
Practical Article

Construction and Implementation of a Program Designed to Support Self-Others Understanding Emphasizing Perspectives on Life and Death for Pharmacy Students

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Abstract ; As the scope of interpersonal work by pharmacists increases, there is a growing need to cultivate patient care-related qualities. It is essential for pharmacy students to possess a personal sense of ethics, professional ethical framework, and perspective on life and death that enables them to confront the diverse realities of life and death. Consequently, providing students with opportunities to thoroughly reflect on their views of life and death during their time in pharmacy school is crucial for building emotional resilience to engage with patients' perspectives. To this end, we developed and implemented an educational program focused on perspectives regarding life and death using osteosarcoma as the target disease. Third-year pharmacy students confronted their own views of life and death by actively choosing between aggressive treatment and palliative care options. Analysis of the post-program questionnaire indicated that many students understood the program's primary objectives: the importance of continually developing one's perspectives on life and death and necessity of engaging with others' views, rather than solely relying on one's own. In the future, we aim to continually provide pharmacy students with opportunities to explore their perspectives on life and death and evaluate the results.

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Introduction

In recent years, as pharmacists are increasingly expected to shoulder interpersonal responsibilities, there is a growing need for them to develop qualities essential for patient care, in addition to their pharmaceutical expertise ¹⁾. Moreover, as patients' values grow more diverse, healthcare professionals must support decision-making based on their ethical principles while respecting patients' views on life and death. Research has shown that mature ethical and philosophical perspectives among healthcare professionals lead to higher quality medical care ²⁾. In this context, it is crucial for pharmacists to deepen their ethical understanding, both personal and professional, and to develop a view of life and death that enables them to engage meaningfully with diverse views on life and death. These views are shaped by clinical practice ³⁾ and evolve continuously as they are influenced by personal life experiences. Moreover, it is challenging to fully appreciate others' perspectives on life and death if one has not deeply reflected on their own perspectives ⁴⁾. For this reason, it is important to offer pharmacy students early opportunities to reflect seriously on their views of life and death and build the emotional resilience required to empathize with others. Although medical and nursing schools have long integrated education on life and death perspectives ⁵⁻¹⁰⁾, such efforts are rarely reported in pharmaceutical education. As pharmacists' interpersonal roles continue to expand, we believe it is essential to further enhance the pharmaceutical education curriculum to

address these needs.

Therefore, in this study, we developed and implemented a program aimed at supporting pharmacy students in both self-understanding and understanding of others, with a focus on views of life and death. We also confirmed the degree of achievement of the learning objectives set by the faculties and the students' empathy with the program based on their views of life and death through a student questionnaire.

Method

Participants and implementation method

The participants in this study consisted of 274 students in 2022 enrolled in the required course "Pharmaceutical Communication" during their third year at the School of Pharmacy and Pharmaceutical Sciences, Hoshi University. The program was conducted in a face-to-face format.

Program Overview

Table 1 provides an overview of this program. To encourage students to identify with the characters in the scenario and confront their own views on life and death, we selected osteosarcoma, a disease that frequently affects adolescents and young adults, as the target condition. The scenario was developed by a team of educators, including those with clinical experience at cancer specialty facilities, those holding international certification to support self-awareness and awareness of others, and those able to evaluate the program from an ethical perspective. When presenting the scenarios to the students, we considered their diverse cognitive styles and the principles of dual coding theory. We

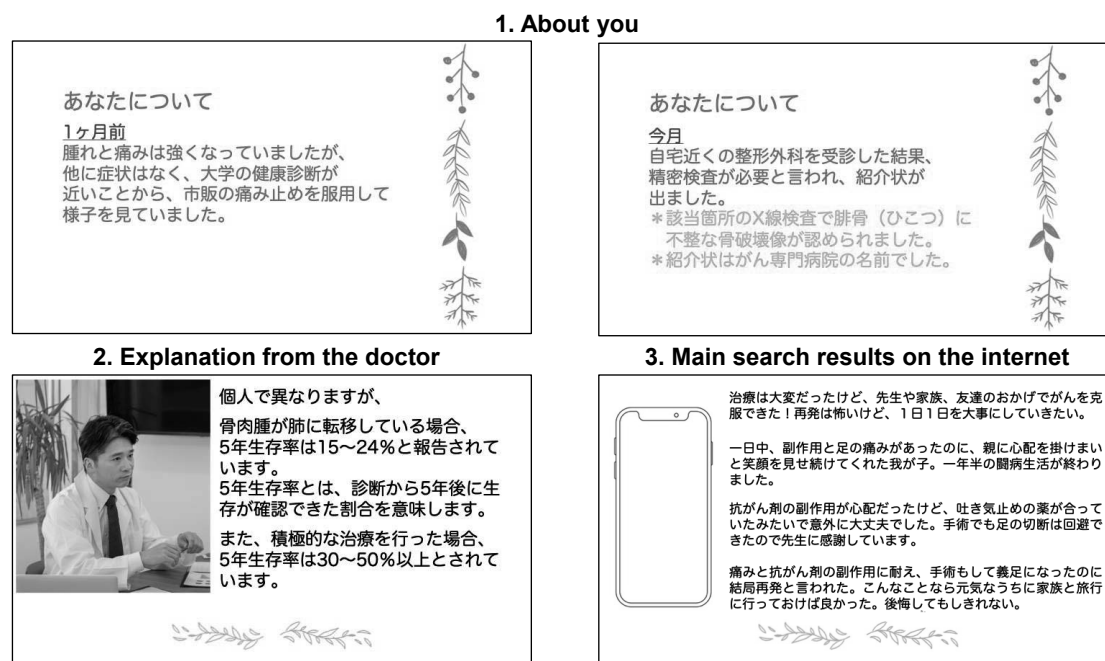


Figure 1 A part of teaching materials that integrate visual information (illustrations and photographs) with textual and linguistic information (explanatory text and audio narration).

created materials that integrated visual information (illustrations and photographs) with textual and linguistic information (explanatory text and audio narration) (Figure 1). A female narrator was used to help students easily identify with the scenario and convey the detailed emotions and nuances of the scenario.

In the first session of the program, the scenarios were presented to the students in the following order: "1. About you," "2. Explanation from the doctor," and "3. Main search results on the internet," as outlined in Table 1. Under the specified scenario conditions, students were asked to make a decision based on their own views of life and death, choosing either "A: aggressive treatment with chemotherapy and surgery" or "B: palliative care to relieve pain and other suffering while maintaining daily life". Additionally, when making their decision, they were instructed to indicate the

proportion of their intention to choose A or B, ensuring that the total equaled to 10. They were also required to provide a written explanation for the main reason behind their decision. Students worked on the exercises as individual tasks.

Results from the first session were presented to the students by the faculty members at the beginning of the second session, prompting them to compare their decision-making processes with those of their peers. Regarding the reasons for their decision-making, the educators selected representative and characteristic comments from the students' responses to encourage reflection on their own choices. Furthermore, to respect students' privacy, the educators shared these responses after modifying them to ensure that students would not recognize any changes. In this program, the purpose of the exercise was only revealed at the end, to prevent

Table 1 Program Overview
The required course “Pharmaceutical Communication”

Session	Item	Time/ Flow arrow	Content	Table/ Figure
First	The scenario: 1. About you	10 min	Two months ago, the area from the knee to the ankle on my right leg swelled up and I had some mild pain. One month ago, the pain had become stronger, but as a health checkup was coming up, I was watching the situation with over-the-counter drugs. This month, as a result of the health checkup, I was strongly recommended to see an orthopedic surgeon. After seeing the orthopedic surgeon, I was told that a detailed examination was necessary, and I was given a referral to a cancer hospital.	Figure 1
	The scenario: 2. Explanation from the doctor	10 min	The results of the examination showed that he had osteosarcoma and lung metastasis, and that your stage was 4A. The doctor explained the 5-year survival rate with and without treatment, the treatment policy for chemotherapy and surgery, the side effects of chemotherapy, and the possibility of having to have his leg amputated and having to use a prosthetic leg depending on the course of the disease. Medical staff, we will first offer aggressive treatment, but if you do not want aggressive treatment, we can also provide palliative care to relieve pain and other suffering and maintain your daily life.	Figure 1
	The scenario: 3. Main search results on the internet	10 min	The results of the search were presented as the treatment process and the advantages and disadvantages of choosing either aggressive treatment or palliative care. The keywords used were osteosarcoma, life expectancy, anticancer drugs, side effects, amputation, etc. In choosing between aggressive treatment and palliative care, we took care to ensure that there was no disparity in the search results.	Figure 1
	Survey on the decision of treatment policy	20 min	Q1. Assuming you select your personal opinion based on current information sources, please answer in order of priority. A: Aggressive treatment with chemotherapy and surgery B: Palliative care to relieve pain and other suffering while maintaining daily life Q2. When making your decision in Q1, what proportion of your decision was based on A and B? Please ensure that the total equaled to 10. Q3. Please provide a written explanation for the main reason behind their decision.	
Second	Shared with the results	15 min	Results from the first session were presented to the students at the beginning of the second session.	Figure 2 (Q1) Figure 3 (Q2 and Q3)
	Explanation of the program objectives	10 min	The contents of Table 2 was explained orally.	Table 2
	Feedback	30 min	Three clinical faculty members with practical experience offered feedback based on their own life and clinical experiences.	
	Post-program survey	20 min	Survey was collected using Google Forms.	Table 3 and 4 Figure 4

Table 2 Program Objectives (Educational Goals)

<p>People have diverse values, and their values regarding life and death (view of life and death) are particularly important. If one's own view of life and death is not important, it is impossible to sincerely face the other person's view of life and death as something important. While both the ethical views of individuals, which form the basis of care, and the ethical views of professionals, which form the basis of cure, are important, the main focus of this program was on the former.</p> <p>When facing the views of life and death of others, ethical views are essential, and the views of life and death of those involved in care can have a significant impact on the care itself. In other words, it is essential to continue to develop a view of life and death that allows us to face each person's life and death head-on in order to provide good care (cure) for the person. In addition, it is essential to always be aware of both personal ethics and professional ethics, which are key to supporting one's view of life and death.</p> <p>For the above, it is important to offer pharmacy students early opportunities to reflect seriously on their views of life and death and build the emotional resilience required to empathize with others.</p>
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students from forming preconceptions about the scenario, to help them concentrate on the experience, and to make the most of the learning process. As a summary of the program, the objectives (educational goals) outlined in Table 2 were explained. To provide students with an opportunity to further deepen their views on life and death, three clinical faculty members with practical experience offered feedback based on their own life and clinical experiences.

At the end of the program, students were surveyed about their subjective evaluations of the program objectives set by the faculty, using a five-point scale (viz., agree, somewhat agree, pre-exercise state, somewhat disagree, disagree). Additionally, we assessed the students' subjective evaluations of the program content on a three-point scale (viz., yes, neither agree nor disagree, no). Moreover, we collected their impressions of the program through free-form responses. All surveys were collected using Google Forms.

Ethical Considerations

In this paper, we decided to publish the

content of the exercises carried out in regular classes as educational research after the grades were finalized. Since the data obtained from the classes were analyzed in a way that does not identify individual students, ethical review was not required according to the practice at Hoshi University of Pharmacy. In addition, as an ethical consideration, we prepared an opportunity for those who did not want their submitted worksheets to be used to make a request and posted the opt-out documents within Hoshi University.

Analysis method

Responses to multiple-choice questions were analyzed using JMP Pro 17 (SAS). The responses to open-ended questions were examined using KH coder¹¹⁾ to generate a co-occurrence network under the following conditions: "aggregate by sentence," "minimum occurrence 18," and "only depict minimum spanning tree."

Results

The participants were presented with a predefined scenario and then asked to choose between two treatment options

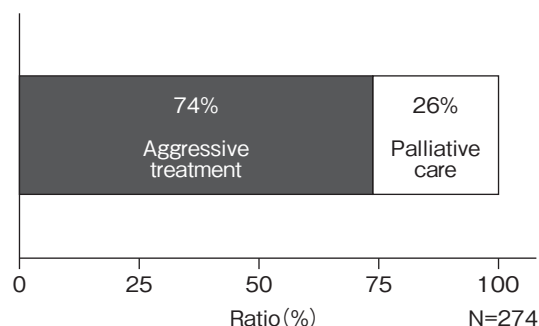


Figure 2 The proportion of selection of Aggressive Treatment or Palliative Care.

based on their own view of life and death. The results were as follows: "A: aggressive treatment with chemotherapy and surgery" (74%) and "B: palliative care to relieve pain and other suffering while maintaining daily life" (26%) (Figure 2). Next, we asked the students to sum the percentages of their intentions for the two treatment options in Figure 2 to make a total of 10. As a result, fewer than 10% of students chose one option exclusively, such as A:10/B:0 or A:0/B:10. The majority of students selected A and B in varying ratios (Figure 3).

As an evaluation of the exercise's purpose, approximately 90% of the students responded "Agree" to each of the following questions: "It is necessary to continue nurturing a view of life and death that allows one to confront each person's life and death in a personalized manner to practice and enhance care (cure) for others" (88.7%); "It is essential to always be aware of both personal ethics and professional ethics, which are key to supporting one's view of life and death." (85.8%); "It is necessary to have opportunities to engage with others' views on life and death as well as one's own" (88.3%) (Table 3).

As an evaluation of the exercise content, approximately 80% of students responded "yes" to the statement, "I could overlap myself with the person in the scenario." (82.1%). Almost all students agreed with the statement, "The stories shared by pharmacist faculty were effective in

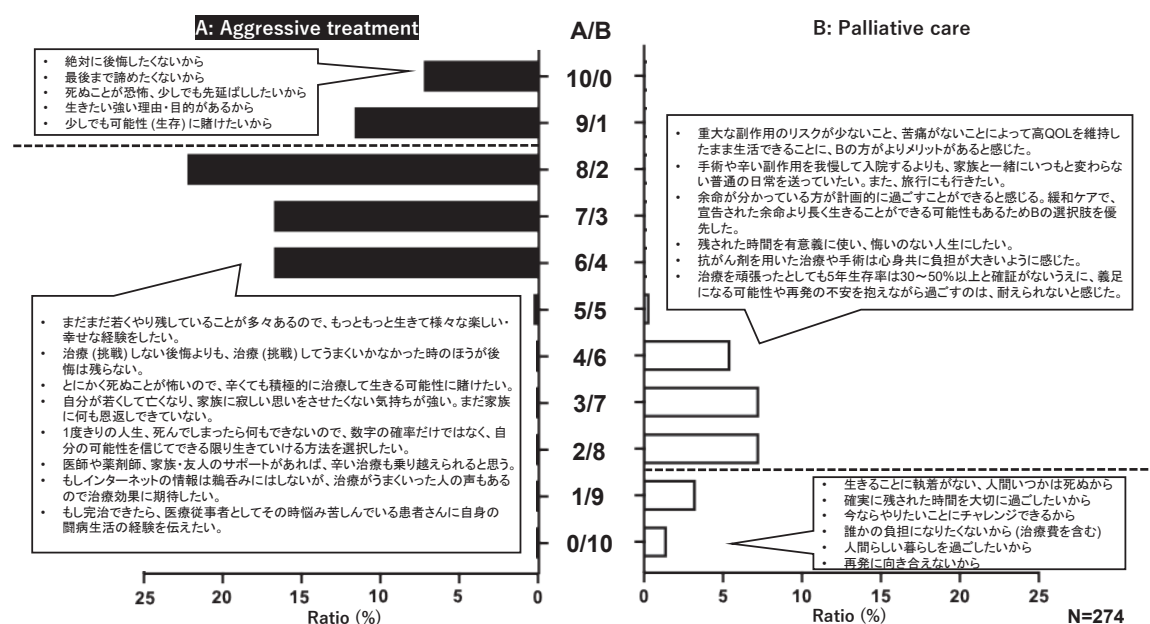


Figure 3 The proportion of participants' intentions to choose each option and a part of the main reason behind their decision.

Table 3 Evaluation of the practical training

Question	Agree	Somewhat agree	Pre-exercise state	Somewhat disagree	Disagree
It is necessary to continue nurturing a view of life and death that allows one to confront each person's life and death in a personalized manner to practice and enhance care (cure) for others.	88.7% (243/274)	9.9% (27/274)	1.5% (4/274)	0.0% (0/274)	0.0% (0/274)
It is essential to always be aware of both personal ethics and professional ethics, which are key to supporting one's view of life and death.	85.8% (235/274)	13.1% (36/274)	1.1% (3/274)	0.0% (0/274)	0.0% (0/274)
It is necessary to have opportunities to engage with others' views on life and death as well as one's own.	88.3% (242/274)	10.2% (28/274)	1.5% (4/274)	0.0% (0/274)	0.0% (0/274)

Table 4 Evaluation of the exercise content

Question	Yes	Neither agree nor disagree	No
I could overlap myself with the person in the scenario.	82.1% (225/274)	16.4% (45/274)	1.5% (4/274)
The scenario reminded me of my own painful life experiences.	28.5% (78/274)	31.4% (86/274)	40.1% (110/274)
The stories shared by pharmacist faculty were effective in deepening my understanding of the exercise content.	98.9% (271/274)	1.1% (3/274)	0.0% (0/274)

deepening my understanding of the exercise content" (98.9%). However, approximately one-quarter of the students responded, "The scenario reminded me of my own painful life experiences" (28.5%) (Table 4).

Finally, we surveyed the students' impressions of the program. As an example of the written responses, we received comments such as "It was a good opportunity to learn about the views of people with different views of life and death to my own. It also made me think about my own views of life and death and values again." "This exercise was a good opportunity to confront my own views of life and death, and when we talked about what our friends had answered, I was also able to think about what other people's views of life and death are like." and "The

faculty members' personal experiences were very stimulating, and it was a great opportunity to review and improve my values." Furthermore, as with the above, the results of the linguistic analysis of the students' impressions of the program indicated that there were responses that aligned with the educational goals of providing "an opportunity to confront and learn about one's view on life and death" and "the importance of understanding other people's opinions." Additionally, some responses expressed the sentiment of "listening to the actual experiences of the faculty members" (Figure 4).

Discussion

In this study, we developed and implemented a pharmaceutical education program focused on perspectives of life and

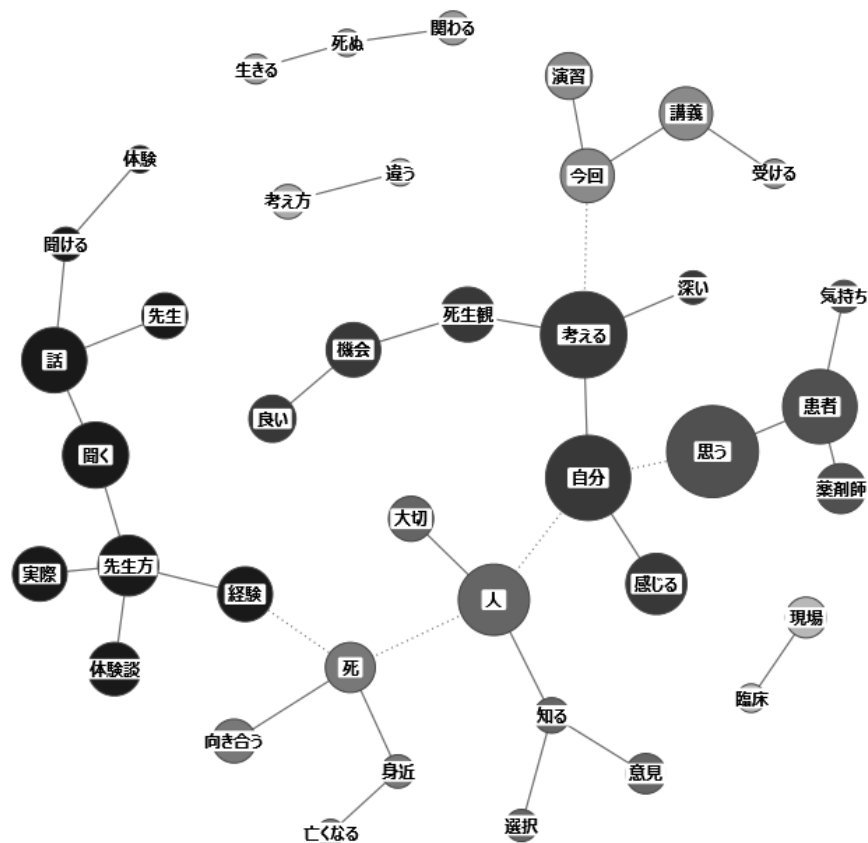


Figure 4 Analyzing the participants' impressions of the program based on their free-form responses.

death. We also confirmed the degree of achievement of the learning objectives set by the faculties and the students' empathy with the program based on their views of life and death through a student questionnaire.

Regarding the treatment options presented in the scenario, approximately three-quarters of the students chose "aggressive treatment with chemotherapy and surgery." From the students' descriptions, we could see that they placed importance on their youth and hopes for the future and that they had a strong will to bet on the possibility of survival. In addition, it was thought that feelings such as "fear of death" and "not wanting to have regrets" were also motives for choosing active treatment (Figure 3). In addition, the

distribution of decisions between both options was not extremely biased, such as A:10/B:0 or A:0/B:10, it was evident that many students made their choices after thoughtful consideration, grappling with the decision-making process. The reason for this is that less than 10% of students strongly leaned toward one of the options, indicating that most students avoided making simplistic decisions. Instead, they carefully considered the merits and demerits of each option before making their choices. This suggests that the students engaged in a rational and deeply thoughtful decision-making process.

In addition, based on the subjective evaluations from the post-program questionnaire and linguistic analysis of the free-response answers ¹¹⁾, we believe that

the program's objectives were largely achieved. The linguistic analysis of the free-response answers, along with the subjective evaluation of the multiple-choice questions, revealed opinions that aligned with the educational goals. In particular, the opportunity for students to reflect on "views on life and death," a topic they rarely consider in their daily lives, and to recognize the importance of understanding and respecting both their own and others' values as something absolute, is considered a major contributing factor to these comments. This suggests that the program effectively encouraged students to recognize the significance of confronting both their own and others' perspectives on life and death.

It was also confirmed that the feedback provided by the clinical faculty during the program was highly effective for the students. The specific stories drawn from the clinical experiences of the faculty helped students connect abstract theories to real-life situations ¹²⁾, and we believe that constituted a valuable learning opportunity for deepening their understanding of life and death perspectives. A view of life and death cannot be acquired as mere knowledge; rather, it is enriched through clinical experiences and life encounters ¹³⁾. We believe that a program that facilitates this type of engagement will be also effective in training future medical professionals. Contrarywise, the fact that some students recalled painful life experiences through the scenarios and exhibited emotional reactions suggests significant implications for future education on perspectives of life and death. Although

the current survey did not explore the extent of this emotional burden, the observation that approximately one-quarter of the students exhibited such reactions, combined with the program's overall significance, indicates that education on life and death perspectives can provide a valuable opportunity for self-understanding and personal growth, even when it entails emotional challenges ¹⁴⁾. Although no students reported feeling unwell after participating in the program, we believe it is important to enhance pre-program guidance and establish a robust psychological support system. This should enable students to confront their emotions and perspectives on life and death with greater peace of mind, allowing for deeper reflection.

The 2022 revision of the Model Core Curriculum for Pharmaceutical Education recommends that "universities should provide learning programs that assume students will work as pharmacists in medical settings and local communities after graduation and should foster human resources by encouraging students to develop their awareness and values over time" ¹⁵⁾. This program was designed for third-year students; however, in light of the new core curriculum recommendations, it is essential to dedicate time to cultivating ethical and philosophical perspectives on life and death throughout the six years of pharmacy studies. In the future, in addition to education for lower-grade students, we aim to continue collecting and evaluating the outcomes of learning related to views of life and death by developing and implementing preparatory learning

programs in the fourth year and practical training in the fifth year.

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薬学生を対象とする死生観に着目した 自己他者理解支援プログラムの構築と実践

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要旨：薬剤師による対人業務が推進される中、患者ケアに関する資質養成が求められており、個の倫理観や専門職としての倫理観、さらに多様な人々の生と死に正面から向き合うための死生観が重要である。そのため、薬学生の時点から自身の死生観に真摯に向き合い、患者や生活者の死生観と向き合う心の体力をつける機会を継続して提供することが重要と考える。そこで、死生観に着目した教育プログラムを構築、実践した。対象疾患は骨肉腫とし、3年次の薬学生が当事者として積極的治療、または緩和的治療の選択を通じて葛藤し、自らの死生観を共有することで自己と多様な死生観に向き合う機会を設定した。事後アンケートの解析より、本プログラムの主たる目的である「死生観を育み続けることの重要性」「自分の考えだけでなく、他者の死生観に触れる機会の必要性」は多くの学生から理解が得られた。今後、薬学生に死生観に関連した学びを継続的に提供し、その成果を収集・評価していきたいと考える。

キーワード：死生観、自己他者理解、多様性、薬学教育、医療人養成