects your opinion or feelings.

1 refer to you totally agree = strongly agree,
2 refer to you somehow agree with the statement = agree,
3 refer to you think the statement is incorrect but not fully wrong = be neutral,
4 refer to you think the statement is wrong in some case = disagree,
5 refer to you think that description is grossly wrong = strongly disagree

No.	Item	1	2	3	4	5
1	Most of my nurse colleagues feel that when their patients received palliative care, it reflects their own failure.					
2	Many if my nurse colleagues are uncomfortable discussing the option of palliative care with patient and their families.					
3	Physicians do not have a role in palliative care.					
	…					
10	I usually order (request) as much pain medication as need to keep terminally ill patients pain free.					
11	I usually tell patients that curative treatment in no longer successful as soon as I know.					
12	Most elderly patients do not want to be told if they are dying.					

Section 4: Palliative Care Nursing Self-competence Scale (PCNSC)

We would like to know how you perceived your capabilities to provide palliative care for patients with cancer and their families.

Please take the time to familiarize yourself with the following terms that are used frequently in the survey:

Life-Limiting Conditions: Chronic conditions expected to limit how long a person has to live, it refers to cancer in this study.

Palliative Approach: An approach to care focused on improving the quality of life of persons with cancer (life-limiting conditions) and their family. It is provided in all health care settings. It involves physical, psychological, social and spiritual care. The palliative approach is not delayed until the end stages of an illness but is applied earlier to provide active comfort-focused care and a positive approach to reducing suffering. It also promotes understanding of loss and bereavement.

Below you will find 50 statements. Please indicate the extent to which you believe these statements apply to you. Ensure that you are describing **what you are like rather than what you want to be like**.

For each statement there will be 6 possible answers from which to choose:

Mark 0, if you feel that you are not at all capable.

Mark 1, if the given situation you can slightly/sometimes provide support to cancer patients

Mark 2, if you can apply the item a fair bit / regularly in the caring process

Mark 3, if you can certainly/often apply the given item in the caring process

Mark 4, if the given item you can always use in the caring process

Mark 5, if your ability could take full control of the situation

1. Physical Needs: Pain

		not at all capable 0	1	2	3	4	highly capable 5
1.	Assess pain in persons with cancer.	○	○	○	○	○	○
2.	Assess pain for persons with cancer who are unable to communicate.	○	○	○	○	○	○
3.	Effectively use medication to relieve pain in persons with cancer.	○	○	○	○	○	○

…

10. Last Hours of Life

48.	Identify the signs and symptoms of imminent death in persons with cancer.	○	○	○	○	○	○
49.	Provide an authentic presence during the last hours of life to persons with cancer and their families.	○	○	○	○	○	○
50.	Encourage expression of cultural and religious traditions for persons with cancer and their families during the last hours of life.	○	○	○	○	○	○

Section 5: Workplace Learning Conditions for Palliative Care Scale

Workplace Learning Conditions: The supportive of the learning process from surrounding conditions. It could be being coached, opportunities for cooperation, for feedback, for reflection, for work evaluation, and the support for knowledge acquisition and access to information, these help your palliative care competence being improved.

Please recall about these conditions supported your palliative care competence improved since you start working in this hospital, and mark the answer by “ √ ” in the bracket.

Please also notice:

1 refer to you think that description never happens in your work environment,
2 refer to you think the statement is rare occurred in your work setting,
3 refer to you think the statement happens in your working process sometimes,
4 refer to you think the item often occurred in your work time,
5 refer to you think the item is fit on your conditions all the time

No	Item	1	2	3	4	5
1	I participate in palliative care project teams composed of healthcare providers from different departments, to work around palliative care.					
2	I have the chance to participate in a palliative care work consultation					
3	I have the opportunity to participate in palliative care case discussions					
	…					
22	I have / had the chance to mirror a mentor at the beginning of care.					
23	I have the opportunity to ask for advice from a specific contact					
24	As a new staff I have / had the opportunity to be supported by a mentor in palliative care area.					

APPENDIX B

1. Permission for Using the Chinses Version of PCQN and ATPC.

回复：申请授权使用PCQN 中文版和Bradley态度评估问卷中文版
发件人：**83492182** <83492182@qq.com>
时　间：2017年6月27日(星期二) 中午11:18
收件人：Yuhan Shen <yuhanshen926@qq.com>

您直接用，希望对您论文有帮助。 祝好 邹敏

------------------ 原始邮件 ------------------

发件人: "Yuhan Shen"<yuhanshen926@qq.com>
发送时间: 2017年6月27日(星期二) 中午11:04
收件人: "83492182"<83492182@qq.com>;
主题: 申请授权使用PCQN 中文版和Bradley态度评估问卷中文版

尊敬的邹老师，

您好！我是在泰国宋卡王子大学护理系在读的硕士研究生沈昱含。
我在文献回顾的过程中阅读了您在第二军医大学就读时发表的硕士论文，并注意到国内的后续研究都引用了你翻译的Palliative Care Quiz for Nursing （PCQN）中文版和Bradley态度评估问卷中文版。 经过与导师讨论，我们认为您翻译的问卷对于我的研究内容是非常适合且有意义的，因此希望能够在我的硕士论文中使用以上两份问卷，我的研究题目是" Factors related to Oncology Nurses' Competence towards Palliative Care in China".
我已经向第二军医大护理系咨询过授权事宜，他们说只需要与您本人联系。因为论文开题在即，需要您的邮件回复授权允许，如果打扰到您还请见谅。
非常感谢的您的指导和帮助，希望尽快得到您的回复。

祝工作顺利，
沈昱含

Translation: "您直接用，希望对您论文有帮助" means "You could use the tools for free, with a good luck with your study".

2. Permission for Using PCNSC

Shen yuhan <yuhanshen926@gmail.com>

Asking permission for using PCNSC in China

3 封邮件

Shen yuhan <yuhanshen926@gmail.com> 2017年9月18日 上午1:53
收件人：Rick.Sawatzky@twu.ca

Respected Dr. Richard Sawatzky,

I am a master student from the faculty of nursing, Prince of Songkla University, Thailand. I am interested in palliative care for patients living with cancer. My master thesis titled "Factors related to Oncology Nurses' Competence towards Palliative Care in China".
Kindly, I send this email to you to ask permission for using the modified Palliative Care Nursing Self-competence Scalr (PCNSC). Previous, I already contacted with Dr. Desbiens and got the permission from him. However, he suggested me to use the version you have modified and tested by using English. Further, he provided me some information about the English version, as well as help me to ask permission from you (He has sent the E-mail to you at the early of last month). Since I am sure both your are very busy, so I think it might be more convenient to contact you directly. It would be my great pleasure if I receive the permission from you to apply PCNSC in my thesis study.

I am looking forward to hearing for the positive response. Thank you so much.

Sincerely,
Yuhan Shen

Rick Sawatzky <Rick.Sawatzky@twu.ca> 2017年9月18日 上午3:52
收件人：Shen yuhan <yuhanshen926@gmail.com>

Hi Yuhan Shen,

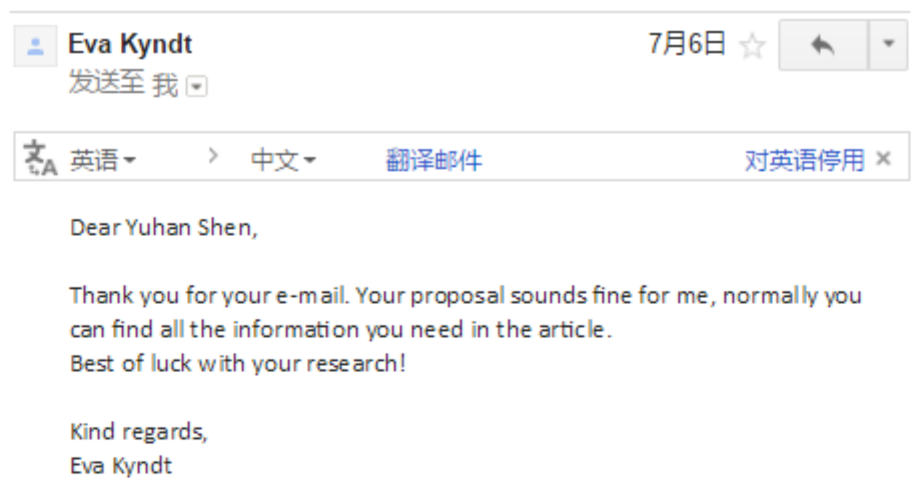
Thank you for contact me about this. I would be very please for you to proceed with using the PCNSC. We have a manuscript that is about to be submitted for review, so please check once you are ready to write the results so that you can cite the appropriate publication of the PCNSC. Best wishes,

Rick

From: Shen yuhan [mailto:yuhanshen926@gmail.com]
Sent: Sunday, September 17, 2017 11:54 AM
To: Rick Sawatzky <Rick.Sawatzky@twu.ca>
Subject: Asking permission for using PCNSC in China

[引用文字已隐藏]

3. Permission for Using and Revising LCS



Eva Kyndt 7月6日

发送至 我

英语 > 中文 翻译邮件 对英语停用 ×

Dear Yuhan Shen,

Thank you for your e-mail. Your proposal sounds fine for me, normally you can find all the information you need in the article.
Best of luck with your research!

Kind regards,
Eva Kyndt

Prof. Dr. Eva Kyndt

Centre for research on professional learning & development, and lifelong learning (POOLL)

Occupational & Organisational Psychology, and Professional Learning (O2L)

Dekenstraat 2 - PB3772
3000 Leuven (Belgium)
tel. + 32 16 32 57 59

APPENDIX C

List of Experts for Validation

Three experts who validated the content of the instruments were:

1. Assoc. Prof. Dr. Waraporn Kongsuwan

Nursing Lecture, Faculty of Nursing, Prince of Songkla University, Thailand

Email: waraporn.k@psu.ac.th

2. Asst. Prof. Dr. Tippamas Chinnawong

Nursing Lecture, Faculty of Nursing, Prince of Songkla University, Thailand

Email: tippamas.c@psu.ac.th

3. Asst. Prof. Yulin Lu

Nursing Lecture, Faculty of Nursing, Kunming Medical University, China

Email: 653587668@qq.com

APPENDIX D

Approval Letters

1. Ethical Approval From the Health and Social Science Institutional Review Board (SBS-IRB), Prince of Songkla University

Certificate of Approval of Human Research Ethics
Center for Social and Behavioral Sciences Institutional Review Board,
Prince of Songkla University

Document Number: 2017 NSt – Qn 046

Research Title: Knowledge, Attitude, Workplace Learning Conditions and Nurses' Competence Towards Palliative Care in a Cancer Hospital in China

Research Code: PSU IRB 2017 – NSt 039

Principal Investigator: Yuhan Shen

Workplace: Master of Nursing Science (International Program) Faculty of Nursing, Prince of Songkla University

Approved Document:
1. Human Subjects
2. Instrument
3. Invitation and Informed Consent

Approved Date: 27 November 2017

Expiration Date: 27 November 2019

The Research Ethics Review of Center for Social and Behavioral Sciences Institutional Review Board, Prince of Songkla University approved for Ethics of this research in accordance with Declaration of Belmont.

Aranya Chaowalit
(Assoc. Prof. Dr. Aranya Chaowalit)
Committee Chairman of Center for Social and Behavioral Sciences
Institutional Review Board, Prince of Songkla University

2. Ethical Approval From the IRB of Yunnan Cancer Hospital

版本号：201601 版本日期：2016 年 8 月 29 日

附件 1

云南省肿瘤医院伦理委员会

科研项目伦理审核表

审查编号：

项目名称：肿瘤医院工作护士的姑息护理知识，态度，工作场所学习条件和姑息护理能力

项目负责人：沈昱含	职称：护师
研究单位：泰国宋卡王子大学护理学院	负责人：Waraporn Kongsuwan
单位地址：Hat Yai, Songkhla, Thailand	邮编：90110

项目联系人： 沈昱含　电话：13577128207 传真：-

电子信箱：yuhanshen926@qq.com

合作研究单位：云南省肿瘤医院	负责人：黄云超

联系电话：0871-8181942	传真：	邮编：650118

研究者：Kittikorn Nilmanat	职称：副教授	研究者：	职称：
研究者：Chantra Promnoi	职称：助理教授	研究者：	职称：
研究者：	职称：	研究者：	职称：

拟研究时间：2017 年 12 月 01 日至 2018 年 1 月 5 日

研究课题来源：□政府 □基金会 □公司 □国际组织 √ 研究生课题 □其他：__________

资助者类型： □政府 □基金会 □公司 □国际组织 √ 研究生课题 □其他：__________

资助者名称：宋卡王子大学护理学院

资助者联系人：Dr. Waraporn Kongsuwan

联系方式： 66-74-286404

请求审查类型：

√ 新申请项目 □修订后项目 □延续审查课题

递交审查资料：

√ 实验方案 √ 知情同意书 √ 其他资料 论文提案、宋卡王子大学伦理委员会审核结果

（包括：试验用品安全性资料、生产企业资质证明、试验用品提供者的资质证明）

2. Ethical Approval From the IRB of Yunnan Cancer Hospital (continued)

版本号：201601 版本日期：2016 年 8 月 29 日

研究内容摘要：

1. 研究背景和必要性

当患者面对威胁生命的疾病时，姑息护理是促进患者及其家属生活质量的根本方法。根据世界卫生组织 2010 年对姑息护理的定义，其服务关注于预防和改善患者由疼痛和其它身心灵症状带来的痛苦。近年来，越来越多关于肿瘤治疗的指南指出应该将姑息护理融入到肿瘤护理路径中，为患者提供更全面、更高质量的照护。因为这种方法被证实显著地减少了对医疗资源的利用，但同时却促进了癌症患者和家属的健康幸福指数和生活质量，甚至延长了癌症患者确诊后的生存时间。

虽然近些年来姑息护理得到了一定的发展，但现阶段的服务远远不能满足患者的需求，尤其是癌症患者。癌症因为其高发病率和致死率成为一个世界性的公众健康问题。2012 年新增癌症患者数量达到了一千四百万。研究证实全球新增癌症病例 22%发生在中国。其次，癌症患者在病程中受到了疾病带来的身心困扰，而这些问题会随着病程发展、治疗和癌症类型的变化而变化。 同时，癌症患者的家属的生活质量也受到患者疾病的影响，他们受累于观察和照顾患者的身体症状、协助其日维持日常活动。疾病给他们带来的影响使姑息护理对癌症患者（不论类型和疾病阶段）变得尤为重要。最后，从根本上提升姑息护理服务水平的基本措施就是提升医护人员的能力。

护士在临终关怀服务中发挥着不可替代的作用，他们的能力是服务照顾好病人和家庭的保证，这些需要涉及了（生理、心理、社会和精神方面），临终关怀（EOL），应对姑息护理过程当中的道德问题，以及在姑息治疗的背景下必要的专业认知水平发展。

以前的研究在一些国家调查了护士姑息护理能力，结果普遍为中等水平。然而，这些研究的姑息治疗能力方面的结果强调了不同的特征。值得注意的是，关于我国护士姑息护理能力状况的证据不足，少量的研究报道对护士的姑息护理知识水平仍不满意。同时，姑息治疗的发展在中国面临着挑战，其缓慢的本土化发展难以面对迅速增长的服务需求，对患者提供的服务的机构任然很有限。

多个因素被证实了与护士姑息护理能力相关，包括他们的姑息护理知识水平，态度和工作场所学习的条件。然而，胜任力和这些因素之间的相关性较弱，在姑息治疗方面工作场所学习条件没有得到具体证实。因此，对这些因素的进一步研究对现阶段的发展很有必要。

2. 研究方法

本研究将使用横断面设计，用于探讨护士姑息护理能力的水平，并探讨姑息护理知识、姑息治疗态度、工作场所学习条件和缓和护理护理能力之间的关系。

这项研究将在云南肿瘤医院进行，因为其作为省内最高级别的转诊医院和唯一的癌症中心。研究时间从 2017 年 12 月到 2018 年 1 月。样本量参照了一项在越南的研究项目，利用统计分析方法得出总样本量为 220 名肿瘤医院工作的护士。

研究问卷分为五个部分来衡量变量，包括（1）人口调查问卷，（2）护士姑息护理知识（中文版），（3）姑息护理态度量表（中文版），（4）姑息护理自我能力量表，以及（5）学习情况表。这些问卷将在使用前进行有效性和可靠性测试。

研究通过泰国宋卡王子大学社会和行为学伦理审查委员会批准。最后得到的数据将用描述性统计和推断统计分析。最终报告会以群体为单位分析护士能力水平，不会泄露受试者个人信息。在最终发表的结果中不会提及医院名称，也会将带有医院特殊识别性的信息抹去，以充分保证研究的保密性。

2. Ethical Approval From the IRB of Yunnan Cancer Hospital (continued)

版本号：201601 版本日期：2016 年 8 月 29 日

<table>
<tr><td colspan="3">保密要点：有关受试者的医学记录和研究资料都是保密的。研究结果发表时，与受试者有关的信息资料不会被公开。</td></tr>
<tr><td colspan="3">以下为伦理委员会填写</td></tr>
<tr><td colspan="3">受理秘书签名： 日期：</td></tr>
<tr><td colspan="3">伦理委员会主审委员意见：
一、主要研究者资格评价：
□ 课题负责人具备进行本项研究的资格
□ 课题负责人不具备进行本项研究的资格

二、研究方案评价：
□ 课题研究方案符合医学伦理规范
□ 课题研究方案不符合医学伦理规范

三、知情同意书评价：
□ 知情同意书符合医学伦理规范
□ 知情同意书不符合医学伦理规范</td></tr>
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论</td><td>1. 同意</td><td>✓</td></tr>
<tr><td>2. 作必要修改后同意</td><td></td></tr>
<tr><td>3. 不同意</td><td></td></tr>
<tr><td colspan="2">4.其他意见：</td></tr>
<tr><td colspan="3">主审委员签名：[signature] 日期：2017.12.12</td></tr>
<tr><td colspan="3">伦理委员会主任委员意见：[signature]

主任委员签名：[signature] 日期：2017.12.12</td></tr>
</table>

填表说明：1、申请日期请填写拟交申请日期。

2、申请书中方格可在文字输入打印后，在选中的项目前用钢笔画√。

3、联系人为：本研究项目的联系人及电话。

4、研究者包括合作研究单位的人员。

5、请求审查类型中：延续审查课题为：一项课题需第二次审查的课题。

6、送交审查资料包括：申请书、试验方案、知情同意书；如为人体用品还需按其他资料项目要求提交资料。

APPENDIX E

Informed Consent

Informed consent form for the nurse who work in Yunnan Cancer Hospital, and invited to participate in a research study entitled "Knowledge, Attitudes, Workplace Learning and Nurses' Competence Towards Palliative Care in A Cancer Hospital in China".

Researcher	**Advisor**
Mrs. Yuhan Shen	Assoct. Prof. Kittikorn Nilmanat
Master of Nursing Science (International Program), Faculty of Nursing, Prince of Sonkla University, Thailand	Adult and Elderly Nursing Department, Faculty of Nursing, Prince of Sonkla University, Thailand
Phone: +8613577128207	
Email: Yuhanshen926@qq.com	Email: kittikorn.n@psu.ac.th.

The informed consent form consist of three parts:

Part I: Information sheet

Part II: Certificate of consent

Part III: Researcher's statement

Part I: Information Sheet

Dear participant,

I am Yuahn Shen, a student of Master Nursing Science at Faculty of Nursing, Prince of Songkla University, Thailand. You are invited to join a research study to look at nurses' palliative care competence and relevant factors. Please take whatever

time you need to discuss the study with your friends, or anyone else you wish to. And fell free to decision wither join or refuse.

If you decide to participate you will be asked to fulfill the questionnaire, it might takes your time around 40 minutes. Meanwhile, the investigators may stop the study or take you out of the study at any time they judge it is in your best interest. They may also remove you from the study for various other reasons. They can do this without your consent. Also you can stop participating at any time. If you stop in the process, you will not lose any benefits.

This study involves the following risks such as emotion stress when you prefer to select the lower competence scale or cannot make sure about it. There may also be other risks may cannot be predicted. However, if you decide to complete the survey, you will help the researcher to better understand nurses' self-reported competence with palliative care services, as well as its association with knowledge, attitudes and perceived workplace conditions support. Furthermore, to provide valuable evidence for development of nursing competence in the exist setting even wider.

Your participation is strictly voluntary and anonymous. You have the right not to participate at all or to leave the study at any time. Deciding not to participate or choosing to leave the study will not result in any penalty or loss of benefits to which you are entitled, and it will not harm your working experience in the hospital. Your answers will be grouped with other participants' answers (total 220 participants) and reported as a part of a research study I am conducting for my thesis requirement in the graduate nursing curriculum at Prince of Songkla University.

You are welcome to contact me and also my advisor, while you have any questions or concerns regarding the survey. Thank you for your time and

consideration in order to assist me better understand your self-reported competence with palliative care services.

Part II: Certificate of Consent

I have read and understand the inform consent above. I am agree to participant in the study "Knowledge, Attitudes, Workplace Learning and Nurses' Competence Towards Palliative Care in A Cancer Hospital in China". I have understood that all information will be kept confidential while the results can be used for publication. I have opportunity to ask questions, contact the researcher and the advisor, all of my questions have been answered. Finally, I have the right to withdraw from the study at any time without penalty.

…………………………	…………………………
(Participant's signature)	(Participant's researcher)
……………………(Date)	……………………(Date)

Part III: Researcher's Statement

I have explained this study to the above subject and to have sought his/her understanding. I confirm that all the questions asked have been answered correctly and I also provide the contact address, in case the participant has any questions. A copy of the informed consent has been provide to the participant.

………………………… (Researcher's signature)

………………………… (Date)

APPENDIX F

Testing of Assumptions

Test Assumption of Normality.

Table 11

Skewness and Kurtosis of the Studied Variables

Variable	Skewness / *SE*	$Z_{skewness}$	Kurtosis / *SE*	$Z_{kurtosis}$	Distribution
1. Palliative care knowledge	-.042/.167	-.25	-.303/.333	-.91	Normal
2. Attitudes toward palliative care	.043/.167	.26	-.021/.333	-.06	Normal
3. Workplace learning conditions	.366/.167	2.19	-.143/.333	-.43	Normal
4. Palliative care nursing competence	.028/.167	.42	-.343/.333	1.03	Normal

Note. SE = standard error.

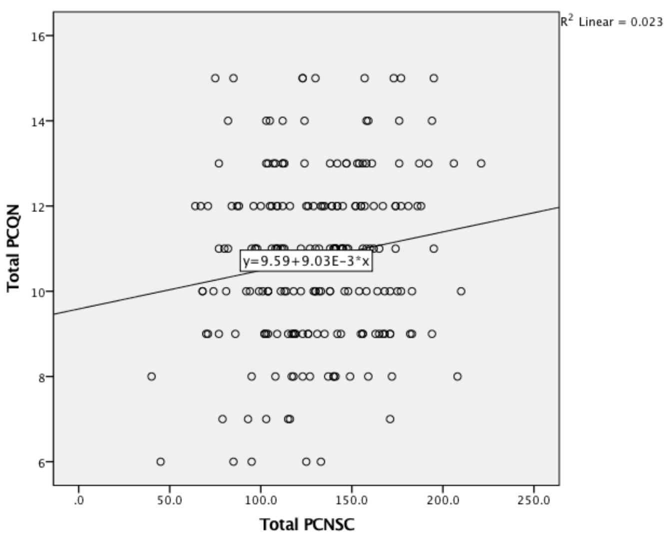

Figure 3. Linearity Evaluation Result of Palliative Care Knowledge and Competence Through a Scatter Plot

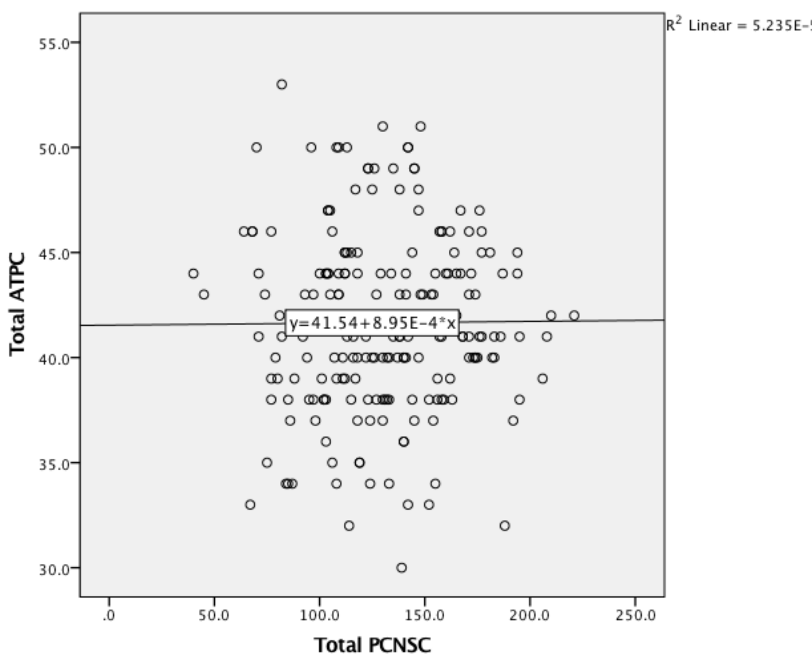

Figure 4. Linearity Evaluation Result of Attitudes and Competence Through a Scatter Plot

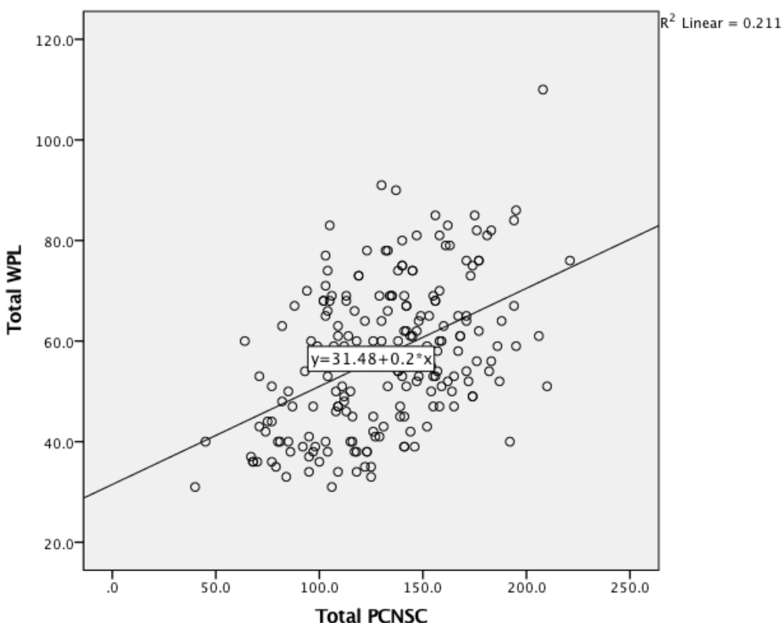

Figure 5. Linearity Evaluation Result of Workplace Learning Conditions and Competence Through a Scatter Plot

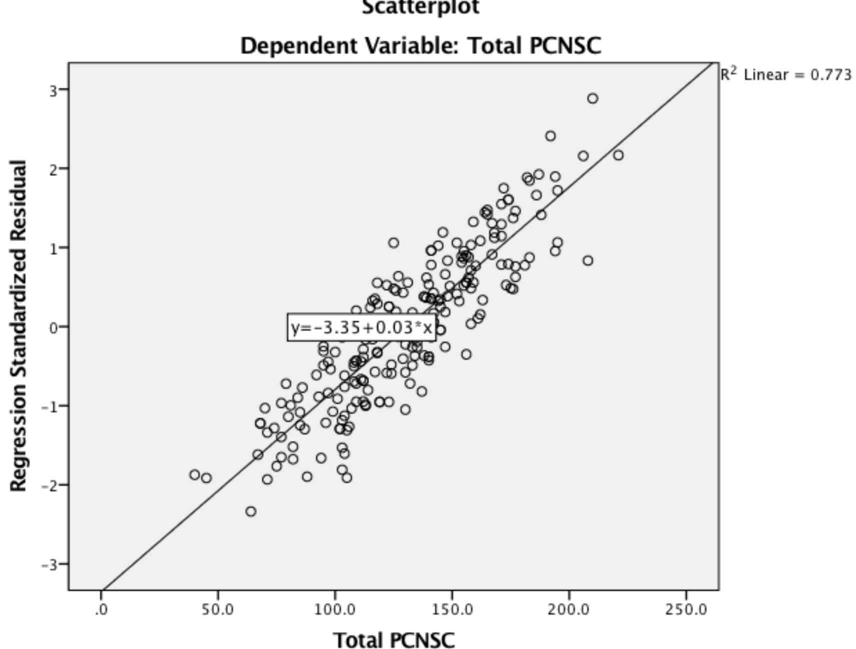

Figure 6. Result of Homoscedasticity Evaluation

APPENDIX G

Additional Analyses

Table 12

Summary of Score Range, Means, and Standard Deviations for Scores on Participants' Palliative Care Knowledge, Attitudes, and Workplace Learning Conditions

Domain	Range		*M*	*SD*	Skew
	Potential	Actual			
PC knowledge (20 items)	0-20	6-15	10.77	2.03	-.042
Attitudes toward PC (12 items)	12-60	30-53	41.66	4.22	.043
Workplace learning conditions for PC (24 items)	24-120	31-110	57.04	14.48	.366

Table 13

Descriptive Statistics of Nurses' Palliative Care Knowledge (N = 212)

	Palliative Care Nurse Quiz item	Yes	No	I don't know	*M*	*SD*
		n (%)	*n* (%)	*n* (%)		
1.	Palliative care is appropriate only in situations where there is evidence of a downhill trajectory or deterioration	148 (69.81)	42 (19.81)	22 (10.38)	*.70*	.46
2.	The provision of palliative care requires emotional detachment	155 (73.11)	44 (20.75)	13 (6.13)	.73	.44
3.	The philosophy of palliative care is compatible with that of aggressive treatment	129 (60.85)	52 (24.53)	31 (14.62)	.61	.49
4.	Morphine is the standard used to compare the analgesic effect of other opioids	113 (53.30)	57 (26.89)	42 (19.81)	.53	.50
5.	The extent of the disease determines the method of pain treatment	102 (48.11)	77 (36.32)	33 (15.57)	.48	.50
6.	Adjuvant therapies are important in managing pain	200 (94.34)	9 (4.25)	3 (1.42)	.94	.23

(continued)

Table 13 (continued)

	Palliative Care Nurse Quiz item	Yes *n* (%)	No *n* (%)	I don't know *n* (%)	*M*	*SD*
7.	It is crucial for family members to remain at the bedside until death occurs	5 (2.36)	205 (96.70)	2 (0.94)	.02	.15
8.	During the last days of life, the drowsiness associated with electrolyte imbalance may decrease the need for sedation	104 (49.06)	84 (39.62)	24 (11.32)	.49	.50
9.	Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain	119 (56.13)	59 (27.83)	34 (16.04)	.56	.50
10.	Individuals who are taking opioids should follow a bowel regime	194 (91.51)	12 (5.66)	6 (2.83)	.92	.28
11.	During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment of severe dyspnea	110 (51.89)	77 (36.32)	25 (11.79)	.52	.50
12.	The use of placebos is appropriate in the treatment of some types of pain	91 (42.92)	89 (41.98)	32 (15.09)	.43	.50
13.	In high doses, codeine causes more nausea and vomiting than morphine	190 (89.62)	19 (8.96)	3 (1.42)	.90	.31
14.	Suffering and physical pain are synonymous	152 (71.70)	56 (26.42)	4 (1.89)	.72	.45
15.	Pethidine is not an effective analgesic in the control of chronic pain	12 (5.66)	193 (91.04)	7 (3.30)	.06	.23
16.	Manifestations of chronic pain are different from those of acute pain	196 (92.45)	14 (6.60)	2 (0.94)	.92	.27
17.	The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate	25 (11.79)	179 (84.43)	8 (3.77)	.12	.32
18.	The pain threshold is lowered by anxiety or fatigue	114 (53.77)	93 (43.87)	5 (2.36)	.54	.50
19.	Men generally reconcile their grief more quickly than women	30 (14.15)	175 (82.55)	7 (3.30)	.14	.35
20.	The accumulation of losses renders burnout inevitable for those who seek work in palliative care	94 (44.34)	106 (50.00)	12 (5.66)	.44	.50

Table 14

Descriptive Statistics of Nurses' Attitudes Towards Palliative Care (N = 212)

	Negative item	Strongly agree *n* (%)	Agree *n* (%)	Be neutral *n* (%)	Disagree *n* (%)	Strongly disagree *n* (%)	*M*	*SD*
1	Most of my nurse colleagues feel that when their patients received palliative care, it reflects their own failure.	2 (0.94)	4 (1.89)	13 (6.13)	57 (26.89)	136 (64.15)	4.51	.78
2	Many if my nurse colleagues are uncomfortable discussing the option of palliative care with patient and their families.	7 (3.30)	33 (15.57)	34 (16.04)	62 (29.25)	76 (35.85)	3.79	1.83
3	Physicians do not have a role in palliative care.	0 (0)	2 (0.94)	5 (2.36)	12 (5.66)	193 (91.04)	4.87	.47
4	Most elderly patients who are dying want their doctors to determine what care is best for them.	67 (31.60)	79 (37.26)	26 (12.26)	26 (12.26)	14 (6.60)	2.25	1.21
6	An interdisciplinary team approach interferes with patient care.	17 (8.02)	20 (9.43)	25 (11.79)	44 (20.75)	106 (50.00)	3.95	1.31
8	Hospice supports physician assisted suicide.	2 (0.94)	15 (7.08)	24 (11.32)	24 (11.32)	147 (67.34)	4.41	1.01
9	Most patients' symptoms, such as pain, shortness of breath, and nausea, are not controlled any better with hospice car than with conventional care they would otherwise receive.	15 (7.08)	20 (9.43)	44 (20.75)	87 (41.04)	46 (21.70)	3.61	1.14
12	Most elderly patients do not want to be told if they are dying.	74 (34.91)	67 (31.60)	45 (21.23)	18 (8.49)	8 (3.77)	2.15	1.11

(continued)

Table 14 (continued)

	Positive item	Strongly disagree *n* (%)	Disagree *n* (%)	Be neutral *n* (%)	Agree *n* (%)	Strongly agree *n* (%)	*M*	*SD*
5	Palliative care generally meets the needs of the family better than conventional care dose.	12 (5.66)	47 (22.17)	45 (21.23)	63 (29.72)	45 (21.23)	3.39	1.20
7	I feel knowledgeable enough to discuss palliative care with patients and families.	21 (9.91)	68 (32.08)	64 (30.19)	50 (23.58)	9 (4.25)	2.80	1.04
10	I usually order (request) as much pain medication as need to keep terminally ill patients pain free.	29 (13.68)	50 (23.58)	40 (18.87)	60 (28.03)	33 (15.57)	3.09	1.30
11	I usually tell patients that curative treatment in no longer successful as soon as I know.	42 (19.81)	50 (23.58)	43 (20.28)	52 (24.53)	25 (11.79)	2.85	1.32

Table 15

Descriptive Statistics of Workplace Learning Conditions (N = 212)

	Items of Workplace Learning Conditions Scale	Strongly disagree *n* (%)	Disagree *n* (%)	Be neutral *n* (%)	Agree *n* (%)	Strongly agree *n* (%)	*M*	*SD*
1	I participate in palliative care project teams composed of healthcare providers from different departments, to work around palliative care.	93 (43.87)	75 (35.38)	33 (5.5)	10 (4.72)	1 (0.47)	1.83	.89
2	I have the chance to participate in a palliative care work consultation	78 (36.79)	92 (43.40)	34 (16.04)	8 (3.77)	0 (0.00)	1.87	.82
3	I have the opportunity to participate in palliative care case discussions	70 (33.02)	89 (41.98)	38 (17.92)	13 6.13)	2 (0.94)	2.00	.92
4	I have the chance to participate in palliative care groups	100 (47.17)	59 (27.83)	40 (18.87)	10 (4.72)	3 (1.42)	1.85	.98
5	I have the opportunity to present my ideas at meetings or conferences, regarding palliative care	116 (54.72)	59 (27.83)	27 (12.74)	10 (4.72)	0 (0.00)	1.68	.87
6	I have the opportunity to meet external colleagues (from other care unit or other hospital).	27 (12.74)	86 (40.57)	52 (24.53)	39 (18.40)	8 (3.77)	2.60	1.05
7	I have the opportunity to attend lectures of guest speakers from outside the organization regarding palliative care	46 (21.70)	92 (43.40)	62 (29.25)	11 (5.19)	1 (0.47)	2.19	.85
8	I have access to different relevant palliative care reports and publications such as internal audits and newsletters.	60 (28.30)	84 (39.62)	50 (23.58)	17 (8.02)	1 (0.47)	2.13	.93
9	I have the opportunity to use the internet to find basic information about palliative care	8 (3.77)	58 (27.36)	87 (41.04)	49 (23.11)	10 (4.72)	3.00	.92
10	I have the opportunity to visit other departments (e.g. palliative care unit or pain branch), to learn about palliative care	25 (11.79)	94 (44.34)	58 (27.36)	32 (15.09)	3 (1.42)	2.50	.94

(continued)

Table 15 (continued)

	Items of Workplace Learning Conditions Scale	Strongly disagree	Disagree	Be neutral	Agree	Strongly agree		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
11	I have the chance to ask colleagues, senior nurses, and subordinates for feedback about my own functions in palliative care delivery.	15 (7.08)	65 (30.66)	63 (29.72)	57 (26.89)	12 (5.66)	2.93	1.04
12	I receive feedback from colleagues about palliative care area that makes me reflect on it.	25 (11.79)	64 (30.19)	63 (29.72)	53 (25.00)	7 (3.30)	2.78	1.05
13	I receive feedback from my senior nurse about palliative care area that makes me reflect on it.	14 (6.60)	69 (32.55)	70 (33.02)	50 (23.58)	9 (4.25)	2.86	.99
14	There are debriefings that offer me the opportunity to reflect on how I reacted during (critical) incidents related to palliative care.	35 (16.51)	70 (33.02)	74 (34.91)	28 (13.21)	5 (2.36)	2.52	.99
15	I have the chance to look into and discuss the results of satisfaction and quality audits with my colleagues.	31 (14.62)	67 (31.60)	71 (33.49)	39 (18.40)	4 (1.89)	2.61	1.01
16	I have the chance to make recommendations for improvement based on project reports, dossiers, and my education.	92 (43.40)	60 (28.30)	45 (21.23)	14 (6.60)	1 (0.47)	1.93	.98
17	Conversations are held in which the activities, strengths, and weaknesses of nurses in care delivery are discussed.	25 (11.79)	66 (31.13)	61 (28.77)	51 (24.06)	9 (4.25)	2.78	1.07
18	Career conversations are held in which future perspectives are discussed.	27 (12.74)	67 (31.60)	63 (29.72)	48 (22.64)	7 (3.30)	2.72	1.05
19	I can rely on palliative care guidance when I need it.	38 (17.92)	81 (38.21)	64 (30.19)	20 (9.43)	9 (4.25)	2.44	1.03
20	I have the opportunity to rely on a palliative care work 'buddy' (someone with the same function but more experience).	56 (26.42)	63 (29.72)	68 (32.08)	20 (9.43)	5 (2.36)	2.32	1.04

(continued)

Table 15 (continued)

	Items of Workplace Learning Conditions Scale	Strongly disagree	Disagree	Be neutral	Agree	Strongly agree		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
21	I can get assistance in drafting a personal development plan for enhancing palliative care	49 (23.11)	66 (31.13)	58 (27.36)	32 (15.09)	7 (3.30)	2.44	1.10
22	I have / had the chance to mirror a mentor at the beginning of care.	66 (31.13)	69 (32.55)	53 (25.00)	22 (10.38)	2 (0.94)	2.18	1.02
23	I have the opportunity to ask for advice from a specific contact	60 (28.30)	72 (33.96)	46 (21.70)	29 (13.68)	5 (2.36)	2.28	1.09
24	As a new staff I have / had the opportunity to be supported by a mentor in palliative care area.	37 (17.45)	67 (31.60)	52 (24.53)	47 (22.17)	9 (4.25)	2.64	1.13

Table 16

Descriptive Statistics of Palliative Care Nursing Competence

	Items of Palliative Care Nursing Competence	not at all capable 0	1	2	3	4	highly capable 5		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
1	Assess pain in persons with life-limiting conditions.	0 (0)	5 (2.36)	31 (14.62)	59 (27.83)	90 (42.45)	27 (12.74)	3.49	.97
2	Assess pain for persons with life-limiting conditions who are unable to communicate.	6 (2.83)	27 (12.74)	57 (26.89)	68 (32.08)	51 (24.06)	3 (1.42)	2.66	1.10
3	Effectively use medication to relieve pain in persons with life-limiting conditions.	1 (0.47)	15 (7.08)	34 (16.04)	73 (34.43)	77 (36.32)	12 (5.66)	3.16	1.03
4	Use non-pharmacological and complementary interventions to relieve pain in persons with life-limiting conditions.	7 (3.30)	36 (16.98)	62 (29.25)	70 (33.02)	27 (12.74)	10 (4.72)	2.49	1.15
5	Provide early detection of side effects related to pain medication.	1 (0.47)	25 (11.79)	40 (18.87)	57 (26.89)	70 (33.02)	19 (8.96)	3.07	1.18
6	Provide effective care to relieve nausea and vomiting in persons with life-limiting conditions.	0 (0)	7 (3.30)	36 (16.96)	73 (34.43)	82 (38.68)	14 (6.60)	3.28	.94
7	Provide effective care to alleviate constipation in persons with life-limiting conditions.	0 (0)	4 (1.89)	37 (17.45)	78 (36.79)	80 (37.74)	13 (6.13)	3.29	.89
8	Provide effective care to relieve fatigue in persons with life-limiting conditions.	1 (0.47)	15 (7.08)	71 (33.49)	70 (33.02)	46 (21.70)	9 (4.25)	2.81	1.01
9	Provide effective care to relieve dyspnea (shortness of breath) in persons with life-limiting conditions.	0 (0)	20 (9.43)	49 (23.11)	72 (33.96)	61 (28.77)	10 (4.72)	2.96	1.04

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0	1	2	3	4	highly capable 5		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
10	Provide proper mouth care to promote comfort in persons with life-limiting conditions.	0 (0.00)	5 (2.36)	20 (9.43)	57 (26.89)	79 (37.26)	51 (24.06)	3.71	1.01
11	Provide early detection of delirium in persons with life-limiting conditions.	2 (0.94)	22 (10.38)	35 (16.51)	77 (36.32)	65 (30.66)	11 (5.19)	3.01	1.09
12	Assess depression in persons with life-limiting conditions and their families.	5 (2.36)	32 (15.09)	59 (27.83)	79 (37.26)	32 (15.09)	5 (2.36)	2.55	1.07
13	Provide effective care to reduce psychological distress in persons with life-limiting conditions and their families.	0 (0.00)	12 (5.66)	56 (26.42)	79 (37.26)	61 (28.77)	4 (1.89)	2.95	.92
14	Assist persons with life-limiting conditions and their families to cope with stressors related to illness.	2 (0.94)	24 (11.32)	63 (29.72)	79 (37.26)	43 (20.28)	1 (0.47)	2.66	.97
15	Provide support to persons with life-limiting conditions and their families when they experience grief.	7 (3.30)	19 (8.96)	61 (28.77)	70 (33.02)	45 (21.23)	10 (4.72)	2.74	1.13
16	Assess the impact of life-limiting conditions on family dynamics.	9 (4.25)	42 (19.81)	68 (32.08)	62 (29.25)	29 (13.68)	2 (0.94)	2.31	1.10
17	Assist persons with life-limiting conditions and their families in maintaining cultural traditions despite illness.	21 (9.91)	31 (14.62)	86 (40.57)	55 (25.94)	16 (7.55)	3 (1.42)	2.11	1.11

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0 n (%)	1 n (%)	2 n (%)	3 n (%)	4 n (%)	highly capable 5 n (%)	*M*	*SD*
18	Assist persons with life-limiting conditions and their families in identifying personal resources in order to cope with problems related to illness.	31 (14.62)	50 (23.58)	64 (30.19)	42 (19.81)	24 (11.32)	1 (0.47)	1.91	1.23
19	Promote communication between persons with life-limiting conditions and their family members when a)conflict occurs.	6 (2.83)	24 (11.32)	69 (32.55)	69 (32.55)	42 (19.81)	2 (0.94)	2.58	1.05
20	Refer persons with life-limiting conditions and their families to appropriate resources in order to meet their social needs.	5 (2.36)	38 (17.92)	67 (31.60)	49 (23.11)	50 (23.58)	3 (1.42)	2.52	1.15
21	Assess the spiritual needs of persons with life-limiting conditions and their families.	31 (14.62)	54 (25.47)	62 (29.25)	53 (25.00)	10 (4.72)	2 (0.94)	1.83	1.16
22	Recognize signs of spiritual distress in persons with life-limiting conditions and their families.	3 (1.42)	49 (23.11)	74 (34.91)	64 (30.19)	18 (8.49)	4 (1.8)	2.27	1.02
23	Help persons with life-limiting conditions and their families to explore various sources of hope when they demonstrate signs of hopelessness.	8 (3.77)	41 (19.34)	73 (34.43)	69 (32.55)	18 (8.49)	3 (1.42)	2.27	1.03
24	Assist persons with life-limiting conditions to explore the meaning of their illness experience.	22 (10.38)	60 (28.30)	73 (34.43)	42 (19.81)	14 (6.60)	1 (0.47)	1.85	1.09

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0 n (%)	1 n (%)	2 n (%)	3 n (%)	highly capable 4 n (%)	5 n (%)	*M*	*SD*
25	Adapt the nursing care in accordance with the spiritual beliefs of persons with life-limiting conditions and)their families.	27 (12.74)	40 (18.87)	61 (28.77)	57 (26.89)	23 (10.85)	4 (1.89)	2.10	1.25
26	Assess the needs associated with activities of daily living in persons with life-limiting conditions.	0 (0.00)	10 (4.72)	43 (20.28)	71 (33.49)	75 (35.38)	13 (6.13)	3.18	.98
27	Assess the need for practical support in order to prevent burnout in family members caring for persons with life-limiting conditions.	3 (1.42)	29 (13.68)	55 (25.94)	86 (40.57)	35 (16.51)	4 (1.89)	2.63	1.02
28	Assist persons with life-limiting conditions to maintain their functional independence for as long as possible.	6 (2.83)	15 (7.08)	57 (26.89)	86 (40.57)	41 (19.34)	7 (3.30)	2.76	1.04
29	Empower family members to provide care to persons with life-limiting conditions.	2 (0.94)	15 (7.08)	41 (19.34)	75 (35.38)	66 (31.13)	13 (6.13)	3.07	1.06
30	Implement appropriate interventions to help relieve burden on family members caring for persons with life-limiting conditions.	7 (3.30)	38 (17.92)	56 (26.42)	65 (30.66)	42 (19.81)	4 (1.89)	2.51	1.15
31	Identify ethical issues related to the care of persons with life-)limiting conditions.	12 (5.66)	31 (14.62)	63 (29.72)	60 (28.30)	42 (19.81)	4 (1.89)	2.48	1.18
32	Provide information to persons with life-limiting conditions concerning the legal issues associated with illness.	41 (19.34)	59 (27.83)	61 (28.77)	39 (18.40)	9 (4.25)	3 (1.42)	1.65	1.19

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0	1	2	3	4	highly capable 5		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
33	Assist persons with life-limiting conditions to make informed decisions regarding end of life care.	40 (18.87)	55 (25.94)	64 (30.19)	38 (17.92)	14 (6.60)	1 (0.47)	1.69	1.19
34	Advocate for persons with life-limiting conditions and their families with other members of the healthcare team.	13 (6.13)	37 (17.45)	57 (26.89)	62 (29.25)	37 (17.45)	6 (2.83)	2.43	1.22
35	Advocate for persons with life-limiting conditions when there is a difference in perspective with their family on a care issue.	25 (11.79)	56 (26.42)	54 (25.47)	45 (21.23)	25 (11.79)	7 (3.30)	2.05	1.31
36	Actively participate in discussions regarding the needs of persons with life-limiting conditions during interdisciplinary team meetings.	20 (9.43)	59 (27.83)	53 (25.00)	50 (23.58)	26 (12.26)	4 (1.89)	2.07	1.25
37	Promote communication between healthcare professionals regarding persons with life-limiting conditions in order to support continuity of care.	12 (5.66)	41 (19.34)	54 (25.47)	54 (25.47)	42 (19.81)	9 (4.25)	2.47	1.28
38	Promote communication between persons with life-limiting conditions, their families, and health care professionals in order to ensure information sharing.	11 (5.19)	24 (11.32)	64 (30.19)	61 (28.77)	42 (19.81)	10 (4.72)	2.61	1.21
39	Promote communication between health care professionals when conflicts arise in the care	9 (4.25)	29 (13.68)	46 (21.70)	75 (35.38)	43 (20.28)	10 (4.72)	2.68	1.20

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0	1	2	3	4	highly capable 5		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
	of persons with life-limiting conditions and their families.								
40	Promote the collaboration of various healthcare professionals in the care of persons with life-limiting conditions and their families.	11 (5.19)	31 (14.62)	54 (25.47)	69 (32.55)	37 (17.45)	10 (4.72)	2.57	1.22
41	Recognize how my own personal and professional beliefs may influence the care I provide to persons with life-limiting conditions and their families.	2 (0.94)	19 (8.96)	47 (22.17)	75 (35.38)	49 (23.11)	20 (9.43)	2.99	1.13
42	Cope with loss and grief related to the care of persons with life-limiting conditions and their families.	5 (2.36)	27 (12.74)	62 (29.25)	73 (34.43)	41 (19.34)	4 (1.89)	2.61	1.07
43	Identify which stressors affect me when I provide care to persons with life-limiting conditions and their families.	2 (0.94)	32 (15.09)	56 (26.42)	82 (38.68)	34 (16.04)	6 (2.83)	2.62	1.04
44	Identify my own personal resources to manage stress related to caring for persons with life-limiting conditions and their families.	17 (8.02)	36 (16.98)	64 (30.19)	65 (30.66)	29 (13.68)	1 (0.47)	2.26	1.15
45	Discuss death and dying with persons with life-limiting conditions and their families.	36 (16.98)	59 (27.83)	54 (25.47)	37 (17.45)	25 (11.79)	1 (0.47)	1.81	1.27

Table 16 (continued)

	Items of Palliative Care Nursing Competence	not at all capable 0	1	2	3	4	highly capable 5		
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*M*	*SD*
46	Provide effective care to relieve pain in persons with life-limiting conditions during the last hours of life.	3 (1.42)	11 (5.19)	40 (18.87)	63 (29.72)	70 (33.02)	25 (11.79)	3.23	1.13
47	Provide effective care to relieve respiratory distress during the last hours of life.	1 (0.47)	15 (7.08)	44 (20.75)	76 (35.85)	53 (25.00)	23 (10.85)	3.10	1.10
48	Identify the signs and symptoms of imminent death in persons with life-limiting conditions.	3 (1.42)	10 (4.72)	31 (14.62)	75 (35.38)	69 (32.55)	24 (11.32)	3.27	1.08
49	Provide an authentic presence during the last hours of life to persons with life-limiting conditions and their families.	3 (1.42)	16 (7.55)	29 (13.68)	53 (25.00)	79 (37.26)	32 (15.09)	3.34	1.20
50	Encourage expression of cultural and religious traditions for persons with life-limiting conditions and their families during the last hours of life.	25 (11.79)	28 (13.21)	60 (28.30)	52 (24.53)	38 (17.92)	9 (4.25)	2.36	1.35

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Shen, YH., & Nilmanat, K. (2017, July). *Palliative care knowledge and related factors among nurses: a review literature.* Poster presented at the "Ethics, Esthetics, and Empirics in Nursing: Driving Forces for Better Health" Int. Conf., Thailand.