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Featured Article

Advance Care Planning Simulation-Based Learning for Nurses: Mixed Methods Pilot Study

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KEYWORDS
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Abstract

Background: Simulation-based learning (SBL) is beneficial for training health care professionals in advance care planning (ACP) or end-of-life communication.

Methods: ACP SBL intervention with actors was developed for outpatient nurses (n = 13) based on Jeffries' simulation design framework. Quasi-experimental design examined pre-post differences in knowledge, self-confidence, and behaviour. Qualitative description explored benefits, improvements, and impact on clinical practice.

Results: SBL elicited a statistically significant change in participants' self-confidence in initiating ($z = -2.859$, $p = .004$) and revisiting ($z = -2.565$, $p = .010$) ACP conversations. Qualitative findings supported increased knowledge, self-confidence, and understanding with some reported implementation into clinical practice.

Conclusions: With appropriate training, nurses may be better engaged in ACP.

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Background

Advance care planning (ACP) enables patients, families, and health care professionals to discuss an individual's future health care wishes, to facilitate decision making if a person loses capacity (The Clinical Technical and Ethical Principal Committee of the Australian Health Ministers' Advisory

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Council, 2011). Reported benefits include greater adherence to patient's end-of-life wishes and increased hospice and palliative care use (Brinkman-Stoppelenburg, Rietjens, & van der Heide, 2014). Uptake of ACP is low in Australia; estimated completion of advance care directives (ACDs) are between 0.2% and 7.9% (Mills et al., 2017; Nair, Kerridgey, Dobson, McPhee, & Saul, 2000; Taylor, Ugoni, Cameron, & McNeil, 2003). A lack of knowledge, uncertainty over ACP processes, legislative requirements, and poor understanding of the roles and responsibilities of health care professionals affect the paucity of ACP in hospitals (Boddy, Chenoweth, McLennan, & Daly, 2013). Barriers to general practitioners conducting ACP are also documented (De Vleminck et al., 2013). Broader concerns of competing work demands, patient-professional interactions around ACDs, and communication issues both between and within organisations impede integration of ACP into clinical practice (Lund, Richardson, & May, 2015).

Key Points

- Jeffries' simulation design framework was used to develop an advance care planning simulation-based learning intervention for outpatient nurses. Pilot study demonstrated feasibility, and 13 nurses completed the training.
- Although there were improvements in self-confidence after training, there were no objective differences in knowledge or behaviour.
- Self-reported benefits to participant's confidence, knowledge, and implementation to clinical practice were evidenced through qualitative findings.

Nurses play a vital role in the assessment and clinical care of patients. Previous studies of community nurses' views of ACP have shown various responsibilities including engagement with patients and families to facilitate communication (Seymour, Almack, & Kennedy, 2010), and as information providers, educators, or coaches in the process (Baughman et al., 2012). A systematic review identified that although nurses are well suited to engage in ACP conversations, they have educational and support needs (Ke, Huang, O'Connor, & Lee, 2015).

Simulation-based learning (SBL) enables education delivery through a safe environment with replication of clinical practice and has been known to increase knowledge, critical thinking ability, satisfaction, and confidence (Cant & Cooper, 2010). Training programs for ACP or end-of-life communication skills with simulated components have been proved beneficial. Improved confidence, communication, attitudes, and sense of personal accomplishment were reported among general practitioners, doctors-in-training, junior doctors, and palliative care nurse practitioner students (Clayton et al., 2013; Detering et al., 2014; Indelicato, Chapa, & Wholihan, 2016). Increased confidence in conducting ACP was also demonstrated among nurses and social workers across a multisite health care system who participated in actor-based simulation (Bond et al., 2017).

Jeffries' simulation design framework provides a comprehensive method to develop SBL interventions (Jeffries, 2005). Key design characteristics are learning objectives, fidelity to mimic real-life scenarios, complexity of situations, participant cues, and debriefing opportunities. Outcomes integrated within the framework may include knowledge, skills performance, learner satisfaction, critical thinking, and self-confidence. Although Jeffries' simulation design framework provides a structured approach to SBL development, broadly many outcomes are similar to Kirkpatrick's evaluation levels (Kirkpatrick, 1996), which is arguably one of the most widely used frameworks for education evaluation (Frye & Hemmer, 2012). Kirkpatrick's evaluation levels are participants' reaction to education (level 1), participants' learning (level 2), change in participants' behaviour (level 3), and results (level 4).

Aims

The aim of this study was to develop and pilot an ACP SBL intervention for nurses using Jeffries' simulation design framework.

Underpinned by Kirkpatrick's levels, following the ACP SBL, this study aimed to

1. examine differences in participants' knowledge, self-confidence, and behaviour (before and after training);
2. explore participants' perceptions of benefits, suggestions for improvements, and impact on clinical practice.

Methods

Study Design

A cross-sectional study using mixed methods (quasi-experimental pre-post and qualitative description).

Setting

The study was conducted at a private hospital with a simulation centre.

The study was approved by the Cabrini Human Research Ethics Committee (15-30-10-17).

Participants

Eligible participants were registered nurses working in the respiratory failure, heart failure, and diabetes outpatients' clinic who visit patients in the community setting.

Recruitment

Fifteen nurses were invited to participate as they were approached by a member of the research team during

normal working hours and given a copy of the Participant Information and Consent Form to review and sign. Nurses who did not respond were followed up via e-mail and in person to ascertain interest.

Sample Size

Sample size was based on the ideal class size for participation in the case scenarios in the pilot.

Theoretical Framework: Intervention Design Characteristics and Simulation

The ACP SBL intervention was developed based on Jeffries' simulation design framework. An experienced intensivist led education content development with collaboration from a nurse researcher, clinical educators, and an experienced clinical nurse consultant working in the outpatient setting. Objectives of the ACP SBL were to assist the learner to

1. develop knowledge about ACP, relevant terminology, and state-based legislative requirements;
2. recognise suitable situations when ACP conversations could be initiated;
3. develop self-confidence to approach patients and families about ACP;
4. develop and practice appropriate language and communication skills to safely initiate ACP conversations and respond to patients and families' reactions.

Following completion of informed consent and baseline questionnaires, prereading was distributed before the workshop. Content included definitions of ACP, why it is important, local legislative requirements, communication guidelines, and cues. The workshop was three hours comprising an hour of facilitated discussion led by the intensivist and two hours of ACP simulation with medical actors and facilitator-led debrief. To promote fidelity, four actors were employed and trained in the role of patients, based on four simulated scenarios. Simulated scenarios were written by the intensivist and reviewed by clinical educators, with expertise in curriculum course design and by nurses not participating in the SBL, with feedback incorporated. The simulation was conducted in a simulation centre that was set up to mimic an outpatient clinical environment to create fidelity. Scenarios ranged from simple to complex. The four ACP scenarios included the following: no prior knowledge of ACP; doesn't want to think about dying; happy to engage after a recent scare; and has previously declined, circumstances have changed. Simulation scenarios are presented in Table 1.

Nurse cues were provided for each scenario at the beginning of the simulation to promote clarity throughout the process. Nurses were divided into groups of four and each group had one facilitator and one actor. Each nurse took it in turns to participate in each of the scenarios with the allocated actor and facilitator, whereas the other three nurses in the group were observers. Movement between the groups meant that each group of nurses experienced each of the four different scenarios with exposure to four different facilitators and actors. Debriefing was conducted at the end of the session to reinforce positive learnings from the course and encourage reflective learning opportunities, consistent with Jeffries' simulation design framework. The facilitator conducted debriefing where he led a discussion with nurses and actors. The session was interactive and involved conversation about the processes, experiences, learnings, and ongoing questions related to teaching objectives.

Data Collection

Following consent, participants completed a paper-based demographics form that collected the following data: sex,

Table 1 Advance Care Planning Simulation Scenarios

ACP Simulation Scenario	Brief Description
Has never heard of ACP, doesn't realise that it might be useful	A 61-year-old woman with chronic lung disease after being an ex-smoker. Worsening health over the past few years, living alone with a supportive sister located close by.
Doesn't want to think about dying	A 94-year-old woman recently hospitalised with difficulty breathing and fluid in the lungs due to heart problems. About to commence outpatient rehabilitation, lives with daughter but is fiercely independent.
Happy to engage in ACP after recent scare	A 74-year-old woman recently hospitalised after fall and broken hip. Hospital admission complicated by severe pneumonia resulting in admission to the intensive care unit, three weeks in the ward and three weeks in rehabilitation.
Has previously declined ACP, clinical circumstances have changed	A 68-year-old man diagnosed with heart failure participating in the outpatient cardiac rehabilitation program. Was feeling well but experienced exacerbation of symptoms and hospitalisation after missing several doses of medication.

Note. ACP = advance care planning.

years of nursing experience, past ACP training, number of times ACP discussed in the past six months, age, and highest educational qualification. Information was collected by a member of the research team before the training.

Outcomes

Knowledge Test

A knowledge test was constructed for this study consisting of ten multiple choice questions, each question with choice of five different answers, one being correct. The knowledge test included questions about what ACP involves, when it is important, knowledge about instructional and values directives and legislation (i.e., Medical Treatment Planning and Decisions Act 2016). The knowledge test was reviewed and pretested to ensure clarity in design with feedback incorporated. Participants were given a total score out of ten for the test based on the number of responses that were correct pre and post (directly after) the SBL.

Self-confidence

Participants were asked two questions relating to self-confidence before and two weeks after the SBL. They were asked to indicate on a five-point Likert scale (from strongly disagree to strongly agree) the extent to which they felt confident initiating ACP conversations with patients as well as revisiting ACP conversations with patients. Initiating ACP conversations was defined as asking a patient if they have an existing ACP or if they are interested in discussion. Revisiting was defined as asking a patient about their existing ACP, or continuing a previous conversation about ACP, or commencing a discussion about ACP with a patient who had previously declined ACP. The questionnaire was reviewed with minor rewording incorporated and was scored 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree.

Behaviour

Two questions were asked about behaviour, before and one month after SBL. Participants were asked to estimate in the past one month how many ACP conversations they had initiated and how many they had revisited. Questions were pretested with feedback incorporated to ensure clarity.

These paper-based questionnaires were collected by a member of the research team before and after the ACP SBL.

Qualitative Interviews

Semistructured voice-recorded interviews were conducted approximately two weeks after the workshop to gain an understanding of participants' perceptions of the course benefits, suggestions for improvements, and impact on experiences of initiating and revisiting ACP conversations. An example of the interview guide is presented (Table 2).

Table 2 Interview Guide (Prompts)

1. What were some of the benefits of the course?
2. What do you think can be improved?
3. How has the course impacted your experience of initiating ACP conversations? (ask for examples)
(self-confidence, behaviour, etc.)
4. How has the course impacted your experience of revisiting ACP conversations? (ask for examples)
(self-confidence, behaviour, etc.)

Note. ACP = advance care planning.

Data Analysis

Quantitative data were analysed with descriptive statistics performed using statistical software SPSS (IBM Corp, 2016). Categorical demographic data were presented as frequency distributions and numerical data as measures of central tendency and variability. Wilcoxon signed-rank tests were performed to examine differences before and after ACP SBL for the knowledge test, self-confidence, and behaviour as data distributions violated assumptions of normality.

Qualitative findings were analysed using NVivo qualitative software (QSR International Pty Ltd, 2017). Thematic analysis involved an iterative, cyclical process of reading transcripts, coding emerging ideas and concepts, and then grouping similar codes (Hansen, 2006). Similar codes were conceptualised together for the formation of themes and subthemes. APS conducted the initial analysis with interrater reliability provided by A.M. Where A.M. identified further subthemes, these were reviewed by APS and discussed so that a final agreement could be reached.

Results

Participants

A total of 13 nurses completed the intervention (participation rate = 86.7%). Participant characteristics are described (Table 3). Most participants were female (84.6%) with a median age of 44 years (n = 9) and had postgraduate qualifications (61.5%).

Outcomes

Outcomes are presented in Table 4. ACP SBL elicited a statistically significant change in participants' self-confidence in initiating ($z = -2.859$, $p = .004$) and revisiting ($z = -2.565$, $p = .010$) ACP conversations with patients. Mean scores were 2.85 (SD = 0.9) pre and 4.18 (SD = 0.4) post for initiating ACP conversations and

Table 3 Participant Demographics

Characteristics	*n* (%) (n = 13)
Age, n = 9	44 (28-59)*
Sex	
Female	11 (84.6)
Highest qualification	
Enrolled nurse (diploma)	3 (23.1)
Hospital based	1 (7.7)
Bachelor of nursing	1 (7.7)
Postgraduate qualification	8 (61.5)
Years working as a nurse, n = 9	20 (7.5-35)*
Have completed previous ACP training	2 (15.4)
Number of times have discussed ACP with patients (in the past six months), n = 9	3 (0-5)*
Median (range)*	

Note. ACP = advance care planning.
* Indicates the results that are median (range).

3.23 (SD = 0.8) pre and 4.40 (SD = 0.5) post for revisiting ACP conversations.

Qualitative Findings

One focus group (n = 5) and two one-on-one interviews (n = 2) were conducted (participation rate = 54%). Themes and subthemes are presented with participant numbers indicated in brackets.

Simulation Experience

Feedback and Fidelity

When asked about the benefits of the ACP SBL, most participants stated that the simulated component of the intervention was the most useful. A participant (7) commented on the immediate feedback and learning:

> It was good to get that feedback from your peers as well as the actors on how they felt and broaching the subject of advance care planning. I suppose it's just that interaction to bounce off each other and to get better ideas on how you would approach it …

Another participant (5) stated "… he [actor] gave some really good pointers about how he would feel as a patient and what I didn't say."

The realism of actors was mentioned "the actors made it … they made us feel very comfortable because they were so believable" (4). However, one participant (6) commented on how the age of the actor impacted the authenticity of ACP scenario:

> That was hard, relating to this well looking, talking to this well-looking patient. But I know when we did it with the elderly gentleman, it was more realistic because it was like you were talking to one of your patients as opposed to this younger patient.

Usefulness of Cues

Many participants stated that the opening phrases included in the prereading and case scenarios were useful for the simulation.

> We had the written information and then [facilitator] went through some main quotes and that was really helpful before going into our groups and specifically he had a lot of useful phrases that you might want to use (3).

A participant (1) acknowledged "It's the wording I reckon and casually bringing it up. It doesn't have to be such a daunting thing". Another (7) explained "It actually was [a] very new topic for me. We don't really discuss it very often … I actually got a lot out of it."

Strengthening Intervention Content

Several suggestions were made in relation to improvement of the training content.

Table 4 Knowledge, Self-confidence, and Behaviour Outcomes

Outcomes	Mean (SD) Pretest	Posttest	Z*	*p*
Nurse participants (n = 13) knowledge test scores	5.08 (2.5)	5.08 (1.9)	−0.051	.959
Self-confidence				
Initiating ACP conversations	2.85 (1.0)	4.18 (0.4)‡	−2.859	.004†
Revisiting ACP conversations	3.23 (0.8)	4.40 (0.5)§	−2.565	.010†
Behaviour				
Number of ACP conversations initiated	1.31 (1.8)	2.36 (1.8)‡	−1.388	.165
Number of ACP conversations revisited	1.38 (1.6)	1.09 (1.6)‡	0	1.000

Note. ACP = advance care planning.
* Wilcoxon signed-rank test.
† Significance at $p < .05$ by Wilcoxon signed-rank test.
‡ n = 11 posttest.
§ n = 10 posttest.

While a participant (2) suggested "simulation of a GP and patient … so we can see that next step of the process," another participant (7) suggested "a little bit more [of] the legalities or maybe going through one or two ACP to get an idea of what you would put in each."

An example of a documented ACP was also mentioned by participant 5 who stated "I've never actually seen any advance care plans. I would've liked a bit more of what's actually on them". Participant 3 shared a similar sentiment:

> [I] would like to be more familiar with more paperwork. It's something I often scan over and give to patients after I've had the conversation. But I don't actually understand a lot of the content.

One participant offered the suggestion of a cheat sheet "even if it was dot points just that cheat sheet. So for you to take away and practice by yourself that would be fantastic" (6).

Practical Improvements

Several participants spoke about the room layout and noise level for simulations:

> We had two in the one room and it was two actors in the one room [it] was too distracting (2).

> It wasn't the noise for me I was doing a scenario/ patient and was kept being told unnaturally lower your voice, being told to be quiet. It would just throw my whole feel (3).

The suggestion was to have "a bigger room and have one group per room only because it was noisy, and it was sort of hard to think" (6).

A further suggestion was to have more time for scenarios as "most of us got a chance to do one. I would've liked a bit more actually" and "to revisit that [simulation] maybe a few months down the track, do it again" (4).

Implications on Clinical Practice

Enhanced Knowledge and Understanding

Several participants spoke about how the intervention had increased their knowledge and skills, in particular in communicating with patients:

> I think the greatest thing I got out was concise, no waffling and just say it and then let them speak don't try and fill in the gaps for them. Deliver the message that you're there to deliver and then let them speak (6).

Rather than approaching ACP as a single conversation, the continual nature of the conversations was also understood:

> …it doesn't have to be done here and now, it can be a process of just chipping away of explaining this is what it is, next time this is what it is (2).

Since completing the intervention, one participant stated that it has assisted them in clarifying patients' misconceptions around refusal of ACD:

> … Since we've done the course I've gone back on the outcomes form we fill out … A couple have said "no, no we don't want to do that yet" so now I'm asking "why" and one of them actually said "because if I fill that out then they're not going to treat me, if I get sick and I don't want to die yet". I went "that's not what it's about". But up until then I didn't actually realise that's why (2).

Increased Confidence

While some participants stated that they had not had the chance to apply the skills learnt in the intervention in their clinical practice, another explained they "still feel more confident with the process and actually talk[ing] about it" (2).

Increased confidence was mentioned when asking a patient if they had completed an ACP.

> I felt quite confident saying do you have an advance care plan and she did. It was already filled out, so it was quite easy on my behalf (6).

A further example was provided with revisiting ACP conversations:

> I have a patient knocking on my door saying "come on I want to do this" and it's all been shoved around. Well actually, I'm doing a little bit of a course tomorrow, which will introduce me to it (7).

Discussion

The study highlights that it was feasible to apply Jeffries' simulation design framework to develop and pilot an ACP SBL intervention for nurses. Benefits of the intervention that were emphasised by participants were the usefulness of cues and realism of actors, key features of the simulation design framework. Further elements of the framework that were integrated in the intervention were course objectives, varying complexity of scenarios, and a debriefing session.

A key objective of the ACP SBL intervention was to develop participants' confidence to approach patients and families about ACP, to be able to initiate and revisit these conversations. Pre-post test results indicated significant improvements in confidence in both aspects. Qualitative findings affirmed that the intervention was beneficial for improving confidence. Previous studies of simulation-based programs for ACP or end-of-life communication skills have also demonstrated improvements in participants' confidence (Bond et al., 2017; Clayton et al., 2013; Detering et al., 2014; Indelicato et al., 2016). Of note, a study of a large multisite health system showed enhanced confidence among nurses, physicians, case managers, and social

workers when actor-based simulation was also used (Bond et al., 2017).

Despite expressions of improvements in knowledge and behaviour from the qualitative interviews, this was not substantiated by significant differences in the pre- and post-knowledge test or behaviour questionnaires. Similarly, improvements in knowledge were not observed in a cohort of general practitioners and doctors-in-training after an ACP education program which was multimodal, consisting of prereading, a DVD, interactive patient e-simulation workshop, and training manual (Detering et al., 2014). In comparison to that study, our workshop was longer, although participants still recommended additional content, such as further simulation scenarios, a review of ACP paperwork, more information about legislative requirements, and a cheat sheet for practice. This highlights improvements that could be incorporated into the next iteration of such an ACP SBL intervention.

Significant differences in participants' knowledge after training were however observed in Bond et al. (2017) where like ours, the training program also consisted of four 30-minute simulations with actors, but a precourse video demonstration of ACP and traditional lectures were also included. Improvements in communicative behaviour were observed in the study by Clayton et al. (2013) where the training program was delivered over a longer duration of three weeks comprising of three one-hour teaching sessions including two individual sessions with an expert facilitator and simulated patient/caregiver.

In considering the other studies, our study has specific significance to the role of the nurse working in the outpatient and community setting. Within our organisation, outpatient nurses visit patients in the home, complete nursing assessments, and provide a coordination of care which includes asking patients about ACP and facilitating social work or medical referral as appropriate. However, anecdotally, this task was insufficiently performed, which is not surprising considering that only two of the nurses had completed ACP training before the ACP SBL.

The training provided nurses with the confidence to fulfil the responsibility to initiate conversations about ACP. Several nurses with the opportunity to use these skills described how well this was assimilated into the clinical setting though this was not objectively measured. Findings from this study may be generalizable to health care settings where organisational structures and policies support nurses to assume the role of introducing ACP to patients. This seems a viable proposition when considering overall goals to increase awareness of ACP and uptake of ACDs, in the effort to promote expression and realisation of patient preferences at the end of life. This is especially important given the barriers to ACP and evidence that supports ''workable'' scenarios for implementation within complicated, time-constrained clinical environments (Lund et al., 2015).

Limitations

Participation rates in the evaluation were lower than anticipated (54% for qualitative feedback), and completion by other participants may have produced different results. There were missing data in the post-test evaluation for confidence in initiating conversations (participation rate = 85%), revisiting conversations (participation rate = 77%), and behaviour outcomes (participation rate = 77%). Data were lost to follow-up, which highlights difficulties in obtaining a full set of pre- and post-data for all participating nurses. Sample size was limited because of the nature of the pilot program and may have been insufficient to detect significance. Confidence and behaviour measured in the study may be subject to self-reported bias. While the Kirkpatrick's framework was used to inform the evaluation, level 4 (results) was not incorporated into this pilot study. Further research is needed to consider evaluation of results, including how ACP SBL impacts patient outcomes such as the frequency of completion of ACDs.

Conclusion

Jeffries' simulation design framework was applied to develop and pilot an ACP SBL intervention for 13 outpatient nurses working in the community setting. Overall, the program was viewed favourably, with perceived improvements in confidence, skills, and understanding. Considering complex barriers to implementation of ACP in health services, the study demonstrated that with appropriate training, nurses may be better engaged and confident in initiating and revisiting ACP conversations with patients and families.

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