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Palliative Care Knowledge Following an Interdisciplinary Palliative Care Seminar

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Abstract

Background: The COVID-19 pandemic created a unique opportunity to evolve an interdisciplinary palliative care seminar (IPC) into a virtual platform. This seminar provides foundational palliative and hospice concepts, introductions into palliative care disciplines, integration of teamwork, and incorporates interdisciplinary student led patient encounters. Traditionally, this experience had been in person, however during the COVID-19 pandemic, healthcare restrictions transitioned the educational delivery to a virtual platform. **Methods:** To assess the knowledge gained from this novel experience, the Palliative Care Knowledge Test (PCKT) was administered before and after the IPC Seminar. A 1-year follow up survey was also administered to evaluate how the IPC Seminar was applicable to the students' clinical experiences and practice. **Results:** The virtual didactics and virtual student led patient encounters significantly improved learners understanding of palliative and hospice care. This gain of knowledge was noted across undergraduate and graduate programs, which highlights the need for and benefit from foundational concepts. Furthermore, a 1-year follow up survey noted the IPC seminar was applicable to their practices and suggests that this experience will impact future patients. **Discussion:** Many of the students practice in rural areas where access to palliative care services is limited or non-existent. This experience exponentially impacts the growth of palliative and hospice care understanding and access to care across the region. **Conclusion:** Evolving our IPC Seminar has shown to significantly improve knowledge, foster collaboration of student led interdisciplinary teams, and increases capacity to meet the needs of more learners.

Keywords

palliative care education, interdisciplinary, interprofessional, nursing, medicine, social work, pharmacy, chaplaincy

Interprofessional education is an essential component of health professional training to promote interprofessional collaboration within clinical practice. Multiple national bodies of experts and accreditation standards support the need to engage interdisciplinary students in opportunities to learn about, with, and from each other to improve communication and ultimately provide safer outcomes for patients.[1-3] Prior to the publication of the Interprofessional Education Collaborative (IPEC) core competencies,[4] a small group of hospice and palliative care professionals implemented an Interdisciplinary Palliative Care (IPC) Seminar to bring together students and faculty from multiple disciplines to focus on the tenets of hospice and palliative care within the context of an interprofessional team.[5,6]

Background

Over time, the IPC Seminar has evolved and changed; yet the interprofessional foundation has always been at the core of the educational intervention. The most significant change to the IPC Seminar came due to the COVID-19 pandemic and the impact it had on clinical sites, specifically on sites caring for the most vulnerable populations. Prior to the fall of 2020, the IPC Seminar included face-to-face encounters of interprofessional student groups and a patient on hospice or palliative care services in addition to large and small group sessions which were also in a face-to-face environment.[5] When long-term care facilities and many clinical agencies remained closed to students in the fall of 2020, the IPC academic workgroup had to pivot quickly to adapt the educational

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intervention to meet student learning objectives while maintaining the safety of patient. The academic workgroup involved faculty from the professions of medicine, nursing, social work, pharmacy, and chaplaincy that worked collaboratively to guide the curriculum of the IPC Seminar so it could still take place amid a global pandemic.

While delivering hospice and palliative care education in an online environment is not a novel finding in the literature,[7-11] combining synchronous online education with virtual patient encounters is not well investigated. During the 2020 IPC Seminar, a variety of secure virtual platforms were used so students could engage in discussions with patients while maintaining safety to prevent exposure of patients and students to a potentially deadly virus. To recruit enough patients to participate in this virtual experience, physicians, advance practice practitioners, and a chaplain coordinated with patients from their own practices and hospice facilities to find patients willing to meet virtually with the students. A couple of hospice sites allowed students to engage in face-to-face patient encounters using recommended personal protective equipment and social distancing to protect the participants.

The academic and community partners involved in the IPC Seminar stretch across 1 of the most sparsely populated states in the Upper Midwest. Due to the rural nature, the IPC Seminar academic workgroup has worked collaboratively across the distance to deliver an education program that meets student learning outcomes and is tailored to the unique expertise of each location. The IPC Seminar is offered at 3 locations and involves students from the disciplines of chaplaincy, clinical psychology, medicine, physician assistant, nurse practitioner, pre-licensure nursing, pharmacy, and social work. Each IPC site has a different mix of student engagement based on programs available in the geographic area.

The IPC Seminar incorporates didactic presentations, experiential learning, reflections, and home visits to address interprofessional collaboration and hospice/palliative care. The theory content is focused on aspects of holistic hospice/palliative care, interprofessional collaboration and roles/responsibilities. In addition, students also engaged in self-care practices individually and as a group during each seminar meeting. Key benefits of the IPC Seminar are 1) the ability to have palliative care conversations in practice, 2) understanding each discipline's role in healthcare, and 3) performing a multi-disciplinary patient encounter.

Theoretical Framework

Kolb's Experiential Learning Theory (ELT) was the theoretical underpinning for this study as it is well suited for interprofessional education.[12] As previously described, the IPC Seminar incorporates didactic presentations, experiential learning, reflections, and home visits which align with the 4 stages of ELT, see Figure 1. As students completed the didactic presentations and case studies, they learned baseline information about palliative and hospice care walking through the first stage of ELT: *concrete experience/feeling, doing*. Reflection journals or narrative prompts are incorporated throughout the IPC seminar allowing students to reflect not only on palliative and hospice care concepts but also the roles of the interdisciplinary team in delivering palliative and hospice care. They also reflect on their past professional and personal experiences, such as loss of patients while working in healthcare, loss of family member(s). This reflection aligns with the stage of *reflective observation/watching*. As the students prepare for and perform the patient visits, they progress from thinking and watching (*abstract conceptualization* stage) to doing, which is the *active experimentation* stage of ELT.

Methods

Due to the change in delivery of the IPC Seminar to include synchronous online education with virtual patient encounters, the IPC academic workgroup wanted to evaluate the effectiveness of the educational intervention on student knowledge acquisition. The research questions for this study were: 1) What is the students' baseline level of palliative care knowledge? 2) How will participating in the IPC Seminar change students' palliative care knowledge? and 3) How will the IPC Seminar be applicable to the students' clinical experiences and practice?

Design

To answer these research questions, a descriptive study design was used which included a pre/post-test survey and 1-year follow up survey. The pre/post-test survey was administered online at the beginning and end of the IPC Seminar. In addition to a unique identifier to allow for matching of pre/post-test data, 2 demographic questions were asked: discipline and site where the student participated in the IPC Seminar. In addition to these questions, the pre-post-test survey included the Palliative Care Knowledge Test to answer the first 2 research questions.

Palliative Care Knowledge Test. The Palliative Care Knowledge Test (PCKT) was used to measure baseline and post-seminar palliative care knowledge. The PCKT was developed to measure general palliative care knowledge among health professionals as an assessment of palliative care education strategies.[13] Originally, the instrument had 40 items which was narrowed to 20 items in 5 domains: philosophy (2 items), pain (6 items), dyspnea (4 items), psychiatric problems (4 items), and gastrointestinal problems (4 items). The original PCKT study also established reliability and validity, reporting internal consistency of .81.[13] To analyze test-retest reliability, intraclass correlation coefficient was used and reported as .88.[13] Answer options for each item are 'true', 'false', or

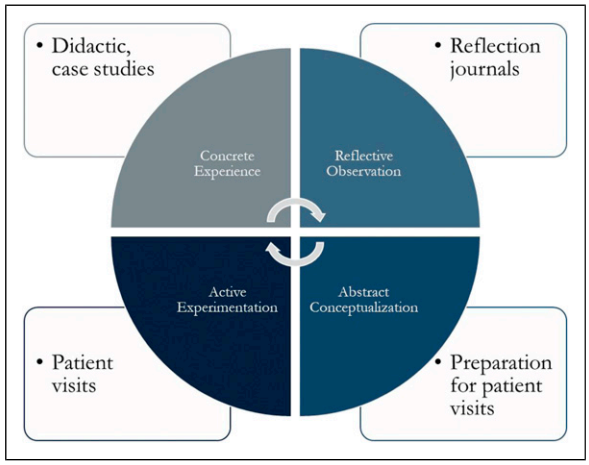

Figure 1. IPC seminar aligned with Kolb's experiential learning theory. *Note.* Model adapted from Kolb's experiential learning theory.

'unsure'. Each item is worth 1 point with incorrect and 'unsure' answers being scored as zero. Higher knowledge levels are indicated by higher scores on the PCKT with scores ranging from 0 to 20.[14]

The manager of the PCKT was contacted for permission to use the instrument in this study. At that time, the manager stated 4 items may not indicate current evidence or practice in the USA. A specialty palliative medicine physician involved in the IPC Seminar reviewed the 20 items and agreed that 4 items should be removed as they were not representative of current palliative medicine practice in the USA, see Table 1. Hence, for this study the PCKT consisted of 16 questions.

One-Year Follow Up Survey. To answer research question 3, an online survey was developed to gather students' perspectives 1 year after completing the IPC Seminar. The survey questions were: 1) How has the IPC Seminar been applicable to your clinical experience and practice? and 2) Are you interested in pursuing a career in palliative/hospice care?

Sample

The study sample included interdisciplinary students participating in the IPC Seminar which was approximately 175 students from 4 universities and 8 disciplines. These disciplines represent students from chaplaincy, clinical psychology, medicine, physician assistant programs, nurse practitioner programs, pre-licensure nursing, pharmacy, and social work.

Data Collection

This study was determined to be exempt by the Institutional Review Board (IRB) at 1 university. The other universities involved in offering the IPC Seminar accepted this IRB determination. On the first day of the IPC Seminar, faculty reviewed the purpose of the study and informed consent. An implied consent statement was included on the home screen of the online surveys which were administered via QuestionPro©.

For the data collection time points at the beginning and end of the IPC Seminar, the survey link was posted in their online courses (each university had a separate course) and was provided to the students in the chat function during the online synchronous meetings. The 1-year follow-up survey link was emailed to the students.

Data Analysis

Descriptive statistics were used to determine the students' baseline knowledge of palliative care. An independent *t*-test was conducted to check for differences in baseline palliative care knowledge between the disciplines. To analyze if participating in the IPC Seminar impacted the students' knowledge of palliative care, a repeated measures ANOVA was run on the matched data with time as the independent variable and PCKT scores as the dependent variable. Lastly, the 1-year follow-up survey comments were reviewed to discover if the IPC Seminar was applicable to the students' clinical experiences and practice.

Results

Of the 175 interdisciplinary students who participated in the IPC Seminar, 108 responded to the pre-test survey and 69 responded to the post-test survey resulting in 56 respondents having matching pre/post-test data. The baseline PCKT scores were normally distributed with an overall sample mean of 46.3 (*SD* 15.2), see Table 2. When comparing the matched and unmatched samples, those who completed the study were not significantly different than those who did complete the study.

The associations of the total PCKT score at baseline with discipline and site were evaluated using multiple regression. The F-test for overall significance of discipline had a *P*-value of .12, and the overall significance of site had a *P*-value of .24. Pairwise comparisons for discipline categories had a significant difference for physician assistant (PA) vs nursing ($P = .02$). PA students scored lower than nursing students; otherwise, there were no differences between disciplines, see Table 3.

For the individual questions on the PCKT, the percentage of respondents with correct answers was calculated at both baseline (pre-seminar) and post-seminar. For the matched population, the percentage correct at baseline was compared to the percentage correct at post-training to assess statistically significant differences using McNemar's test for matched proportions. The results are shown in Table 4. Five questions on the PCKT had statistically significant improvement in score from baseline to post-seminar.

Table 1. Palliative Care Knowledge Test (PCKT) Revision.

	Items	Correct Answer	Removed
Philosophy			
1	Palliative care should only be provided for patients who have no curative treatments available	F	
2	Palliative care should not be provided along with anti-cancer treatments	F	
Pain			
3	One of the goals of pain management is to get a good night's sleep	T	
	When cancer pain is mild, pentazocine should be used more often than an opioid	F	X
4	When opioids are taken on a regular basis, non-steroidal anti-inflammatory drugs should not be used	F	
	The effect of opioids should decrease when pentazocine or buprenorphine hydrochloride is used together after opioids are used	T	X
5	Long-term use of opioids can often induce addiction	F	
6	Use of opioids does not influence survival time	T	
Dyspnea			
7	Morphine should be used to relieve dyspnea in cancer patients	T	
8	When opioids are taken on a regular basis, respiratory depression will be common	F	
9	Oxygen saturation levels are correlated with dyspnea	F	
	Anticholinergic drugs or scopolamine hydrobromide are effective for alleviating bronchial secretions of dying patients	T	X
Psychiatric problems			
10	During the last days of life, drowsiness associated with electrolyte imbalance should decrease patient discomfort	T	
	Benzodiazepines should be effective for controlling delirium	T	X
11	Some dying patients will require continuous sedation to alleviate suffering	T	
12	Morphine is often a cause of delirium in terminally ill cancer patients	F	
Gastrointestinal problems			
13	At terminal stages of cancer, higher calorie intake is needed compared to early stages	F	
14	There is no route except central venous for patients unable to maintain a peripheral intravenous route	F	
15	Steroids should improve appetite among patients with advanced cancer	T	
16	Intravenous infusion will not be effective for alleviating dry mouth in dying patients	T	

Note. PCKT used with permission; adapted for currency and relevancy in the USA.

Table 2. Baseline Palliative Care Knowledge Scores.

Descriptive Statistics		Sample			
Stratification	Level	Total[a]	Matched[a]	Unmatched[a]	*P*-Value
None (total pop)		46.3 ± 15.2 (108)	48.5 ± 13.3 (56)	43.9 ± 16.9 (52)	
Discipline	Other	47.3 ± 20.5 (14)	51.8 ± 13.8 (7)	42.9 ± 25.9 (7)	.437
	Medicine	48.2 ± 11.8 (31)	48.8 ± 10.2 (21)	46.9 ± 15.1 (10)	.676
	Nursing	49.2 ± 14.0 (38)	51.2 ± 12.5 (16)	47.7 ± 15.1 (22)	.462
	PA	39.0 ± 16.1 (25)	42.7 ± 17.8 (12)	35.6 ± 14.1 (13)	.277
Site	Sioux Falls	48.0 ± 14.1 (46)	50.2 ± 10.1 (29)	44.1 ± 18.8 (17)	.158
	Yankton	44.4 ± 15.3 (60)	45.2 ± 14.4 (25)	43.8 ± 16.2 (35)	.712
	Rapid city	65.6 ± 30.9 (2)	65.6 ± 30.9 (2)	—	—

Note. [a]Mean % Correct ± SD (N).

A one-way ANOVA with repeated measures revealed significant findings ($P < .001$) from the pre-assessment (M = 48.5, $SD = 13.3$) to the post-assessment (M = 57.9, $SD = 13.5$) PKCT scores.

One-Year Follow Up Survey

Seventeen students completed the survey 1-year after participating in the IPC Seminar and represented all disciplines except social work. Three of the 17 students expressed interest in pursuing a career in palliative and hospice care. Fifteen students felt that the IPC Seminar was applicable to their clinical experience and practice, see specific comments in Table 5.

Discussion

Since the students' baseline palliative care knowledge was mid-range, there was an opportunity for improvement by educational interventions. Further testing revealed marginal differences in discipline; however, a larger sample is needed to discern if there are differences between disciplines. The other valuable piece to note is the students' educational experiences were at different levels, undergraduate and graduate levels. However, they all demonstrated improved palliative care knowledge after completion of the seminar. This suggests that foundational concepts of palliative care are teachable at all education levels.

Specific knowledge that showed improvement included understanding end of life disease processes and symptomatic

relief utilizing interdisciplinary support. Most notably, utilization of opioids to treat dyspnea and tolerate the amount of opioid given.[15] Another common misconception is that oxygen levels correlate with the degree of dyspnea that patients have.[15] Steroids are used to treat various symptoms, including poor appetite.[15] End of life symptoms vary based upon patients' disease process, spiritual and emotional experiences and may require continuous infusions to manage symptoms.[15] All these concepts are foundational to providing palliative and hospice care to patients.

The IPC Seminar has historically been an effective means of educating students about interprofessional collaboration and socialization.[5] However, the effectiveness of the IPC Seminar on palliative care knowledge has not been quantified in past years. Since the relevance of palliative and hospice care increased tremendously because of the COVID-19 pandemic, the research team focused on palliative care knowledge acquisition. In the past, it was likely to have students participate that had limited exposure to loss and grief. In the fall of 2020, it was apparent the participants' professional and personal experiences with the subject matter were much different than in years past. This heightened the importance of the IPC Seminar, especially the self-care content directed specifically to practitioners. Many of the participating students work in a healthcare capacity while they are attending school and experienced the effects of COVID-19 firsthand. Several students also expressed their COVID-19 pandemic experiences as family members, being unable to visit in person as their loved one was dying. During IPC Seminar debriefings, students reflected that virtual patient visits had given them the ability to talk and find closure. Thus, the self-care content also provided an outlet to see the impact on virtual visitations for families and healing through experiences with the students.

Upon graduation in the rural Upper Midwest, many students will be practicing in areas that don't have access to specialists in hospice and palliative care services.[16] Healthcare professionals play a significant role in their communities by practicing in rural primary care or critical access hospitals. Access to palliative care is a human right[17]; thus, it should be universally accessible by all persons with a serious illness and their families.[18,19] Interdisciplinary students will address this gap in access as they practice the palliative care skills learned during the IPC Seminar in a multitude of settings.

Table 3. Difference Between Disciplines at Baseline.

	t-Test	*P*-Value
Medicine vs other	.03	.973
Nursing vs other	.31	.755
PA vs other	−1.55	.125
Nursing vs medicine	.36	.721
PA vs medicine	−1.89	.061
PA vs nursing	−2.36	.02*

Note. *Statistically significant at $P < .05$.

Palliative Care Knowledge Test

After using the PCKT as the baseline measure of palliative care knowledge in this study, the manager of the tool shared it has not been formally translated to English. This was unanticipated as an English version of the PCKT has been used in several studies in the USA.[20-22] Although the PCKT seems fairly well accepted, no studies reported validity or reliability of the instrument as an English version. Furthermore, while reflecting on the topics covered in the IPC Seminar and analyzing the data, a major consideration related to the PCKT

Table 4. Percent Correct for PCKT Questions at Pre-and Post-Training.

Item	Question	Pre	Post	*P*-Value
1	Palliative care should only be provided for patients who have no curative treatments available	82.1	91.1	.132
2	Palliative care should not be provided along with anti-cancer treatments	85.7	91.1	.317
3	One of the goals of pain management is to get a good night's sleep	96.4	94.6	.564
4	When opioids are taken on a regular basis, non-steroidal anti-inflammatory drugs should not be used	67.9	71.4	.593
5	Long-term use of opioids can often induce addiction	10.7	14.3	.157
6	Use of opioids does not influence survival time	37.5	33.9	.655
7	Morphine should be used to relieve dyspnea in cancer patients	23.2	58.9	<.001*
8	When opioids are taken on a regular basis, respiratory depression will be common	25	44.6	.005*
9	Oxygen saturation levels are correlated with dyspnea	19.6	37.5	.018*
10	During the last days of life, drowsiness associated with electrolyte imbalance should decrease patient discomfort	19.6	23.2	.637
11	Some dying patients will require continuous sedation to alleviate suffering	87.5	98.2	.034*
12	Morphine is often a cause of delirium in terminally ill cancer patients	21.4	28.6	.346
13	At terminal stages of cancer, higher calorie intake is needed compared to early stages	37.5	50	.090
14	There is no route except central venous for patients unable to maintain a peripheral intravenous route	71.4	69.6	.796
15	Steroids should improve appetite among patients with advanced cancer	53.6	69.6	.020*
16	Intravenous infusion will not be effective for alleviating dry mouth in dying patients	37.5	50	.162

Note. *Statistically significant at $P < .05$. *P*-value based on McNemar's test for matched proportions.

Table 5. Student Comments for Applicability to Clinical Experiences and Practice.

"…identify resources in the community that patients can benefit from."	"It helped me understand the roles each specialty has in healthcare."
"I have applied what I learned in terms of conversation, incorporation of the entire healthcare team, etc."	"Simply experiential….It was beneficial to have had some experience instead of when face-to-face with an actual patient."
"I think it was very helpful. For me, it assisted in patient communication and gathering information."	"This is very applicable to the PA practice, because we will be seeing patients like this in the future, almost wherever we work."
"It reinforced and strengthened my understanding of hospice care and my role as part of an interdisciplinary team. It gave me more confidence clinically."	"It was nice to have conversations with our patient and get an insight into what she was currently going through. It helped me learn the value of listening and digesting what a patient is telling you."
"It has given me more insight into caring for my patients. It gave me a chance to practice having conversations about more difficult topics such as end of life care, advance directive, religious beliefs, etc. I feel that the lessons I have learned have encouraged me to focus on patient centered care. I also appreciated the perspectives of people from different disciplines and what kinds of questions or concerns that they have in regards to a patients goals."	"I better understand palliative care, the process of it, how to manage these patients, and the conversations that can occur. I have seen multiple people on palliative care/comfort care measures since my IPC seminar and have applied what I learned in terms of conversation, incorporation of the entire healthcare team, etc."

Note. Survey sent 1-year after IPC seminar. Seventeen students participated in the survey.

arose. The PCKT measures the philosophy and some physical aspects of palliative care which is limiting as palliative care is holistic in nature. Thus, researchers must consider if the PCKT is the correct instrument for what they intend to measure. Additionally, the PCKT is not optimal for various disciplines of the interprofessional team that focus more on the psychosocial and spiritual aspects of patient care. Unfortunately, a thorough search of the literature resulted in a dearth of tools to measure palliative care knowledge acquisition, leaving limited options available for the research team.

Limitations

A limitation to the study is a lack of a control group. Additionally, some disciplines require all their students to participate, while others make it optional. Since each discipline involved has a different level of required participation, some students may have been more engaged in the content than others. Additionally, IPC Seminar is the first patient encounter for PA students. Some PA students expressed fear with participation in patient encounters but had found the interdisciplinary encounters supportive and beneficial. Some student groups had a small numbers of participants, this reflects the difficulty in recruiting students from the disciplines of social work, clinical psychology, and chaplaincy. Lastly, even though the initial sample size was large, there was only a small number of surveys that were able to be paired for a pre and post-test comparison.

Future Directions

Future research with the IPC Seminar would benefit from a control group comparison and recruitment strategies to balance the numbers of participants from each discipline. In addition, it would be helpful to have the same mix of disciplines at each site. A tool that is interdisciplinary and measures palliative care knowledge from a holistic perspective is needed to advance knowledge in this field.[23]

Conclusion

Evolving the IPC Seminar to virtual delivery has shown to significantly improve knowledge of palliative care, foster collaboration of student led interdisciplinary teams, and allow us to meet the needs of more learners. Furthermore, the results from this study suggest the IPC Seminar is an effective educational model for advancing the knowledge of palliative care in interprofessional groups of students which may improve access to palliative care.

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