Developing palliative care skills in undergraduate allied health students using an interprofessional simulation-based learning experience

N. E. Reeves¹, M.-C. O’Shea¹, K. Ash² & J. Rego²

Abstract

Introduction: There is a growing need to prepare the health workforce to work collaboratively to meet the needs of people affected by life-limiting illness. Despite the call from industry for the inclusion of palliative care in undergraduate curriculum, there are few established methods to deliver this education for interprofessional student cohorts. Where clinical experience options are limited, the simulation-based learning experience (SBLE) offers a valuable experiential learning opportunity in the preparation of students to care for dying patients and their families. This research aims to examine the impact of SBLE on the level of allied health students’ confidence in delivering palliative care.

Methods: A quasi-experimental, pre-test/post-test design was used with 11-point rating scales to measure the change in levels of self-reported confidence in knowledge, providing care, preparedness, management and assessment of need, and professional and ethical practice among allied health students who participated in either a face-to-face or an online palliative care SBLE.

Results: A total of 130 students participated in the SBLE in 2019 and 2020. A paired-sample t-test showed improvement post simulation, with mean differences ranging from 2.87 [95% CI 2.45–3.29] for knowledge to 3.2 [95% CI 2.79–3.60] for confidence. All categories were statistically significant (p < .05). Analysis of opened-ended questions indicated that after the simulation, students recognised the importance of a holistic focus and patient-centred care model.

Conclusions: The SBLE improved levels of student perceived confidence for the delivery of palliative care. Educators are encouraged to use SBLE to support the development of graduate capabilities in palliative care in allied health students.

Keywords: simulation; simulation-based learning; interprofessional; students palliative care; end of life

¹ School of Health Sciences and Social Work, Griffith University, Queensland, Australia
² Cancer and Palliative Care Outcomes Centre, Queensland University of Technology, Queensland, Australia

Correspondence: Nathan E Reeves n.reeves@griffith.edu.au
Introduction

Palliative care aims to improve people’s quality of life by alleviating spiritual, physical and psychological pain (WHO, 2020). To support the needs of people affected by life-limiting illness, palliative care is best provided by a multidisciplinary team underpinned by collaborative, interprofessional practice (Mahmood-Yousuf et al., 2008). There is increasing evidence regarding the positive impact of combining interprofessional education and simulation activities to improve team communication, collaboration, student confidence and understanding of disciplinary roles, which are core elements of a collaborative practice-ready workforce (WHO, 2010).

With the World Health Organization (WHO) (2023) currently signalling that only 14% of people requiring palliation actually receive it, coupled with an anticipated growth in demand worldwide, and in Australia, all future healthcare professionals must have access to the requisite curricula to develop knowledge and skills in palliative care if workforce needs are going to be realised (Palliative Care Australia, 2018). Studies have identified that medical students are not receiving adequate training in palliative care despite a growing number of medical faculties embedding this topic in their curricula (Pieters et al., 2020). In New Zealand, researchers reported no defined or standardised palliative care teaching within the “overcrowded” nursing curricula (Heath et al., 2021). On the other hand, in the United States, nursing standards have been recently updated to outline 17 palliative care competency standards required by pre-licensure nursing students upon graduation, the impact of which has seen palliative care learning populate undergraduate nursing programs (Davis et al., 2020; Ferrell et al., 2016). This evidence, at best, suggests a fledgling move by more nascent education programs to embed palliative care into undergraduate curricula.

Although an interprofessional approach towards the provision of palliative care is established and essential (Kesonen et al., 2022; Pornrattanakavee et al., 2022), there is a lack of peer reviewed literature to identify the training, if any, that exists in education programs in emergent palliative care health disciplines, such as exercise physiology and dietetics. The profession of social work has also noted a teaching deficiency in palliative care, although this research dates back 10 years (Turner et al., 2015). Similarly, whilst Australian physiotherapy researchers have identified numerous studies reporting the effects of physical therapy in palliative care, no standardised curriculum in undergraduate palliative care education has been identified (Teede & Keating, 2009). Compounding the barren educational landscape in which essential palliative care competencies exist, limited availability of specialist palliative care clinical sites in entry-to-practice education is hampering experiential learning opportunities.

The use of simulation-based learning experiences (SBLE) presents as one option to remedy the emergent need for palliative care competencies and may enable an avenue for educators to foster the capabilities required to meet the palliative care needs of people.
affected by life-limiting illness. Simulation replicates real-life scenarios, providing learners with pertinent experience under controlled conditions (Lateef, 2010) and facilitates positive effects on knowledge attainment, communication skills, self-confidence and engagement with learning (Gillan et al., 2014; Kirkpatrick et al., 2017). According to Shinnick (2011), simulation “is embraced largely due to the belief that students learn better by experience compared to other types of learning such as lecture format” (p. 65). It has been suggested that didactic teaching alone does not provide the opportunity for students to reflect on their own emotions and experiences in caring for the dying patient (Thiel et al., 2021).

In Australia, there are calls to include palliative care in all health entry-to-practice programs (Gravier & Erny-Albrecht, 2020; Palliative Care Australia, 2018; PCC4U, 2023). In 2020, researchers from Flinders University, Australia, identified the benchmarks established by the Palliative Care Curriculum for Undergraduates (PCC4U) as one option to standardise the palliative care content within undergraduate programs (Gravier & Erny-Albrecht, 2020; PCC4U, 2023). PCC4U is an initiative of the Australian Government that aims to develop the skills in palliative care of all allied health professionals (PCC4U, 2023). Starting in 2018, academics from Griffith University together with the PCC4U team designed the interprofessional palliative care SBLE using the PCC4U graduate capabilities as a framework in conjunction with key simulation design principles (O’Shea et al., 2021). The purpose of this study was to examine the impact of the SBLE on the level of students’ knowledge and confidence to provide palliative care.

Methods

Simulation activity overview

The SBLE was developed by Griffith University, School of Health Sciences and Social Work academics who hold expertise in interprofessional, human-patient simulation and in individual discipline curricula. The PCC4U palliative care graduate capabilities (PCC4U, 2023) and Griffith University (2018) threshold learning outcomes informed the development of the SBLE learning objectives for four discipline cohorts and broadly how the SBLE existed in the disciplines’ curricula. The PCC4U team provided advice on increased alignment to the PCC4U graduate capabilities. The online pre-SBLE module was designed to provide foundational theory about palliative care, opportunity for individual reflection and simulation scenario overview. A 10-question multiple-choice quiz required > 80% correct answers to demonstrate minimum learning thresholds before SBLE participation. Multiple quiz attempts were allowed. Simulation facilitators and simulated patients completed a 60-minute briefing session immediately before the learning activity in Week 1. Students then participated in the 5-hour face-to-face interprofessional human-patient SBLE in 2019 and online in 2020, which was spread across 2 days, separated by 1 week. Students were allocated to a small group comprising
1–2 students from each of the disciplines involved. The Week 1 simulation activity commenced with a 30-minute facilitator-led briefing and then a 50-minute patient consultation. Each of the disciplines had a 10–15-minute allocation within the patient consultation to interact with the patient. This was observed by all students in the group. A 30-minute facilitator-led debriefing concluded Week 1. The Week 2 simulation activity included a 30-minute facilitator-led briefing and then a 40-minute patient consultation. The patient consultation took the form of a case conference, with students from each of the disciplines contributing. A 30-minute facilitator-led debriefing concluded Week 2. A detailed description of simulation activities is published elsewhere (O’Shea et al., 2021).

**Study design and participants**

Pre- and post-test study design was utilised to evaluate the SBLE impact on student knowledge and confidence to provide palliative care. Participants in this research project were derived from students enrolled in the learning activity as part of their respective programs of study and included the third year of a 4-year program in nutrition and dietetics (N&D), the first year of a postgraduate diploma in exercise physiology (EP), the fourth year of a 4-year program for pharmacy (PH) and the third year of a 4-year master’s program for social work (SW). The full cohorts of N&D students participated in the SLBE, whilst the EP and PH student cohorts were either assigned to this SBLE or another SLBE run by the Health Group of the university. SW student cohorts voluntarily enrolled in the SLBE. The year of study in which each discipline participated in the learning activity was determined by the individual program academic team and considered how cognate learning activities were scaffolded across the program. Purposive sampling was used to engage students in voluntary participation in this research project. At the end of the SLBE pre-reading material, students were invited to click on a pre-simulation survey hyperlink in the learning management system (LMS). Students were then invited to complete a post-simulation survey at the conclusion of the SBLE by clicking on a hyperlink in the LMS. Participation did not affect students’ final grades, and data collected was de-identified and reported in aggregated form. The SBLE was delivered at two points of time in September 2019 (112 students) and September–October 2020 (110 students). The authors were not directly involved in the facilitation of student learning during the SBLE but were involved in the development and preparation of the learning activity, which included the pre-reading, case-study scenario, structure, timing and post-simulation activities.

**Survey instrument**

To measure the SBLE effectiveness, the PCC4U pre and post questionnaires were administered to study participants and included the same questions on demographic data (gender, age, cultural background and study discipline) and an 11-point rating scale measuring items including participants’ levels of knowledge, confidence and preparedness to provide palliative care (see Appendix). These items, developed by the PCC4U team
through the application of the key principle of self-efficacy (Bandura, 2006), which were previously applied and measured in other studies (Chiarelli et al., 2014; Mathisen et al., 2015), were aimed at evaluating the learning outcomes across four graduate capabilities in palliative care (Table 1) (Department of Health, 2023). The questionnaires also included open-ended questions about students’ perceptions of the main components of palliative care and how their palliative care experience and training has/has not prepared them for practice. In 2019, the PCC4U pre questionnaire was administered online prior to the commencement of the online module and in hard copy immediately after the SBLE. In 2020, the PCC4U pre and post questionnaires were administered only online.

Table 1
Pre-Post Test Results Based on Simulation-Based Learning Experience

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Test Mean (SE)</th>
<th>Post-Test Mean (SE)</th>
<th>Mean Difference, [95%CI]</th>
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<tr>
<td>Current knowledge of how to care for people who have a life-limiting illness (Q12)</td>
<td>3.99 (2.14)</td>
<td>6.86 (1.28)</td>
<td>2.87 [2.45–3.29], t(128) = 13.5, p = .000</td>
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<td>Current level of confidence with caring for people who have a life-limiting illness (Q13)</td>
<td>3.46 (2.04)</td>
<td>6.66 (1.53)</td>
<td>3.2 [2.79–3.60], t(127) = 15.6, p = .000</td>
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<td>Preparedness to care for people who have a life-limiting illness (Q14)</td>
<td>3.51 (2.05)</td>
<td>6.69 (1.52)</td>
<td>3.18 [2.76–3.60], t(128) = 15.07, p = .000</td>
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<tr>
<td>Confidence in assessment and management of care for people with a life-limiting illness (Q17)</td>
<td>3.73 (1.96)</td>
<td>6.85 (1.56)</td>
<td>3.11 [2.73–3.49], t(126) = 16.08, p = .000</td>
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<td>Confidence in professional and ethical practice in the context of palliative care (Q18)</td>
<td>3.85 (2.14)</td>
<td>6.92 (1.52)</td>
<td>3.06 [2.69–3.44], t(125) = 16.04, p = .000</td>
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</table>

**Statistical/data analysis**

The quantitative data were analysed using statistical package SPSS (Version 25). A paired-sample *t*-test was used to compare the scores obtained before and after the SBLE. The significance level was set at *p* < .05. The qualitative data was analysed using content analysis (Hsieh & Shannon, 2005) by a member of the team experienced in qualitative research design. Responses to the open questions were collated into an Excel spreadsheet.
Each response was colour-coded based on similar meanings. Frequencies for each code were noted and arranged into analytical categories by two team members to minimise any potential bias.

**Results**

**Quantitative findings**

A total of 130 students completed both pre and post questionnaires across 2 years, a response rate of 58.6%. This response rate is deemed adequate for assessments and evaluation in higher education (Nulty, 2008). The majority of participants (82.2%) were aged 19 to 28 and were females (75.4%). Two students (1.5%) identified as Aboriginal and Torres Strait Islander, and a further 21.5% of students were from other cultural backgrounds, including Asia, the Middle East, India, Africa and Europe. The remaining 77% of students did not identify with a particular ethnic origin or cultural background. Fifty-seven students were from N&D (44.2%); 51 were pharmacists (38.9%); 15 were exercise physiologists (11.5%); and seven were social workers (5.4%).

Most students (73.1%) lacked previous personal experience (across clinical placements, employment and/or personal encounters) caring for a person (either family member or friend) in palliative care. Over half (52%) of students witnessed care being provided by others to people who have a life-limiting illness. In the past 12 months, the majority of students (63.3%) had not discussed end-of-life care with people who have a life-limiting illness and their families.

A paired-sample t-test was conducted to evaluate the students’ self-perceived knowledge, confidence and preparedness to care for people with life-limiting illnesses. All areas improved post simulation and were statistically significant among these three categories, with pre- and post-intervention mean differences 2.87 (95% CI 2.45–3.29; p = .000), 3.2 (95% CI 2.79–3.60; p = .000) and 3.18 (95% CI 2.76–6.60; p = .000), respectively (Table 1). Additionally, Survey Questions 17 and 18 consisted of multiple purpose-designed items that were scored on numeric rating scales ranging from 0 to 10 and reflected perceived confidence in areas related to the graduate capabilities in palliative care. All items in Question 17 related to perceived confidence in assessing, managing and applying principles of palliative care for people with a life-limiting illness. Items in Question 18 related to perceived professional and ethical practice, including self-care in the context of palliative care. These multiple items were added together and averaged. Students’ self-perceived confidence in these two areas improved post simulation, and the differences in pre and post mean scores were 3.11 (95% CI 2.73–3.49) and 3.06 (95% CI 2.69–3.44), respectively, which were statistically significant (p = .000) regardless of student age or previous experience in palliative care for all disciplines except for social work. The lack of statistical significance in this cohort, however, may be due to data being provided by only six students. For all categories, the mean scores improved following the simulation with post-scores reaching 6.8 (average) out of a possible 10.
Qualitative findings

The response rate to the open-ended question “What do you believe are the main components of palliative care?” in pre and post questionnaires was 89.9% and 85.5%, respectively. The coding yielded five distinctive categories (Table 2). Pre-simulation responses related to physical symptoms and pain management (37.7%), which is illustrated by students’ perception that palliative care focuses on “patients being pain free and comfortable as possible” (Participant 12). Whereas post-simulation responses revealed a holistic focus, with responses changing from 10% pre to 18.5% post simulation. This was expressed by students as “understanding patient goals and linking them to a holistic approach (physical, psychological, spiritual, cultural, social aspects)” (Participant 22). Similarly, frequency of responses in relation to patient-centred care changed from 16.2% pre to 25.4% post simulation, with one participant noting the importance of “understanding that each patient is unique and centring care around their needs and wants” (Participant 103). Quality of life was the most common theme in both surveys (40%), as students perceived that “the main components to palliative care will strongly revolve around trying to preserve, maintain or improve a patient’s quality of life” (Participant 78).

Table 2

<table>
<thead>
<tr>
<th>What do you believe are the main components of palliative care?</th>
<th>Pre-questionnaire themes/student response frequency</th>
<th>Post-questionnaire themes/student response frequency</th>
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<tr>
<td>Quality of life / 52 (40%)</td>
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<td>Comfort and pain relief / 49 (37.7%)</td>
<td>Patient-centred care and goals / 33 (25.4%)</td>
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<td>Support and care / 43 (33.1%)</td>
<td>Holistic care / 24 (18.5%)</td>
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<tr>
<td>Patient-centred care and goals / 21 (16.2%)</td>
<td>Support needs / 21 (16.2%)</td>
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<tr>
<td>Holistic care / 13 (10%)</td>
<td>Pain and symptom management / 7 (5.4%)</td>
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Discussion

This study adds to the growing body of literature in allied health palliative care education research. It provides an example of an interprofessional SBLE underpinned by the PCC4U graduate capabilities in palliative care in conjunction with key simulation design principles and an interprofessional learning framework. This SBLE presents an effective method to prepare allied health students for the sector, whilst ensuring the core values underpinning learning and teaching of palliative care, as described by PCC4U, are met (Department of Health, 2023). More specifically, the results from this study indicate statistically significant improvements in levels of confidence in knowledge, skills and preparedness to manage patients’ needs. These findings are consistent with other
recent studies reporting positive outcomes for interprofessional students in the delivery of palliative care and other areas of practice after participating in a simulation activity (Labrague et al., 2018; Marion-Martins & Pinho, 2020; O’Shea et al., 2019). It should be noted that while the SBLE scores improved across all domains, they have not reached the highest scores. Thus, continuing education and practice to further increase levels of confidence are needed.

The findings of this study support SBLE as a viable method to teach palliative care whilst enhancing confidence in professional and ethical practice. This includes greater recognition of the role that self-care plays for health professionals working in this setting. Practising self-care allows health professionals to cope with the challenges of palliative care delivery. Given the high burnout and turnaround of staff rates (Mills et al., 2018; Parola et al., 2017), the knowledge and confidence gained by students during the simulation will equip them with the necessary skills to practise self-care and benefit them in future practice. With no significant difference in impact scores across the disciplines in this study, the authors conclude that SBLE is equally effective regardless of study discipline. Furthermore, this study supports palliative care SBLE as an effective educational activity for students with and without prior experience. Students were able to experience realistic scenarios through simulations providing valuable experiential learning opportunities. This finding is consistent with results reported in the nursing literature (Lippe & Becker, 2015).

Despite SBLE effectiveness, it is the authors’ belief that students should be exposed to interactions with patients in need of palliation during the formative years of their education. Where possible, the redesigning of programs and planning of practical activities for students should take that into account. Students commenced the SBLE with the conviction that quality of life was an important factor for people affected by life-limiting illness. This opinion remained unchanged post activity. There was, however, a shift, as more of the students recognised the importance of focusing on holistic and patient-centred care rather than symptoms management in the delivery of quality palliative care.

**Limitations**

The participants were recruited from one institution; therefore, transferability of results can only be inferred. The pre- and post-study design does not allow for a control group, so no comparison was possible. Additionally, no comparison was conducted between face-to-face and online simulation. This should be investigated in future studies. The outcomes are based on a purpose-designed self-confidence measurement tool, and its reliability and validity are yet to be established. Also, SBLE impact was measured immediately after activity completion, so the impact on sustained confidence and competence in the practice setting is yet to be established. This would certainly warrant further study.
Conclusion

Despite the call for the inclusion of palliative care in entry-to-practice health curricula (Ddungu, 2011), there are no established methods to deliver this education for interprofessional cohorts of students to effectively prepare students for future practice. The results of this study support the growing body of literature that suggests that experiential learning in the form of simulation improves the confidence of students to provide palliative care. SBLE prepares students from various disciplines and attempts to ensure that high-quality palliative care is afforded to all patients and their families. This study has shown SBLE is also effective for students with or without prior experience in caring for people with life-limiting illness and increases awareness of the importance of self-care in future professional practice. However, an increase in student confidence is possible and necessary and, coupled with enhanced student educational experiences, will maintain ongoing improvement in the delivery of palliative care. Educators in palliative care are encouraged to use SBLE to support the development of graduate capabilities in palliative care in allied health students.

Conflicts of interest and funding

The authors declare that there are no conflicts of interest. This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References


Appendix

Student Survey Questions Pre

Section 1: Your details

0.1. What is your gender?
    ○ Male    ○ Female    ○ Other

0.2. How old are you?
    Years: ______

0.3. Do you identify as:
    ○ Aboriginal
    ○ Torres Strait Islander
    ○ Both Aboriginal and Torres Strait islander
    ○ N/A

0.4. Do you identify with a particular ethnic origin or cultural background?
    ○ Yes    ○ No

0.4.1. If “Yes”, please specify your ethnic origin or cultural background:

0.5. What is your discipline?
    ○ Aboriginal and Torres Strait Islander health worker / practitioner
    ○ Assistant in nursing / personal care worker / personal care assistant
    ○ Dietitian
    ○ Chiropractic practitioner
    ○ Chinese medicine practitioner
    ○ Enrolled nurse
    ○ Exercise physiologist
    ○ Medical radiation practitioner
    ○ Medical practitioner
    ○ Occupational therapist
    ○ Paramedic
    ○ Pharmacist
    ○ Physiotherapist
    ○ Psychologist
    ○ Registered nurse
    ○ Registered midwife
    ○ Social worker
    ○ Speech pathologist
    ○ Other ______________________
Section 2: About caring for people who have a life-limiting illness

2.1 General questions

2.1.1. How would you rate your current knowledge of how to care for people who have a life-limiting illness?

(Please circle one number)

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2.1.2. How would you rate your current level of confidence with caring for people who have a life-limiting illness?

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2.1.3. How well prepared do you feel to care for people who have a life-limiting illness?

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2.1.4. What do you believe are the main components of palliative care?

2.1.5. Please rate your degree of confidence with the following patient / family interactions and patient management topics associated with caring for people with life-limiting illnesses.

1 = Need further basic instruction
2 = Confident to perform with close supervision / coaching
3 = Confident to perform with minimal consultation
4 = Confident to perform independently
Answering patients’ and families’ questions about the dying process
Supporting the patient or family member when they become upset
Informing patients and their caregivers of the support services available
Discussing different environmental options (e.g., hospital, home, family)
Discussing patients’ wishes for after their death
Answering patients’ and families’ questions about the effects of certain medications
Managing the patient’s pain
Managing the patient’s other symptoms

2.2. Undergraduate capability responses
Please rate your current level of confidence in the following:

(Please circle one number)

2.2.1. Understanding illness trajectories for different types of life-limiting illnesses

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2.2.2. Assessing the needs of people who have a life-limiting illness and their families

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2.2.3. Managing the needs of people who have a life-limiting illness and their families

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2.2.4. Identifying interventions that will optimise physical and psychosocial function for people who have a life-limiting illness and their families

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### 2.2.5. Understanding the principles of effective communication with people who have a life-limiting illness and their families

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### 2.2.6. Identifying psychosocial and spiritual aspects that are important to people who have a life-limiting illness and their families

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### 2.2.7. Talking to people who have a life-limiting illness and their families in order to identify their needs

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### 2.2.8. Responding to concerns about death and dying from people who have a life-limiting illness and their families

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### 2.2.9. Acknowledging your own values and beliefs about death and dying

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### 2.2.10. Appreciating how your responses and interactions may impact on people who have a life-limiting illness and their families

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### 2.2.11. Reflecting upon your own personal and professional experiences in relation to caring for people who have a life-limiting illnesses and their families

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2.2.12. Using self-care strategies to support working with people who have a life-limiting illness and their families

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2.2.13. Appreciating core principles that underpin caring for people who have a life-limiting illness and their families

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2.2.14. Implementing evidence-based practices to support caring for people who have life-limiting illnesses

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2.2.15. Responding to diverse social and cultural perspectives on death and dying

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2.2.16. Understanding ethical aspects of caring for people who have life-limiting illnesses and their families

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2.2.17. Applying principles of palliative care when caring for Aboriginal and Torres Strait Islander People who have life-limiting illnesses and their families

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2.2.18. Understanding your professional role within an interdisciplinary approach to caring for people who have life-limiting illnesses and their families

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2.2.19. Applying principles of cultural safety when caring for people with a life limiting-illness

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Section 3: About your experience of caring for people who have life-limiting illnesses

Your experiential learning opportunities may include clinical placements, be related to employment or personal experience.

3.1. In the past 12 months, how many times have you personally cared for a person who has died due to a life-limiting illness?
   - Never
   - 1 time
   - 2 times
   - 3 times
   - 4 or more times

3.2. In the past 12 months, how many times have you observed care for people who have a life-limiting illness?
   - Never
   - 1 time
   - 2 times
   - 3 times
   - 4 or more times

3.3. In the past 12 months, on how many occasions have you discussed end-of-life care with people who have a life-limiting illness and their families?
   - Never
   - 1 time
   - 2 times
   - 3 times
   - 4 or more times

3.4. Have you, a close friend or family member ever experienced a life-threatening illness?
   - Yes
   - No

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