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# KNOWLEDGE AND SELF-EFFICACY IN PALLIATIVE CARE AMONG HEALTH GRADUATES

Larissa Emerenciano Bezerra [1], Luiz Fernando Menezes Soares De Azevedo [2] and Mirella Rebello Bezerra [3]

[1] Medicina, Faculdade Pernambucana De Saúde, Recife, Pernambuco, Brazil.
[2] Medicina, Universidade Federal De Pernambuco, Recife, Pernambuco, Brazil.
[3] Medicina, Faculdade Pernambucana De Saúde, Recife, Pernambuco, Brazil.

ORCID Details
Larissa Emerenciano Bezerra: https://orcid.org/0000-0003-2372-3976
Luiz Fernando Menezes Soares De Azevedo: https://orcid.org/0009-0002-5834-1548
Mirella Rebello Bezerra: https://orcid.org/0000-0003-1130-1098

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## ABSTRACT

**Objective:** To assess knowledge, skills and attitudes of final-year students regarding palliative care with an emphasis on curricular inclusion.

**Methods:** Cross-sectional study (November/2024–September/2025) with 39 final-year students from Medicine, Nutrition, Dentistry and Psychology; data collected online via *Google Forms* after informed consent. Instrument: Adapted *Bonn Palliative Care Knowledge Test* (BPW) (23 knowledge items; 15 self-efficacy items); responses dichotomized.

**Results:** 39 participants; 92.3% reported prior contact with palliative care. Median score 7 (IQR 6–9), mean 7.8±3.6; no relevant differences between courses. Conceptual items had higher accuracy rates (e.g., non-pharmacological therapies 94.9%); practical/philosophical items, lower (e.g., emotional closeness 7.7%; transdermal opioid management 20.5%). Self-efficacy: communication and care coordination >50% "able/reasonably able", but gaps remained in clinical management and sensitive situations.

**Conclusion:** knowledge was moderate and heterogeneous; systematic, cross-disciplinary, and interprofessional inclusion of palliative care into undergraduate curricula is recommended, with supervised practice focused on communication, symptom control and shared decision-making.

**Keywords:** Palliative Care; Students, Health Occupations; Interprofessional Education; Aptitude.

## 1 INTRODUCTION

The understanding of palliative care (PC) has been developed throughout its process of definition, most recently updated by the World Health Organization (WHO) in 2018.[1] According to the agreement reached in the Tripartite Intermanagerial Commission (CIT), Article 2 defines palliative care as active and comprehensive care provided by a multidisciplinary team, aimed at improving quality of life and controlling the symptoms and vulnerabilities of patients and their families when facing a potentially life-threatening illness.[2]

Serious, life-threatening illness is understood as health conditions associated with a high degree of mortality, together with impairment of quality of life and functionality, leading to care dependency.[3] These conditions, with or without the possibility of reversal or curative treatment, call for a broad and complex view, with interest in a holistic approach to the individual that respects the suffering of patients and their families, a care model pursued by the practice of PC.

Thus, this broad care approach seeks to prevent and relieve suffering through predefined strategies and guiding principles of PC practice, such as prevention, early identification, individualized treatment, and the management of pain and other physical, psychosocial and spiritual problems.[4] From this perspective, any person affected by a life-threatening illness, whether acute or chronic, with or without curative potential, is eligible for PC services from the moment of diagnosis.[2,3,4]

It is therefore necessary to understand the PC approach as a practice concurrent with disease-modifying treatments, and not only applied to refractory treatments or diseases without curative possibility, through symptom control and relief of suffering.[2,4,5]

Accordingly, understanding the knowledge and skills of health undergraduates regarding palliative care is of utmost importance for the adequate provision of this care and for qualified and efficient professional practice, since the need for PC increases progressively every year and, according to projections, demand for PC at the end of life is expected to double by 2060.[5] This makes it essential for future health professionals to adapt to current demands of demographic and epidemiological transition.[6]

Furthermore, teaching the palliative approach is recommended by reference organizations such as the *European Association for Palliative Care* and the Brazilian National Academy of Palliative Care (ANCP).[6] However, cross-sectional studies with health undergraduates have identified a moderate level of knowledge on PC, with learning gaps and still insufficient skills for adequate practice, varying according to course and academic period.[7] Moreover, despite the recommendations, in Brazil the inclusion of palliative care teaching in undergraduate curricula is still at an early stage and, even when present, the topic is generally addressed in a fragmented way in health courses.[8] In analyses, most health undergraduates stated that there are no academic courses or student leagues focused on palliative care in their institutions, which contributes to the perpetuation of gaps in knowledge and skills regarding PC principles among students.[9,10]

In view of this scenario, and considering the importance of learning knowledge and skills related to palliative care among health undergraduates, it is fundamental to understand students' actual knowledge during their academic training, as well as to foster the teaching of competencies and skills in the field, as a way to improve the care provided and emphasize universal person-centered care. This can be effectively assessed and promoted through evaluation instruments such as quantitative questionnaires for data collection, for example the *Bonn Palliative Care Knowledge Test* (*Bonner Palliativwissenstest* – BPW), a scale developed in Germany in 2011 to assess the knowledge and self-efficacy of students and health professionals in palliative care.[7,11] Therefore, this study aims to assess the knowledge and skills of undergraduates in health courses regarding palliative care, focusing on final-year students at a college in the State of Pernambuco.

Despite regulatory progress, the implementation of PC teaching in undergraduate programs remains heterogeneous and often fragmented, with reports of only moderate knowledge and gaps in skills and self-efficacy among health students. In this scenario, standardized instruments such as the BPW, validated and adapted to Portuguese, make it possible to measure knowledge.

### *Objectives*

To assess, among final-year students of health courses at a private institution in Pernambuco, knowledge of PC and perceived self-efficacy, exploring differences between courses and pointing out curricular implications.

## 2 METHODOLOGY

### 2.1 Method

Observational cross-sectional study conducted at a private higher education institution in the health field located in Recife, Pernambuco, Brazil, aiming to assess knowledge and self-efficacy in palliative care (PC) among students of health courses.

### 2.2 Period

The research was approved by a Research Ethics Committee (REC) and carried out between November 2024 and September 2025, in accordance with CNS Resolutions No. 466/2012 and No. 510/2016.

### 2.3 Participants and sample

Eligible participants were students over 18 years of age, regularly enrolled in the final year of the Nursing, Pharmacy, Physiotherapy, Medicine, Nutrition, Dentistry or Psychology courses of the institution, who consented electronically to participate. Students from other institutions, those on leave or with suspended enrollment, non-graduating students, and those who did not agree to participate were excluded. This was a non-probabilistic convenience sample; because the study was exploratory, no sample size calculation was performed.

### 2.4 Instrument

Data were collected using an online form in two parts. Part 1 was a sociodemographic questionnaire (eight items) covering general characteristics and prior exposure to PC. Part 2 applied the *Bonn Palliative Care Knowledge Test* (BPW), originally developed in Germany (2011) and adapted to Portuguese (2017), composed of 38 statements on a four-point Likert scale (correct; fairly correct; slightly correct; incorrect), distributed in two sections: Section 1 – 23 knowledge items (concepts, symptom management and fundamentals of PC) and Section 2 – 15 self-efficacy items (perceived ability to provide quality PC).

### 2.5 Variables

For knowledge, responses were dichotomized according to the official BPW answer key (items expected to be "correct/fairly correct" scored 1 point when marked in those categories; items expected to be "slightly correct/incorrect" scored 1 point when marked in those categories), generating a total score of 0–23 (higher score = greater knowledge). For self-efficacy, categories were analyzed as proportions per item and, additionally, collapsed into "able/reasonably able" vs. "slightly able/unable" for descriptive synthesis by domain. Sociodemographic variables included course, age and prior contact with PC.

### 2.6 Data collection and data protection procedures

The survey was disseminated online through messages in academic WhatsApp groups containing the link to the *Google Forms*. After reading the electronic informed consent form (ICF), participants gained access to the questionnaire. All data were anonymized, with no collection or disclosure of sensitive identifiers, and stored in a digital repository with access restricted to the researchers, in compliance with the Brazilian General Data Protection Law (LGPD).

### 2.7 Statistical analysis

Descriptive statistics (mean±SD, median [IQR], frequencies and proportions) were calculated to characterize the sample and the outcomes. For exploratory comparisons of the total knowledge score (0–23) between courses, the Kruskal-Wallis test was used, and for proportions (for example, self-efficacy "able/reasonably able") the chi-square test was used. P values were reported for descriptive purposes, without adjustment for multiple comparisons. As an additional good practice, the internal consistency of the knowledge set was assessed using Cronbach's alpha. Analyses were performed in standard statistical software (for example, R or SPSS), with 95% CI when pertinent and reporting of missing data and of the per-item exclusion criterion (available-case analysis).

### 2.8 Ethical aspects

The research was approved by the institution's Research Ethics Committee (approval identifiers omitted to preserve blind review), in accordance with CNS Resolutions No. 466/2012 and No. 510/2016. All participants signed the electronic ICF. There were no financial incentives, and risks were minimal, related only to discomfort in answering questions about PC. Results will be disclosed in aggregate form, preserving confidentiality.

## 3 RESULTS

Thirty-nine health students participated in the study, all in their final year. Most were from the Medicine course (n=25; 64.1%), followed by Psychology (n=8; 20.5%), Nutrition (n=4; 10.3%) and Dentistry (n=2; 5.1%) (Table 1). Regarding previous undergraduate degrees, 84.6% (n=33) had no other degree, while 15.4% (n=6) had already completed a higher education course (Dentistry, Public Management, Social Communication, Law, Pedagogy, Nursing or Architecture). Regarding religion, 48.72% identified as Catholic, 20.51% as Protestant/evangelical and 12.82% as Spiritist (Table 1).

**Table 1: Sociodemographic profile of participants**

| Variable | Category | Frequency (n) | Proportion (%) |
|---|---|---|---|
| Gender | Female | 31 | 79.49 |
| | Male | 8 | 20.51 |
| Religion | Catholic | 19 | 48.72 |
| | Spiritual, Non-Dualism | 1 | 2.56 |
| | Spiritist | 5 | 12.82 |
| | No religion or belief | 4 | 10.26 |
| | Protestant or evangelical | 8 | 20.51 |
| | Umbanda or Candomblé | 1 | 2.56 |
| | Individual belief | 1 | 2.56 |
| Course | Medicine | 25 | 64.10 |
| | Psychology | 8 | 20.51 |
| | Nutrition | 4 | 10.26 |
| | Dentistry | 2 | 5.13 |
| Has another completed higher education degree? | No | 33 | 84.62 |
| | Yes | 6 | 15.38 |
| Has any prior information about PC? | Yes | 36 | 92.31 |
| | No | 3 | 7.69 |

Source: Research data, prepared by the authors, 2025.

Regarding prior knowledge of palliative care, 92.3% (n=36) stated that they had some information, while 7.7% (n=3) reported no prior contact with the topic. All (100%) of the Nutrition, Dentistry and Psychology students reported prior knowledge, compared with 88.0% of the Medicine students. The main sources cited were undergraduate education (32.0%) and the combination of academic training and scientific events (16.0%) (Table 2).

**Table 2: Overall palliative care knowledge score by course**

| Course | n | Mean ± SD | Median | Min – Max |
|---|---|---|---|---|
| Medicine | 25 | 7.92 ± 3.89 | 7 | 4.0 – 23.0 |
| Nutrition | 4 | 6.75 ± 4.19 | 5 | 4.0 – 13.0 |
| Dentistry | 2 | 7.5 ± 4.95 | 7.5 | 4.0 – 11.0 |
| Psychology | 8 | 8.0 ± 2.62 | 8 | 4.0 – 11.0 |
| Total | 39 | 7.79 ± 3.61 | 7 | 4.0 – 23.0 |

Source: Research data, prepared by the authors, 2025.

The analysis of specific knowledge showed weaknesses in practical points. Regarding the statement that palliative care should never be combined with curative treatments, 64.1% of participants classified it as incorrect. Regarding the use of non-steroidal anti-inflammatory drugs in patients regularly using opioids, 38.5% answered “slightly correct” and

30.8% "incorrect". Regarding the administration of subcutaneous fluids for xerostomia at the end of life, 33.3% considered the practice incorrect, while transdermal opioid analgesia was judged appropriate by 48.7%.

Most recognized the importance of non-pharmacological therapies in pain management (82.0%) and of family members remaining with the patient in the last hours of life (41.0% correct; 41.0% fairly correct). Regarding constipation as an unavoidable side effect of analgesia, 35.9% classified the statement as incorrect. Regarding the philosophy of palliative care, 28.2% disagreed with the idea that there are no interventions aimed at maintaining life, while 38.5% considered it correct.

Aspects of communication and humanization were better evaluated. The need to inform patients about their condition was recognized as correct by 48.7%, and 66.7% agreed that spirituality does not depend on religiosity. The "mandatory acceptance" of death was rejected by 43.6% of the students. Most (89.7%) agreed that communication skills can be learned. In addition, 71.8% rejected the idea of avoiding farewell rituals, and 33.3% disagreed that colleagues should not be informed of a patient's death.

In medication management, 64.1% disagreed that antidepressants are inappropriate for pain control, 71.8% rejected the idea that adjuvant analgesics are unnecessary, and 46.2% disagreed that the final phase of life is restricted to the last three days. Additionally, 43.6% recognized that caregivers' feelings may show during care.

In the self-efficacy domain, 56.4% of participants declared themselves able to advise on nausea relief and 61.5% to inform patients and families about available palliative care services. The identification of social problems was considered possible by 46.2%, while 51.3% stated they were able to arrange contact with specialized teams. Communication with anxious patients and families was recognized by 59.0%, and 46.2% reported being able to teach relaxation techniques for pain relief.

In specific situations, 35.9% reported feeling able to deal with patients who express a wish to hasten death. Providing adequate oral care was recognized by 69.2%, especially among Dentistry students. The ability to inform about medication side effects was reported by 64.1%, while 48.7% reported being able to identify psychological problems. Finally, 43.6% stated they were able to integrate cultural aspects of death and dying into care, and 33.3% considered themselves reasonably able.

## 4 DISCUSSION

The results of this study offer a relevant perspective on the knowledge and perceived self-efficacy of health students regarding Palliative Care (PC), a topic of growing importance in health education, particularly in the face of population aging and the increasing incidence of chronic and terminal diseases.

Initially, the predominance of Medicine students among participants (64.1%) is noted. Although this is a common tendency in interprofessional research in the health field, it may introduce sample composition bias and influence response variability, especially in items of technical approach related to clinical management and pharmacology. Furthermore, the participation of Psychology, Nutrition and Dentistry students gives the study an interprofessional character aligned with PC principles.

Regarding prior academic training, most participants (84.6%) had no previous degree, which suggests limited practical experience and, potentially, less prior exposure to scenarios involving end-of-life care. On the other hand, the heterogeneity of the previous degrees mentioned by some respondents points to different repertoires and plural experiences that may enrich the training process.

The high proportion of students who reported prior knowledge of palliative care (94.7%) is encouraging, although it does not necessarily reflect the depth or accuracy of that knowledge. Undergraduate education was the main source mentioned (32.0%), followed by participation in scientific events (16.0%), which reinforces the importance of formal and systematic inclusion of PC in curricula and in continuing education programs in health services. The national literature indicates persistent gaps in undergraduate training; for example, a study of 139 nursing and medical students at a public higher education institution in Minas Gerais found that 82.7% of participants denied having obtained sufficient information about PC during their undergraduate studies (Oliveira, et al., 2025).[12] It was also observed that the tendency to seek further knowledge through classes, congresses or symposia was especially marked among Medicine and Dentistry students, while in Psychology there was greater diversity in learning sources, possibly reflecting a broader and more transversal approach to the topic.

Early contact with PC in undergraduate education, establishing a conceptual basis followed by theoretical-practical alignment, is a promising strategy to strengthen the multiprofessional axis of health undergraduate programs. Evidence

from hospital teams suggests a dissociation between knowledge and self-efficacy, with lower self-confidence among physicians than among other professionals, underscoring the need for supervised practical experiences to consolidate competencies.

Assessing how the topic is addressed during academic training was the starting point of a study of 116 health professionals who make up the multidisciplinary teams of two reference tertiary hospitals in Goiás. Participants were already-trained physicians, nurses, nursing technicians, nutritionists, speech therapists, pharmacists, psychologists, physiotherapists and social workers and, in the overall analysis, a discrepancy between theoretical knowledge and practical experience was noted: although the level of knowledge showed gaps, the discrepancies were small, whereas self-confidence and self-efficacy averaged 39.2% among physicians, lower than among the other members of the multiprofessional team (53.1%) (Teixeira, et al., 2025).[13]

Among the items addressed in the knowledge section (Table 3), the highest accuracy rates occurred in items 5 and 15 (both 94.87%), 23 (87.18%), and 19 and 20 (both 84.62%). In contrast, the items with the highest error rates were 8, 12, 6 and 4, which showed low accuracy percentages (7.69%, 15.38%, 17.95% and 20.51%, respectively). Notably, in item 8 (constant emotional closeness), only three students answered according to the answer key. In another study using the same instrument with 73 medical students, only 5.5% of responses to this statement were correct (Fernandes, et al., 2022).[14] This pattern suggests a possible training deficit in the relational dimensions of PC.

**Table 3: Section 1 (Knowledge) items of the BPW, answers considered correct and percentage of correct responses**

| Item | Expected answers | Frequency (n) | Proportion of correct answers (%) |
|---|---|---|---|
| 1. PC should never be combined with curative treatments | Slightly correct; incorrect | 29 | 74.36 |
| 2. NSAIDs should not be used with regular opioid use | Slightly correct; incorrect | 27 | 69.23 |
| 3. Subcutaneous fluid administration is necessary to relieve xerostomia | Slightly correct; incorrect | 23 | 58.97 |
| 4. Pain management with transdermal opioid is appropriate at the end of life | Slightly correct; incorrect | 8 | 20.51 |
| 5. Non-pharmacological therapies are important in pain management | Fairly correct; correct | 37 | 94.87 |
| 6. For family members, it is important to stay together until death | Slightly correct; incorrect | 7 | 17.95 |
| 7. Constipation should be accepted as a side effect | Slightly correct; incorrect | 23 | 58.97 |
| 8. PC require constant emotional closeness | Slightly correct; incorrect | 3 | 7.69 |
| 9. With age, one learns to deal with pain independently | Slightly correct; incorrect | 18 | 46.15 |
| 10. PC philosophy: no interventions to prolong life | Slightly correct; incorrect | 22 | 56.41 |
| 11. Pain threshold is lowered by anxiety or fatigue | Fairly correct; correct | 21 | 53.85 |
| 12. People with life-threatening illnesses should always be told the truth | Slightly correct; incorrect | 6 | 15.38 |
| 13. Team members do not need to be believers to provide spiritual care | Fairly correct; correct | 32 | 82.05 |
| 14. A person receiving PC must accept death | Slightly correct; incorrect | 28 | 71.79 |

| | | | |
|---|---|---|---|
| 15. Communication skills can be learned | Fairly correct; correct | 37 | 94.87 |
| 16. Other patients should not be informed about a death | Slightly correct; incorrect | 23 | 58.97 |
| 17. Medical treatment always has priority in PC | Slightly correct; incorrect | 25 | 64.10 |
| 18. Farewell rituals and ceremonies should be avoided | Slightly correct; incorrect | 31 | 79.49 |
| 19. Use of antidepressants in pain management is not appropriate | Slightly correct; incorrect | 33 | 84.62 |
| 20. Adjuvant analgesics are not necessary with opioids | Slightly correct; incorrect | 33 | 84.62 |
| 21. Final phase = last 3 days of life | Fairly correct; correct | 16 | 41.03 |
| 22. Caregiver feelings (e.g., disgust) may show | Fairly correct; correct | 22 | 56.41 |
| 23. Physiological needs (e.g., sexuality) are important until the end | Fairly correct; correct | 34 | 87.18 |
| Overall mean of correct responses | | | 59.98 |

Source: Research data, prepared by the authors, 2025.

Responses to statements addressing technical and conceptual aspects of palliative care revealed inconsistencies in students' level of knowledge, evidencing gaps in professional training. This can be exemplified by the fact that half of the participants marked as incorrect the statement that PC should not be combined with curative treatments, an answer aligned with WHO recommendations. In addition, questions of clinical approach with greater specificity, such as the use of non-steroidal anti-inflammatory drugs in patients taking opioids or the administration of subcutaneous fluids for the relief of xerostomia, generated greater indecision, with a high proportion of answers between “fairly correct” and “slightly correct”, denoting conceptual fragility and potential insecurity in decision-making.

It is noteworthy that, among Medicine students, there was a higher rate of correct answers in pharmacological items, consistent with the emphasis placed on technical PC management in this training. In turn, Psychology students showed relatively better performance on questions related to communication and spirituality, consistent with a humanized approach to the patient. These findings suggest a lack of standardization in the conceptual and technical approach to PC among the different areas that make up the team, reinforcing the existing challenges for incorporating PC into curricula and highlighting the need to strengthen the person-centered clinical method (PCCM).

Another noteworthy finding concerns the appreciation of non-pharmacological therapies in pain management, recognized by 64.0% of the sample, a perception that was almost unanimous among Medicine and Dentistry students. On the other hand, the understanding of philosophical and humanistic aspects of PC, such as acceptance of death and the role of communication, religiosity and farewell rituals, showed greater adherence among Psychology students, allowing the inference that training in the human and social sciences can contribute significantly to the humanization of end-of-life care, evidencing the notable importance of an interdisciplinary approach in improving competencies in the field.

Overall, the mean percentage of correct answers in the first section of the study was 59.98%. This result is lower than expected if the BPW validation study (Pfister et al., 2011)[11] is used as a parameter, in which professionals with PC expertise showed a mean knowledge level of approximately 77%. It is worth noting that the study was conducted in Germany, a country that in 2009 enacted a law making the inclusion of PC in the curricula of health courses mandatory, with full implementation due by 2013. In Brazil, by contrast, PC was included in the National Curriculum Guidelines only in 2014, still in a limited form and only for the Medicine course, while the implementation of a mandatory PC course for all health undergraduate programs was approved only in 2023, at the 17th National Health Conference, through Resolution No. 719.[15]

The cross-cultural adaptation of the instrument to Portuguese (Minosso JSM, et al., 2017),[7] applied to nurses and nursing students, showed students with a knowledge level of 58%, a value consistent with the mean obtained in this study.

Taken together, the results found confirm the absence or superficial treatment of the topic during academic training, reinforcing the growing need for continuing education.

Regarding self-efficacy, the results indicate moderate confidence among students in their ability to act in different dimensions of PC. In most domains, the proportions of self-perceived competence did not exceed 50%. Medicine and Nutrition students stood out in their ability to advise on nausea and to inform about available services, while Psychology students were more confident in communicating with patients and families, especially in contexts of anxiety and psychological suffering. Dentistry, in turn, showed greater confidence regarding oral care, but revealed fragility in the other dimensions assessed.

These findings reinforce the need for systematic and transversal inclusion of PC in the curricula of health courses, with emphasis on an interprofessional approach that addresses not only clinical and technical aspects but also the ethical, spiritual, emotional and social components of care. Furthermore, including students in supervised practical settings, in real contact with PC practice, can strengthen self-efficacy, expanding the ability to respond to the complex and sensitive demands inherent in caring for people at the end of life.

In sum, although the health students evaluated have moderate knowledge of PC, it remains fragmented and self-confidence is limited. Since theoretical knowledge does not automatically translate into self-efficacy, strategies that combine structured content, OSCE/simulation and supervised practical scenarios are essential to train multiprofessional teams capable of holistic care. Strengthening training, integrating specific content, practical experiences and a person-centered approach, is fundamental to prepare qualified professionals for the complexity of end-of-life care.

### *List of abbreviations and acronyms*

- BPW – Bonn Palliative Care Knowledge Test
- CIT – Tripartite Intermanagerial Commission
- CNS – National Health Council
- ICF – Informed Consent Form
- IQR – Interquartile Range
- LGPD – Brazilian General Data Protection Law
- ANCP – National Academy of Palliative Care
- OSCE – Objective Structured Clinical Examination
- PC – Palliative Care
- PCCM – Person-Centered Clinical Method
- REC – Research Ethics Committee
- SD – Standard Deviation;
- WHO – World Health Organization.

## 5 CONCLUSION

Final-year health students showed moderate knowledge of PC and limited self-efficacy, with heterogeneity across domains and courses. These findings reinforce the need for systematic, transversal and interprofessional inclusion of PC in curricular matrices, combining conceptual content, supervised practice, OSCE and simulation. Investing in this training is crucial to qualify person-centered care in contexts of chronic disease and end of life. Multicenter studies and educational trials should evaluate the impact of these strategies on competence and clinical performance.

### *Strengths and limitations*

Strengths include the use of a standardized instrument and a focus on final-year students. This study has limitations: a convenience sample from a single center, a small sample size without prior power calculation, possible self-selection and social desirability bias in responses, and the absence of an assessment of the internal consistency of the knowledge set (e.g., Cronbach's α). These factors restrict the generalizability of the findings.

### *Curricular recommendations*

Longitudinal PC modules with interprofessional integration, practical stations and OSCE (e.g., breaking bad news, pain and symptom management), realistic simulation and supervised internships in services with structured PC are recommended, aligned with the person-centered clinical method (PCCM) and with observable competencies (validated rubrics and *checklists*).

## STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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The authors declare no conflicts of interest regarding this manuscript"

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