



Research paper

# A new pedagogical approach to enhance palliative care and communication learning: A mixed method study

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## ABSTRACT

**Background:** As palliative care increases in importance due to chronic illnesses in ageing populations, there is a need to develop primary palliative care, including patient-centred communication for nursing graduates. Simulation-based education was adopted to develop students clinical skills and communication in a safer and more controlled environment prior to their clinical practice. However curricula in palliative care and communication remain limited. The current study was to develop a simulation-based programme with clinical modelling prior to the simulation experience. Authentic case scenarios were also constructed through collaboration between the researchers and clinical colleagues in palliative care.

**Objectives:** To explore the effects of palliative care simulation-based experience on nursing students' palliative care and caring communication.

**Design:** Mixed-methods with pre- and post-questionnaires and focus groups after the simulation-based experience.

**Settings:** A nursing school at a university in Hong Kong.

**Participants:** Twenty-nine senior-year undergraduate nursing students.

**Methods:** Students shadowed senior nurses in a palliative clinical setting, then engaged in simulation learning with two palliative scenarios in a laboratory environment. Focus group debriefings were conducted after the simulations.

**Results:** Quantitatively, findings from the pre- and post-questionnaires revealed an improvement in the students' knowledge ( $t = -2.83, p = 0.02$ ), attitudes ( $t = -4.21, p = 0.00$ ), and efficacy ( $t = -2.07, p = 0.05$ ) in palliative care after participating in this study. Results from the focus groups also indicated an enhancement in the students' learning of palliative care and communication.

**Conclusion:** This collaborative design of palliative scenarios and clinical shadowing with senior nurses in a palliative care setting followed by simulation enhanced the students' confidence, knowledge, skills, and attitudes in palliative care and communication.

## 1. Introduction

Palliative care (PC) has been a long-term challenge to health care systems around the world. Although medical technologies have advanced, rising numbers of those with frailty in old age and non-curable diseases are leading to a heavy demand for supportive and symptom-relieving care. By 2060, a projected 47 % of people around the world will be experiencing serious health-related problems and will require supportive and symptom-relieving care (Sleeman et al., 2019). It is imperative to provide palliative care services to patients in hospital-based and home-based care (WHO, 2021), to alleviate the suffering that both patients and their families experienced (Sleeman et al., 2019).

Education and training are important components to effectively access PC (WHO, 2019). Previous research found that limited knowledge (Salins et al., 2020; Carey et al., 2019) and lack of confidence (Carey et al., 2019) are considered common barriers to providing good-quality palliative care. To address these barriers, it is essential to provide PC training and education at the undergraduate level (Carey et al., 2019).

## 2. Background

There is an urgent need to provide quality PC training (Sleeman et al., 2019). Palliative care is important for patients with serious health-related suffering who are vulnerable and require an integration of

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physical, psychosocial, and spiritual supports. Even though students have opportunities to practice in clinical settings throughout their undergraduate study, without direct guidance they may not be aware of the need for palliative care.

Providing simulation-based learning (SBL) on palliative care will ensure that students have good opportunities to respond in a safe and supportive environment (Kunkel et al., 2016; Valen et al., 2020). Role-play was a common feature of simulation. Role playing a standard simulated scenario in the classroom can help students to learn communication skills in a concrete manner (Bussad and Lawrence, 2019). The use of simulation in nursing education is not rare, but the simulations vary in extent. Smith et al. (2018) examined studies on the SBL experiences of nursing learners on palliative care and communication. All of the scenarios were designed for a single setting, whether hospital, hospice, or homecare. Most focused on hospital settings and only three on home settings (Hjelmfors et al., 2016; Kopka et al., 2016; Montgomery et al., 2016). Most employed questionnaire instruments to evaluate the SBL programmes. A few used semi-structured interviews to uncover SBL experiences. There is also a paucity of mixed-methods studies examining SBL programmes and student experiences of palliative care and communication. Only a limited number of studies have been conducted on the multi-dimensional effects of simulation-based learning (SBL) in PC. While quantitative data were collected to examine the effects of the enhanced SBL, qualitative data helped to explain the quantitative findings (Morse, 1991). Further research with mixed methods is required to provide a better understanding of SBL effects on the learning outcomes and experiences concurrently.

Previous research suggests that clinical experience in PC can affect the perceptions and performance of students in SBLs of PC (Kunkel et al., 2016; Valen et al., 2020). Actual involvement in PC in clinical settings influences caring attitudes (Dimoula et al., 2019) and confidence (Valen et al., 2020). According to Bandura's concepts of self-efficacy and confidence, behaviour is learned through the process of observation and modelling. Role modelling is an important tool that allows students to learn through observation (Bandura, 1977). Most studies examine the influence of PC learning with simulation in classroom. There is a need to study the impact of learning with simulation and clinical conditions of palliative and care communication (Smith et al., 2018).

This study aimed to explore the effects of enhanced SBL using role modelling in clinical settings followed by role-play in simulation on students' development of knowledge, skills, attitudes, and perceived self-efficacy in palliative care and communication. The case scenarios for the SBL were jointly constructed by the researchers, who are academics, and clinical nurses specializing in palliative care. We hypothesized that the enhanced SBL will affect the PC knowledge, attitudes, and care efficacy of undergraduate nursing students.

### 3. Methods

#### 3.1. Design

A mixed-methods design was used (Creswell and Plano Clark, 2018) to better understand students' learning about palliative care and communication. Quantitative and qualitative data were collected and analysed through pre- and post-questionnaires and focus groups (Morse, 1991, p. 122). Three sets of questionnaires were employed: 1. the Palliative Care Quiz for Nurses (PCQN), 2. the Frommelt Attitude Towards Care of the Dying Scale (FATCOD), and 3. the Caring Efficacy Scale (CES).

#### 3.2. Participants

A total of 29 nursing students were recruited through convenience sampling in March/April 2019. An email invitation explaining the purposes of the study was sent. Interested students were then contacted to attend a briefing session, where more details were provided along

with an information sheet and reading materials. Students were given time to ask questions. Once they had confirmed their willingness to participate in the study, they were given consent forms to sign.

#### 3.3. Protocol of the simulation for students

The palliative care SBL was designed with the following phases: briefing, shadowing senior nurses in palliative care, simulations, and debriefings (Table 1). Each student participated in two authentic case scenarios. One took place in a home setting, involving a patient with chronic obstructive pulmonary disease and his caregiver; another was in a hospital setting, where a patient had recently received bad news about the recurrence and metastasis of her breast cancer. Each session lasted for 15 min. The communication/interactions between the students and patient-actors and family actors were videotaped.

The patient-actors were members of the Institute of Active Ageing in the university. Their roles were distributed randomly and kept constant in each simulation session. The patient-actors met with the research team for discussions and to immerse themselves in their roles.

#### 3.4. Instruments

##### 3.4.1. Palliative Care Quiz for Nurses (PCQN)

The validated quiz was designed to distinguish levels of palliative care knowledge, especially common misconceptions about palliative care (Ross et al., 1996). The internal consistency of the quiz was an acceptable 0.78 (Ross et al., 1996). The quiz consisted of 20 questions under 3 main categories: 4 items on philosophy and principles of palliative care, 13 items on the management of pain and other symptoms, and 3 items on the psychosocial aspects of end-of-life care.

##### 3.4.2. The Frommelt Attitude Toward Care of the Dying Scale (FATCOD)

The FATCOD scale was designed to assess nurses' attitudes towards caring for the dying (Frommelt, 1991). It consists of 30 items in 6 dimensions, namely Fear/Malaise, The care of the family, Communication, Family as caring, Relationship, and Active care. The content validity of the scale was high, at 1.00, and an interrater agreement of 0.98 was obtained. The Pearson Product-Moment Correlation Coefficient was 0.94 (Frommelt, 1991).

##### 3.4.3. The Caring Efficacy Scale (CES)

CES was adopted to measure confidence among nursing students in developing a caring relationship with palliative patients and their families. The Cronbach's alpha coefficient of the scale was 0.92, indicating internal consistency (Sadler, 2003).

**Table 1**

Phases of the simulation-based programme.

Phases	Description
Phase 1: Briefing	Participants were invited to a briefing session where they were introduced to some readings about palliative care, so that the students could clarify their values and reflect on their past palliative care experience.
Phase 2: Clinical shadowing	Students were asked to shadow advanced practice nurses/senior nurses at a palliative care hospital for 4-days and to engage in discussions. Utilizing small group pedagogy, the students participated in the hospital visits in batches of three and attended the simulation sessions in groups of six.
Phase 3: Simulation	A half-day simulation-based learning session with case scenarios was carried out in which the nursing processes involved in palliative care were integrated in a role-playing format.
Phase 4: Debriefing	Students were asked to reflect on the performance in the simulation and to fill in a post-questionnaire on whether they perceived any changes in their skills relating to palliative care.

### 3.5. Data collection

Prior to the clinical observations and simulations, students filled out the 3 sets of questionnaires. The post-questionnaire was collected after the simulation sessions.

Debriefings were held after the simulations in the form of focus groups. Guided questions were developed based on the literature and purpose of the study. Students were asked what they had learnt about palliative care and communication based on this SBL sequence, and the kinds of important caring values embedded in their communication and care of the patient and family actors. After completing the student and actor focus group interviews separately, a short sharing session was conducted with the two groups together. Based on the students' communication skills, and on their knowledge, attitudes, and feelings towards palliative care, the patient and family-actors gave the students feedback with praise and encouragement, and offered suggestions for improvement.

### 3.6. Data analysis

The quantitative data were analysed using SPSS version 26 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to summarize demographic characteristics. Frequency distribution was used for categorical data, and means and standard deviations for continuous data. A paired samples *t*-test revealed changes in the students' knowledge, attitudes, and confidence before and after the study. The FATCOD scale included 15 positively and 15 negatively word statements. Scores were reversed for negative items for analysis. A *p*-value of <0.05 was adopted as indicating significance.

The goal for the qualitative part of the study was to understand the students' experience of enhanced SBL. The qualitative data expanded upon the quantitative findings by probing more deeply and creating a rich description of the students' experiences. All qualitative data were audio-recorded and transcribed verbatim. Data collection and analysis were undertaken concurrently. Content analysis was used to move from the initial descriptive codes towards themes that emerged during the analysis portraying the students' perspectives on SBL (Miles and Huberman, 1994). We compared commonalities and constructed categories, and then generalized themes that held true for all data. These themes were reviewed by relating the coded extract with the entire dataset. Analytic strategies consisted of reflective memo writing, the re-examination of each synopsis, and the concept mapping of codes and categories. These analytic strategies assisted the researchers to develop some interpretive insights while staying close to the data at the same time. As a result, a rigorous analytic process was ensured by navigating within and beyond the preliminary analytic framework with at least two researchers at all times. Rigour was ensured with strategies that adhered to the central tenets of qualitative research. Credibility was ensured by the researchers' awareness of the straight description with some degree of authority on interpretation (Neergaard et al., 2009). Plausibility was ensured with multiple sources of data and interpretations from multiple researchers, who compared the initial coding with the documentary sources. Reflexivity was ensured through the researchers' process of questioning themselves about 'what is happening here?'. Writing reflexive memos tracked the decision-making process to develop a more coherent analytical framework with others (Bertero, 2015). Last, transferability was ensured by comparing the quantitative data with the findings of other studies on the SBL experience (Vaismoradi et al., 2013).

### 3.7. Ethical considerations

The study was approved by the Human Subjects Ethics Subcommittee of the Hong Kong Polytechnic University. Consent was sought from the students when they had no further questions about the purpose and objectives of the project. They were assured that they could withdraw from the study at any time without adverse consequences.

## 4. Results

### 4.1. Participant characteristics

Students in their senior (Year 4) and final year (Year 5) of the undergraduate programme in nursing participated in this study. Their demographic characteristics are reported in Table 2. Very few participants had taken courses or had clinical experience in palliative care before the study (82.8 %).

### 4.2. Quantitative findings

There were statistically significant increases in overall scores attained in knowledge, attitude, and self-efficacy in palliative care after the training intervention. There was a statistically significant increase in knowledge of symptoms and pain control from pre-intervention ( $M = 5.79$ ,  $SD = 1.35$ ) to post-intervention ( $M = 6.48$ ,  $SD = 1.41$ ),  $t(29) = -2.83$ ,  $p = 0.01$ . The mean score before the intervention for the domains of philosophy and principles was  $M = 1.97$ ,  $SD = 1.05$ , and that for psychosocial aspects was  $M = 1.21$ ,  $SD = 0.73$ . After the intervention, the mean score for philosophy and principles was  $M = 2.14$ ,  $SD = 0.99$ , and that for psychosocial aspects was  $M = 1.21$ ,  $SD = 1.24$ . The differences were not statistically significant. Among the items for measuring symptoms and pain control, a significant increase was seen in knowledge of pain management and its misconceptions after the training. The frequency with which correct answers were given to items 4, 7, 8, and 11 was >75 %, demonstrating good knowledge. The frequency with which correct answers were given to each item for measuring dimensions of palliative care knowledge is given in Fig. 1.

Scores on the FATCOD scale range from 30 to 150, with a higher

**Table 2**  
Demographic characteristics ( $N = 29$ ).

	n (%)	Mean (SD)	P
Gender			
Female	24 (82.8)		
Male	5 (17.2)		
Age (range)			
19–21	2 (6.9)		
22–24	25 (86.2)		
≥25	2 (6.9)		
Year of study			
Year 4	3 (10.3)		
Year 5	26 (89.7)		
Palliative course taken			
No	28 (96.6)		
Yes	1 (3.4)		
Palliative care experience			
No	24 (82.8)		
Yes	5 (17.2)		
Palliative Care Quiz for Nurses (range 0–20)			
Pre		8.97 (2.06)	0.02*
Post		9.86 (1.98)	
The Frommelt Attitude Towards Care of the Dying Scale (range 30–150)			
Pre		107.50 (6.97)	0.00*
Post		112.50 (7.99)	
The Caring Efficacy Scale (range 30–180)			
Pre		90.07 (6.35)	0.05*
Post		92.52 (5.40)	

\*  $p < 0.05$ .

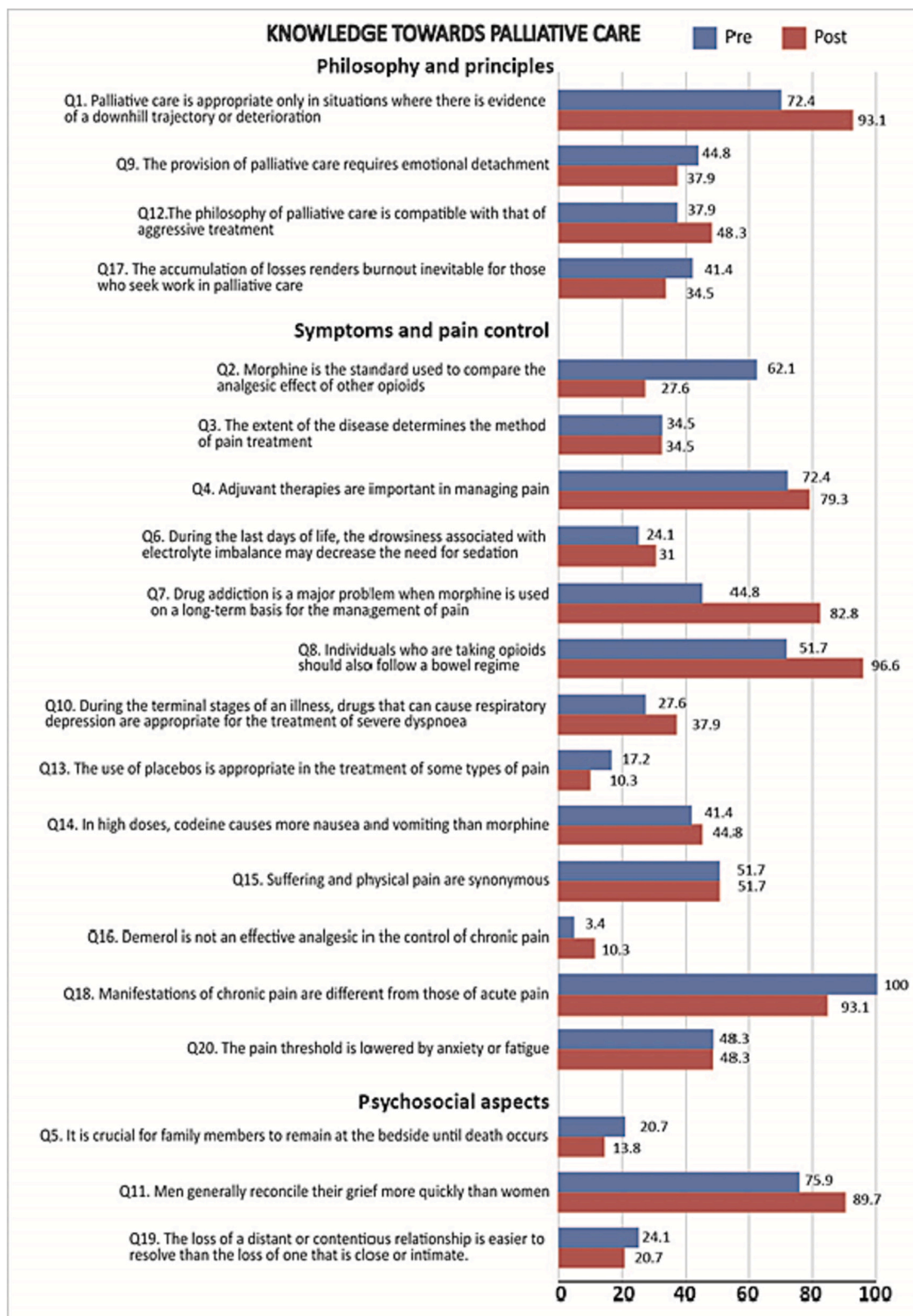


Fig. 1. Frequency with which each item on the Palliative Care Quiz for Nurses was answered correctly.

score indicating a more positive attitude towards palliative care. There was a statistically significant increase in FATCOD scores from pre-intervention (M = 107.5, SD = 6.97) to post-intervention (M = 112.5, SD = 7.99),  $t(28) = -4.21, p = 0.00$ . The eta squared statistic (0.39) indicated a large effect size. The participants' fear/malaise towards palliative care increased after training, as did their communication and

relationship with the palliative care patients. A statistically significant change in the dimension of fear/malaise ( $p = 0.03$ ), communication ( $p = 0.001$ ), and relationship ( $P = 0.04$ ) was seen after the study. Before the intervention, the mean scores were as follows: fear/malaise (M = 30.07, SD = 3.95), communication (M = 22.76, SD = 2.17), and relationship (M = 16.83, SD = 1.71). After the intervention, the mean scores

were: fear/malaise (M = 32.76, SD = 4.61), communication (M = 24.48, SD = 1.90), and relationship (M = 17.79, SD = 1.29).

CES scale scores ranged from 30 to 180, with higher scores indicating feelings of greater caring efficacy. There was a statistically significant increase in CES scores from pre-intervention (M = 90.07, SD = 6.35) to post-intervention (M = 92.52, SD = 5.40),  $t(29) = -2.07, p = 0.05$ . The eta squared statistic (0.13) indicated a small effect size. Specific CES items showing statistically significant changes at post-test are indicated in Table 3.

4.3. Qualitative findings

The qualitative data analysis revealed two key themes: improved professional competence and acquired professional confidence.

4.3.1. Theme 1. Improved professional competence

It was evident from the students' narrations and the comments of the patient and family actors that the enhanced SBE helped them to consolidate their knowledge and skills. The various categories identified were: a. 'developing communication skills and skilled communication', b. 'consolidating clinical skills', and c. 'altered understanding of palliative care'. Illustrative quotations with the categories and themes are found in Table 4.

4.3.1.1. Developing communication skills and skilled communication.

**Table 3**  
Mean score difference in care efficacy towards palliative care.

		Pretest	Posttest	P
		Mean (SD)	Mean (SD)	
1	I do not feel confident about my ability to express a sense of caring to my clients/patients	3.17 (0.93)	2.62 (0.98)	0.018**
2	If I am not relating well to a client/patient, I will try to analyse what I can do to reach him/her	3.66 (0.55)	3.97 (0.33)	0.002**
3	I feel comfortable about touching my clients/patients in the course of giving care	3.45 (0.74)	4.03 (0.57)	0.001**
4	I convey a sense of personal strength to my clients/patients	3.07 (0.75)	3.48 (0.64)	0.016**
6	I have an ability to introduce a sense of normalcy in stressful conditions	2.72 (0.75)	3.28 (0.92)	0.009**
7	It is easy for me to consider the multiple-facets of a client's/patients care, at the same time as I am listening to them	2.55 (0.74)	3.55 (0.63)	0.001**
9	I can walk into a room with a presence of serenity and energy that makes clients/patients feel better	3.38 (0.67)	3.90 (0.56)	0.001**
11	I can usually create some way to relate to almost any client/patient	2.90 (0.90)	3.62 (0.78)	0.002**
12	I lack confidence in my ability to talk to clients/patients from backgrounds different from my own	2.97 (1.24)	2.41 (0.98)	0.009**
18	I can usually establish a close relationship with my clients/patients	3.03 (0.78)	3.52 (0.79)	0.008**
19	I can usually get patients/clients to like me	3.41 (0.68)	3.69 (0.54)	0.03*
20	I often find it hard to get my point of view across to patients/clients when I need to	2.86 (0.99)	2.38 (0.68)	0.03*
22	When I think that a client/patient is uneasy or may need some help, I approach that person	3.79 (0.77)	4.10 (0.62)	0.03*
28	When a client/patient is having difficulty communicating with me, I am able to adjust to his/her level	3.28 (0.75)	3.83 (0.54)	0.001**
30	I don't use creative or unusual ways to express caring to my clients/patients	3.62 (0.90)	2.83 (0.85)	0.001**

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

**Table 4**

Representative quotations for the categories and themes  
The abbreviation of S stands for a student participant, followed by number to indicate the individual student.

Themes	Categories	Representative quotations
Improved professional competence	a. Developing communication skills and skilled communication	'I've learnt NURSE skills from the hospital ...an emotional support concept, and I've utilized it during the simulation. I think I only used N, U, and R in the simulation but it could help me to select appropriate wording to describe the patients' emotions, which allows me to establish a connection with them.' - S24
		'Active listening is the most valuable skill I've learned. Some patients would actively talk about themselves - the most important thing is to discover how I can assist when listening. I need to be empathetic but not feel superior to the patient, like the one in the simulation of the recurrent breast cancer patient, to play a role in which I can help, and understand their stance and how I can offer assistance.' - S11
	b. Consolidating clinical skills	'Whenever the students leaned forward, and held my hands, or my shoulders a therapeutic touch, this gave a sense of warmth to me.' - Patient actor in a home setting. 'A student practised breathing exercises with me. He asked me to show him ...and praised me for performing well, which increased my confidence. At the same time, he explained to me that it could improve my lung volume. I asked other students whether there were more exercises I could do, and the student taught me abdominal breathing.' - Patient actor in a home setting.
	c. Altered understanding of palliative care	'The student used a scale to measure my pain level, which helped me to compare different levels of pain in order to understand my body condition.' - Patient actor in a hospital setting. 'At first, I thought palliative care was passive and could not assist patients much, that it was merely about accompanying patients on their last journey. However, after my hospital visit I found that this was not the case. Patients took part more than I thought, i.e., the medical professionals worked closely with the patients as a team, and there was more teamwork than in the general ward. Every medical professional tried to help the patients and their caregivers to

(continued on next page)

Table 4 (continued)

Themes	Categories	Representative quotations
		face the end of life.’ – S8
Acquired professional confidence	a. Increased perceived self-confidence	‘To let patients make their own choices, to live as they used to, e.g., the occupational therapist in the hospital created a simulated restaurant and patients could have a tea break to order food, which gave them a feeling of normalcy rather than of waiting for death to come.’ – S26
		‘I had a breakthrough and stepped out from my comfort zone. I usually hesitate about what to say, how to ask for something, or I’m afraid to adapt to the environment. But now I have gained experience in how to guide patients step by step, and to talk from a simpler topic to a deeper one. I feel I’ve improved psychologically and become more confident.’ – S13
		‘I felt nervous during the simulation, but the actors were professional enough to bring me into the scene. Although I could focus on the scene, I also wondered whether my words or approach were appropriate.’ – S26
	b. Fear and communication	‘Even with a sense of fear and uncertainty, I asked the patient’s wife to leave the scene in order for me to explore with the patient his thoughts about suicide.’ – S4
‘I didn’t feel nervous before the simulation, but the pressure came when the patient-actor spoke about how two of her sons were still young, and that she will pass away soon and felt useless. I felt pressured because I was nervous about how to respond. It seemed that there were no words that could relieve her emotions, but at the same time, the patient was seeking my assistance. She was also stressed as she did not know how to break the bad news to her husband. I asked her whether it would be helpful for me to be there with her to discuss the issue with her husband and to provide assurance.’ – S23		
		‘I stepped out from my comfort zone. Even though I felt capable after reading the articles and acquiring some communication techniques, I felt fear in the real scenario of facing a dying patient. It will be difficult to communicate with dying patients if we do not step out from our comfort zone, and feel vulnerable. The simulation improved my understanding.’ – S15

Improvements in the students’ communication and relationship with patients were evident during the simulations and in the debriefings.

In the focus groups, the students and the patient and family actors reflected on the students’ understanding of communication, based on both verbal and nonverbal cues. For the students, communication was not simply about what was scripted but also about how the communication was used in accordance with the needs of particular patients through active listening. The students made efforts to build their relationship with the patient through verbal and non-verbal communication.

4.3.1.2. *Consolidating clinical skills.* The significant increase in the PCQN scores for clinical knowledge such as symptom and pain control in the quantitative part of this study was also reflected in the focus group interviews. Students mentioned that they had tried to listen to and assess the patient’s pain, insomnia, and shortness of breath. They then offered to demonstrate deep breathing exercises and explained the breathing mechanism if the patient queried its usefulness. In the patient-actor’s feedback in the focus groups, the students’ care management was also noted as being helpful.

The use of tools to measure the patients’ pain further reflected the students’ knowledge of physical and psychological management. In both hospital and home scenarios, students assessed pain severity using a 10-point scale.

4.3.1.3. *Altered understanding of palliative care.* Learning from the clinicians at the hospital, the students’ views of palliative care changed, particularly with regard to teamwork and patient involvement.

Improved professional competence involved the ability of students to transfer and integrate knowledge into relevant situations. Our simulation design allowed students to observe clinical experts performing their roles. This kind of observational learning provided a kind of snapshot of what is expected when caring for patients and families with palliative care needs, and the experience was both inspirational and educational. The students then experimented and consolidated their skills, allowing them to gain competence in managing the palliative care situations in the simulated sessions and expressing their understanding in the debriefings.

4.3.2. *Theme 2. Acquired professional confidence*

The statistically significant increase in CES scores after the enhanced SBL was also reflected in the qualitative data. Professional confidence involved the students accepting responsibility for their actions while potentially, through reflection and debriefing, understanding more about themselves and their role as a palliative care nurse.

While this acquired confidence was clear from the students’ suggestions of ways to meet the needs of patients and the patients’ family, the students were also aware of the difficulties involved in facing a situation of death and dying with a sense of fear. They thought of how best to manage without feeling helpless. They kept trying to step in to understand the situation from the patients’ point of view, but also to stand back to reflect on whether or not they had said the ‘right’ thing.

Palliative care was considered difficult due to the students’ limited personal life experiences. Students occasionally reflected that they felt fear when working with patients with palliative care needs. A student said that she felt less fear before attempting the simulation. The feelings of fear and stress intensified when the patient expressed concerns about her two young sons after her death. This finding echoed the quantitative findings on the FATCOD scale measuring changes in attitudes. There was a statistically significant change in the dimension of fear and communication after the study.

5. Discussion

This study examines the effects on students’ development of

knowledge, attitudes, and perceived self-efficacy in palliative care and communication following an enhanced SBL intervention using role modelling in clinical settings followed by role-play in simulation, with case scenarios jointly constructed by academics and clinicians. With little prior knowledge and exposure to palliative care practices in their studies, the students' overall scores on knowledge, attitudes, and care efficacy in palliative care increased significantly after their vicarious learning in working with nurses in palliative care and their experimentation during the simulations. Specifically, there was a significant increase in knowledge of symptom management, pain control, and confidence in providing care.

Nursing students with no palliative care training had low scores in palliative care knowledge and attitudes. This pre-test finding was expected, and was similar to the findings in two other studies (Kassa et al., 2014; Dimoula et al., 2019). Unlike in those two studies (Kassa et al., 2014; Dimoula et al., 2019), our study also measured care efficacy in providing palliative care. According to Bandura (1977) in his social learning theory, self-efficacy reveals confidence in one's ability to exert control over one's own motivation, behaviour, and social environment. This sense of confidence was essential to students when building trust and relationships with patients, and acted as a mediator in the palliative care experience and in their interest in working with palliative patients (Orkibi et al., 2021).

An increased sense of confidence was reported after the completion of SBL and clinical shadowing in our study. This is consistent with the findings of Eaton et al. (2012) and Venkatasalu et al. (2015), who adopted a qualitative study design to assess students following SBL. In both studies, the nursing students who participated in SBL were exposed to the care of palliative patients in clinical settings. Venkatasalu et al. (2015) compared conventional classroom learning methods with simulation learning. The latter was perceived to be a more favourable learning method for palliative care and communication. Eaton et al. (2012) asserted that students had an enhanced sense of confidence and improved critical thinking and health assessment skills in palliative care after they were exposed clinically to home and hospice settings and SBL. The studies did not reveal PC knowledge attained before and after SBL. Our findings open up a dialogue on the potential growth and development of students and the effect on their knowledge and confidence as they encounter reality and acquire a deeper understanding of the complexity needed to deal with palliative patients and their families. This is particularly the case in difficult situations of death and dying, when students will need to engage in conversations during which they will wish to provide needed support, despite worrying about saying the wrong thing.

Perceived fear in encountering death and dying was believed to affect the students' readiness and confidence to engage in palliative care (Zahran et al., 2022). Our study revealed that students in the undergraduate nursing programme perceived more fear, but also experienced the positive effects of engaging in more communication and relationship building with the palliative patient and the patient's family. These findings differed from those in Paul et al.'s (2019) study, where students experienced improved confidence in providing care, which lessened their fear after palliative care training. Factors such as age, year of clinical experience, and encounters with death and dying would influence levels of self-efficacy and confidence (Orkibi et al., 2021). With limited exposure to palliative care, the students in this study might have been unaware of their own feelings and fear regarding caring for palliative patients. After their experiential understanding of palliative care and communication, however, they recognized that the complexity of caring for the different needs of patients and the involvement of their family demands not only communication skills, but skilled communication.

All in all, our study showed that an enhanced SBL design may strengthen students' learning of palliative care. The design of the SBL was meticulous, and contained essential elements of pedagogy. This enhanced model was comprised of several phases. For knowledge,

readings were provided to students to clarify their misconceptions of palliative care and the knowledge involved. This initial phase was aimed at laying a foundation by clarifying the meaning of palliative care. The second phase of the SBL provided students with opportunities to encounter a diverse range of palliative patients, have contact with a multidisciplinary team, and shadow specialist nurses in the hospital as part of role modelling (Charneia, 2007). Students could validate their learning through a real case practice. The quality of the time actually spent with palliative patients and the quantity of practice are both important (Dimoula et al., 2019). The third phase provided students with SBL through role-play. The benefits of role-play in palliative care training have been validated by research by Venkatasalu et al. (2015) and Valen et al. (2020). Having real patient and family actors for the SBL went beyond the use of manikins. The patient and family-actors were also able to provide valuable feedback on the performance of the students in the final phase of the debriefings, which the students appreciated (Keeley, 2017).

The present study suggests a future design for simulation education. The graduating nurses' learning was gained from both the interactions with real palliative patients and their families, followed by simulated patient and family actors. Feedback from the clinical nurses and debriefings with faculty and patient/family actors fostered student learning. The effects of our structured simulation-based palliative care communication on knowledge, attitudes, and confidence were examined. The perceived fear of providing care was underestimated by students with limited exposure to palliative care before the study. The findings suggest that learning that exposes students to both real and simulated patients and families will strengthen their palliative care knowledge, positive attitudes, and confidence. The students learned basic palliative care for patients with a similar background as theirs. Having students work with patients of diverse cultural and/or spiritual backgrounds should be considered for the next level of simulation.

### 5.1. Implications

It is suggested that simulation-based palliative care education be incorporated into the baccalaureate nursing curriculum. The value of this study is that it suggests a way to help students develop not only a better understanding of their values and beliefs in providing palliative care, but also their knowledge and skills in caring communication for quality palliative care. It may also shed light on the integration of this palliative care communication learning design in the nursing curriculum.

### 5.2. Limitations

There were several limitations to our study. First, this study was conducted in a local university with no SBL on palliative care and communication in the baccalaureate nursing programme. The findings cannot be generalized to other populations with or without palliative care education. Second, there was no control group with which to compare palliative care knowledge, perceived attitudes, and confidence. Third, an initial effect from the SBL was observed in this study, but the long-term impact should be evaluated.

## 6. Conclusion

This study has demonstrated the benefits of integrating palliative care clinical observations, role modelling, and discussions with clinical staff, followed by simulations in a laboratory along with feedback from patient and family actors. It may serve as a starting point to validate a structured design for a new pedagogy on simulations of palliative care. The integrated quantitative and qualitative data provided nuanced information about the effects of simulation in this study. The knowledge, attitudes, and confidence of the students improved after the training. The findings are limited to our study and are not necessarily applicable

to other groups of students. A study with multiple sites and a larger sample is needed. The level and amount of simulated palliative care experience required to lessen the students' fear over time warrants further investigation as well.

The insights uncovered by the current study may promote positive attitudes towards the building of relationships with palliative patients and their families, despite a sense of fear felt by the nursing students. Given the constraints of real patient interactions, feedback from our patient and family actors added value to the students' learning.

### CRedit authorship contribution statement

K.K.P.C.; E.A.C.; B.P.M.C. contributed to the conception, writing of the manuscript and implementation of the study. E.A.C. contributed to the funding acquisition and supervision of the work. K.K.P.C contributed to the analysis of the quantitative data. E.A.C. and B.P.M.C. contributed to the analysis of the qualitative data. All authors read and approved the final manuscript.

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