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Palliative care competence among medical students

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Abstract

Competencies have been defined as the set of knowledge, skills and attitudes that a professional should acquire to perform a certain work activity. This study aimed to assess competencies in palliative care among students enrolled in a Brazilian medical course. All enrolled students were invited to participate and answer the Palliative Competence Tool. The data obtained were calculated in scores between zero and 100 and compared between the ten competencies and academic cycles. The results showed four patterns, the most frequent being a reduction in scores among students in the basic and intermediate cycles, with partial recovery in the internship. Only ethical competence and decision-making increased in the internship. It was concluded that the acquisition of palliative care competencies in undergraduate medical education remains fragile. New teaching strategies could be adopted to improve their acquisition in the future.

Keywords: Palliative care. Education, medical. Professional competence.

Resumo

Competências em cuidados paliativos entre estudantes do curso de medicina

Competências foram definidas como o conjunto de conhecimentos, habilidades e atitudes que um profissional deverá adquirir para exercer determinada atividade de trabalho. O objetivo deste estudo foi avaliar as competências em cuidados paliativos entre os estudantes matriculados em um curso de medicina brasileiro. Todos os estudantes matriculados foram convidados para participar e preencheram a ferramenta Palliative Competence Tool. Os dados obtidos foram calculados em escores entre zero e 100 e comparados entre as dez competências e os ciclos acadêmicos. Os resultados mostraram quatro padrões, sendo o mais frequente a redução dos escores entre estudantes dos ciclos básico e intermediário, com recuperação parcial no estágio. Apenas a competência ética e tomada de decisão mostrou elevação no estágio. Concluiu-se que a aquisição de competências em cuidados paliativos na graduação médica ainda é frágil. Novas estratégias de ensino poderão ser adotadas com intenção de aprimorar a aquisição de competências no futuro.

Palavras-chave: Cuidados paliativos. Educação médica. Competência profissional.

Resumen

Competencias en cuidados paliativos entre los estudiantes de medicina

Las competencias son un conjunto de conocimientos, habilidades y actitudes que debe adquirir el profesional para desempeñar una actividad laboral. Este estudio pretende evaluar las competencias en cuidados paliativos entre los estudiantes de medicina matriculados en el grado de medicina en Brasil. Todos los inscritos recibieron invitación a participar y completaron la Palliative Competence Tool. Los datos obtenidos se calcularon en puntuaciones entre 0 y 100 y se compararon entre las diez competencias y los ciclos académicos. Los resultados mostraron cuatro patrones; el más frecuente fue la reducción de la puntuación entre los estudiantes de ciclos básico e intermedio, con recuperación parcial en las prácticas. Solo la competencia ética y la toma de decisiones presentaron una alta puntuación en las prácticas. Sigue siendo débil la adquisición de competencias en cuidados paliativos en medicina. La adopción de nuevas estrategias de enseñanza puede mejorar la adquisición de las competencias en el futuro.

Palabras clave: Cuidados paliativos. Educación médica. Competencia profesional.

Research

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Palliative care (PC) encompasses *approaches aimed at enhancing the quality of life for patients, both adults and children, as well as their families, who are facing life-threatening illnesses. It focuses on the prevention and alleviation of suffering by means of early identification, thorough assessment, and impeccable treatment of pain, along with addressing other psychosocial and spiritual challenges* [1]. Despite an estimated 40 million people worldwide requiring PC, only 14% have access to it. One of the barriers hindering the improvement of palliative care is the insufficient training and awareness among healthcare professionals regarding subjects [1,2].

Given the need for medical practitioners skilled in PC, the inclusion of the subject in medical education has been gradually increasing. However, its incorporation is not consistently mandatory in medical curricula. It may be introduced through specific courses or internships, or integrated into related areas of study [3-7]. Out of the 54 European countries, only nine have made PC content compulsory in education [8]. In the United States, 43 out of the 51 evaluated schools have integrated PC into their curriculum [5]. In Brazil, as of 2018, only 14 medical courses included a specific discipline addressing PC in their curriculum [9]. Furthermore, in 2020, among the 191 listed healthcare services, only 37.2% were engaged in undergraduate teaching [10].

Teaching plays a vital role in shaping competent professionals with the necessary technical knowledge, competence, and attitudes aligned with their professional responsibilities. In this context, competencies were defined as the set of knowledge, skills, and attitudes that a professional must acquire to perform a certain activity. They can also be measured according to a standard of good professional performance and improved through training and development [11,12]. The role of medical education goes beyond adding disciplines to a curriculum: it is about transforming people into competent doctors [11-15].

PC competencies were described by Meekin and collaborators [16] and improved by Gamondi, Larkin and Payne [13,14], consisting of:

1. Applying the core constituents of PC in the most proper and safest environment for patients and families;
2. Increasing physical comfort across patients' illness trajectories;
3. Meeting the psychological needs of patients;
4. Meeting the social needs of patients;
5. Meeting the spiritual needs of the sick;
6. Responding to the needs of family caregivers regarding the objectives of care in the short, medium, and long term;
7. Responding to the challenges of clinical and ethical decision-making in PC;
8. Implementing comprehensive care coordination and interdisciplinary teamwork in all contexts in which PC is provided;
9. Developing the interpersonal and communication skills demanded by PC;
10. Promoting self-knowledge and continuous professional development.

Medical students, as well as newly graduated or experienced physicians, have expressed feelings of unpreparedness and lack of competence when it comes to providing care for patients with palliative needs. Moreover, they have exhibited emotional distress, inadequate knowledge of symptom management, difficulties in effective communication with patients and their families, and uncertainty regarding their own qualifications [4,17-21].

To address this issue, the Palliative Competency Tool (PalliComp) was developed as a research instrument specifically designed to evaluate medical competence in non-specialized palliative care. Validation studies have shown satisfactory correlation, consistent patterns with minimal variation, and adequate internal consistency for the intended purpose. Following the validation process, the next step involves implementing the instrument on a larger scale [22].

This study aimed to utilize the PalliComp to assess the competencies in palliative care among students enrolled in a medical course in Brazil to promote a discussion within the context of bioethics and medical education.

Method

A total of 1,080 students who were of legal age and enrolled in the medical course at Universidade Federal do Paraná (UFPR) were invited to participate in this study. They were provided with information regarding the risks and benefits, and those who agreed to take part signed an informed consent form. Data collection occurred between May and June 2019.

Participation in the study was voluntary, and the researchers scheduled individual sessions with each group. During the sessions, participants answered

a series of questions regarding demographic information and the PalliComp [22] research instrument. The responses were provided anonymously and without referencing any external sources. The time allotted for participation was up to 30 minutes.

The PalliComp [22] research instrument consisted of 24 statements, both correct and incorrect, which participants assessed using a five-point Likert scale ("I totally agree," "I agree," "Neither agree nor disagree," "I disagree," and "I totally disagree"). The data obtained from the questionnaires were fed into an electronic spreadsheet, thoroughly checked, and subjected to statistical analysis using the R software, version 3.6.1. Only incomplete questionnaires were excluded from the analysis.

Each item received a score based on the following scale: 1 (completely correct), +0.5 (correct), 0 (neutral alternative), -0.5 (incorrect), and -1 (completely incorrect). Special attention was given to intentionally incorrect statements, which were identified through inverted punctuation and grouped based on competencies for general scoring purposes. The scores were calculated using the formula: – (variable – minimum grade) ÷ (maximum grade – minimum grade) –, then transformed into a scale ranging from 0 to 100.

The sample characteristics were described through absolute and relative frequencies, as well as mean and standard deviation. The data were further compared using chi-square and Kruskal-Wallis tests. The scores were compared based on academic cycles, namely cycles 1 (1st to 4th semester), 2 (5th to 8th), and 3 (9th to 12th). To perform multiple comparisons, the Kruskal-Wallis and Conover tests were utilized. The Mann-Whitney U test was employed to evaluate the scores of participants who either attended or did not attend the optional PC course.

Results

A total of 706 students, which accounted for 65.4% of the enrolled participants, agreed to take part in the study. Among them, 35.4% were from Cycle 1, 35.7% were from Cycle 2, and 28.9% were from Cycle 3. Table 1 provides an overview of the demographic data that describe the sample.

Table 2 presents the performance of the participants, as measured by scores. No statistically significant difference was observed when examining the general competence across different cycles.

Table 1. Demographic data

	Sample N=706	Cycle 1 n=250	Cycle 2 n=252	Cycle 3 n=204	*p*-value
Sex					
Female	365 (51.7%)	131 (52.4%)	129 (51.2%)	105 (51.5%)	0.91[#]
Male	341 (48.3%)	119 (47.6%)	123 (48.8%)	99 (48.5%)	
Age					
Mean ± SD	22.9± 3.0	21.3± 3.0	23.0± 1.1	24.7± 1.0	**<0.001**[&]
Studied palliative care					
Yes	65 (9.3%)	2 (0.8%)	20 (7.9%)	43 (21.1%)	**0.01**[#]
No	641 (90.7%)	248 (99.2%)	232 (92.1%)	161 (78.9%)	

SD: standard deviation; #: chi-square test; &: Kruskal-Wallis test

Table 2. Student performance, grouped by cycles and competencies

	Sample n=706	Cycle 1 n=250	Cycle 2 n=252	Cycle 3 n=204	*p*-value
Competence					
Competency 1	65.3± 21.3	66.3± 21.8	63.2± 21.5	66.4± 20.2	0.21
Competency 2	53.1± 20.7	57.9± 21.5	47.7± 18.9	54.0± 20.2	<0.001[a,b,c]
Competency 3	66.0± 17.0	68.6± 16.4	64.4± 16.5	64.8± 17.9	<0.01[a,c]

continues...

Table 2. Continuation

	Sample n=706	Cycle 1 n=250	Cycle 2 n=252	Cycle 3 n=204	*p*-value
Competence					
Competency 4	68.7± 15.9	68.4± 15.1	68.9± 17.1	68.8± 15.3	0.87
Competency 5	73.6± 18.5	75.0± 17.8	71.1± 19.1	74.7± 18.4	0.06
Competency 6	77.6± 20.3	79.4± 19.1	74.0± 21.2	79.7± 20.1	0.003 [a,b]
Competency 7	73.6± 18.5	71.1± 18.2	73.7± 19.3	76.6± 17.3	0.004 [c]
Competency 8	61.6± 19.4	64.7± 19.7	57.6± 17.7	62.8± 20.3	<0.001 [a,b]
Competency 9	53.9± 25.0	56.9± 25.7	47.3± 24.1	58.5± 23.6	<0.001 [a,b]
Competency 10	71.4± 22.7	74.1± 22.9	64.9± 23.0	75.9± 20.2	<0.001 [a,b]
General	66.5± 19.9	68.5± 19.4	64.7± 19.2	67.6± 20.2	0.23

a: difference between cycles 1 and 2; b: difference between cycles 2 and 3; c: difference between cycles 1 and 3

Note: Kruskal-Wallis test and Conover test for multiple comparisons of independent samples

Discussion

Education plays a crucial role in the advancement of individuals and society as a whole. As highlighted by Delors and collaborators, *it serves the purpose of promoting harmonious and authentic human development* [23]. In the field of healthcare, significant scientific advancements have brought forth new possibilities for the survival of patients, resulting in a prolonged process of illness and dying. As a result, PC has become increasingly essential in enhancing the quality of life throughout the course of the illness [24].

The acquisition of competencies is a complex process that relies on various factors, including the quality and manner in which content is presented, the learning environment, the relationships established between teachers and students, the influence of the hidden curriculum, and the societal importance of the subject [12,15,25-27]. Therefore, it is understood that acquiring competencies is not solely the responsibility of an isolated academic discipline at the undergraduate level.

When evaluating competence acquisition, it is crucial to assess whether students, including future physicians, have access to the necessary knowledge and abilities required for medical practice, intending to drive improvements. During the study, the undergraduate medical course followed a traditional teaching approach and was split into three cycles: basic, clinical-surgical, and internship, each lasting two years.

The PC discipline was offered on an elective basis and less than 10% of students were enrolled in it, which did not allow for the assessment of this variable. There was a notable difference in the average age across the academic cycles, as it is expected for students to age throughout their years of graduation. The acquisition of general competence did not exhibit any significant differences between the academic cycles.

Similarly, competencies 1, 4, and 5, which encompass the PC concept, psycho-emotional approach, and spiritual approach, respectively, did not demonstrate an increase in scores throughout the course. This finding is of great importance and concern, as it indicates a lack of improvement in knowledge, skills, and attitude within these specific areas, despite the teaching methods employed.

The biomedical model often attributes death to physiological failure, and healthcare professionals are trained to prevent death at all costs, striving to overcome it. However, this model neglects the fact that the end of life is an integral part of life itself, and poses as relevant dimensions for the patients such as values, emotions, relationships, and beliefs. According to Torralba, *the inevitable mortality of every human being represents both a failure and a challenge within the biomedical framework* [28].

Innovative teaching strategies have contributed to the acquisition of desirable competencies in PC. The inclusion of arts has stimulated the understanding of fundamental concepts, empathy, and the ethical responsibilities of physicians [29]. Additionally, communication training through realistic simulations has provided an opportunity for self-reflection on personal postures [30,31].

Competence 2 focuses on addressing the patient's physical comfort and managing symptoms such as pain, dyspnea, and prescribing opioids. According to the researchers, this represents the primary responsibility of physicians in PC. Unfortunately, an unexpected decline in scores for this competence was observed in cycle 2 compared to cycles 1 and 3, revealing the vulnerability of the teaching approach. The experiences encountered in cycle 2 may have hurt the students' performance, as evidenced by the higher scores in cycle 1, which were partially recovered in cycle 3.

Physicians' lack of confidence in the palliative approach is not a new phenomenon, and professionals often attribute this sentiment to the inadequate teaching of PC during their undergraduate education [3,4,6-8,17-21,29]. However, addressing this issue extends beyond teaching alone and requires stimulation through educational policies.

In Germany, for example, PC became a mandatory subject in all medical schools starting in 2009. Professors were provided with training and teaching strategies were implemented to ensure comprehensive coverage of the aforementioned competencies throughout medical education [31-33]. A significant issue is the lack of interest among students, which may be influenced by a societal misunderstanding of PC, often associating it with failure, abandonment, suffering, or assisted death [34].

End-of-life patients frequently report suffering from emotional and social issues, correlating the loss of autonomy and the need for care with the loss of dignity [35-37]. Competence 3 focuses on supporting patients' psychological needs. Interestingly, this study showed that the performance in this competence was higher among early-stage students but had a persistent decline throughout the course. The teaching approach employed seemed to reduce the students' competence in empathetically addressing emotional suffering and end-of-life uncertainties.

It is expected that general practitioners develop the ability to identify emotional suffering in patients, provide support throughout their disease trajectory, and have a compassionate approach. One possible explanation for the decline in this competence is the reduction in empathy among medical students, as evidenced by several studies [38-40].

In 2015, Hojat and collaborators [41] described how increased demands on students can exacerbate negative personality attributes such as depersonalization and emotional exhaustion. Educational strategies aimed at enhancing empathy and addressing the students' own suffering through conversation circles and reflective writing have shown promising results [42-43].

The evaluated students did not show improvement in the scores related to competence 4, which addresses the social and economic impacts of serious illness on patients' lives, such as employment, retirement, and social benefits. Along the same lines, but related to supporting family and caregivers, competence 6 showed a more favorable performance in cycle 1 than in cycle 2, partially recovering during the internship, but without achieving the same levels presented by beginner students. It cannot be concluded that the medical course has positively influenced or promoted an increase in social and family competencies.

Having a family member at the end of life, sometimes within the same household, can be a source of overwhelming burden and suffering, leading to anxiety, fatigue, and strained family relationships. These challenges are further intensified as health conditions decline and caregiving responsibilities increase [44]. Caregiver stress arises from the imbalance between the demands of caregiving and the available resources, including time, emotional and social support, financial means, and skills, among others [45].

Students who participated in family conferences had the opportunity to interact with family members directly involved in caregiving and observe the various dynamics at play. This allowed them to identify socioeconomic needs and understand the burden placed on caregivers [46].

Spirituality is described as *the dynamic dimension of human life concerning the way in which people experience, express and/or seek meaning, purpose and transcendence, and the way in which they connect to the moment, to the self, to others, to nature, the signifier and/or the sacred* [47]. It was dealt with in competence 5 and the evaluated sample did not demonstrate the acquisition of competences throughout the course.

Patients facing the end of life often struggle with existential issues and the search for meaning, which makes spirituality an integral part of comprehensive healthcare [47,48]. However, it is unfortunate that this topic is frequently misunderstood and neglected [49].

Research

Atkinson and collaborators [50] reported satisfactory results with a short-term academic strategy that utilized the FICA Spiritual History Tool [51].

Ethical issues, including respect for patient autonomy and the decision-making process, were addressed in competence 7, and fortunately, the students have shown a gradual increase in scores between cycles 1 and 3, indicating a positive impact of the teaching in this area. Caregiving involves numerous ethical challenges and is not a morally neutral action, as it often faces moral judgments [28].

Principled bioethics, which consists of principles such as respect for autonomy, beneficence, non-maleficence, and justice, is typically taught in medical education. In fact, medical actions that respect the patient's autonomy are fundamental for health care, but rarely does the teaching of bioethics enable the student to understand the patient as an autonomous agent, that is, *to recognize the right of each person to have their opinions, make your choices and act based on personal values and beliefs* [52]. An Italian survey highlighted that students appreciated bioethics classes, especially when the content broadened their worldview and was integrated into clinical practice [53].

Competence 8 addressed teamwork and care coordination. Upon graduation, students are expected to acquire skills to effectively collaborate with professionals from various disciplines, including medicine, nursing, and other fields. This comprehensive approach to patient care involves developing a care plan in collaboration with the multidisciplinary team. Students delivered higher scores at the beginning of the course, a decline in cycle 2, and an increase in cycle 3, although without ever regaining the performance of cycle 1. Consequently, it can be concluded that the course as a whole did not adequately promote the acquisition of teamwork competencies.

In the context of end-of-life care, the demands extend beyond the field of medicine alone. Therapeutic planning is developed in collaboration with team members directly involved, who utilize scientific knowledge to alleviate symptoms and enhance the patient's quality of life, considering factors such as culture, values, socioeconomic circumstances, and the healthcare system [54]. Working as a team is challenging, yet necessary. The future doctor needs to be introduced to and know the roles and contributions of other healthcare professionals, as well as learn to work collaboratively, manage conflicts, respect others, and communicate effectively [55,56].

Interpersonal relationships with patients, families, and healthcare teams are established through effective communication, a skill addressed in competence 9, which is essential for building therapeutic relationships. Students performed better in cycle 1 compared to cycle 2, with an improvement again in cycle 3, but at a level similar to that of beginner students. Students often expressed feelings of anxiety, emotional exhaustion, insecurity, and a desire to distance themselves from patients when delivering bad news [57]. However, recurrent communication training has proven to increase the confidence of both students and newly graduated physicians [58-61].

Competence 10 addressed self-care and engagement in continuing education. Unfortunately, there was a decrease in scores for this competence, with a recovery observed during the internship, but without reaching the same scores of beginner students. Dealing with terminality and death requires physicians to confront suffering on a daily basis, highlighting the importance of awareness regarding their vulnerability. Emotional manifestations are expected, and spaces must be opened for exchanging experiences that contribute to the training of empathetic physicians who can acknowledge and accept their own emotions as well as those of other professionals and patients [62,63].

Throughout the medical course, four performance patterns were observed in this study:

- Scores did not change throughout graduation (competencies 1, 4, and 5);
- "V" scores: decrease in scores between cycles 1 and 2, with an increase between 2 and 3, and the increase in cycle 3 was not always statistically different from cycle 1 (competences 2, 6, 8, 9, and 10);
- "L" scores: decrease of scores between cycles 1 and 2, with no increase in cycle 3 (competence 3);
- Increased scores (competence 7).

The acquisition of skills follows a progression described in stages: 1) Unconscious incompetence: The individual is unaware or does not even realize their incompetence in a particular matter; 2) Conscious incompetence: The individual recognizes that they have not yet mastered a set of knowledge, acknowledges their deficit, and can

choose to pursue further learning; 3) Conscious competence: The individual has acquired knowledge, but to execute it effectively, they require attention, strategy, and well-described steps; and 4) Unconscious competence: The individual has internalized the knowledge to the extent that it becomes second nature, allowing them to perform tasks easily and potentially teach others.

Literature indicates that when medical students become aware of their low performance and subsequently experience a supportive academic environment, an improvement in learning and performance is perceived [64-66].

PalliComp asks the participant to answer the degree of agreement with each statement, which describes a desirable knowledge, skill, and/or attitude. The patterns found can be explained by the acquisition or lack of acquisition of knowledge throughout the course, which may not always be associated with the acquisition of skills and attitudes. Additionally, taught values, professional culture, and the hidden curriculum exert academic pressure, and the "V" pattern observed in most evaluated competencies suggests that experiences during the internship may have partially contributed to the recovery of competencies.

It is important to note that PalliComp does not aim to establish a ranking of competent or incompetent students. Instead, it provides a measurement of the condition provided by teaching, allowing for planning initiatives and improvements, which could be reassessed over time.

The interpretation of the data obtained has limitations since the study has a cross-sectional design and each student was exposed to unique conditions throughout the training that cannot be replicated. The pattern observed in skills performance would likely be repeated in a prospective study, which was not possible due to the pandemic.

Assessing skills is an effort to facilitate the acquisition of desirable knowledge and virtues for general practitioners, as they will need to be competent in caring for populations with incurable and potentially fatal diseases. The processes of falling ill and dying are inherent to human life and part of medical work. Therefore, it is urgent to enhance medical education in the context of PC-related issues.

Final considerations

The acquisition of Palliative Care (PC) competencies among the students enrolled in the evaluated course was deemed insufficient. Nine out of the ten competencies assessed did not return a consistent increase in scores among students during the internship. However, the competence related to ethics and decision-making showed improvement at the end of the course compared to the beginning. New teaching strategies should be adopted as a means to improve the acquisition of PC competencies.

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