ORIGINAL ARTICLE

Factors Associated with Confidence in Practicing Palliative Care Among Family Medicine Residents

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Objective: To explored Thai family medicine residents' confidence in palliative care (PC) and associated factors.

Materials and Methods: The present study employed a mixed-methods design, integrating quantitative and qualitative approaches conducted between August and October 2024 among all first- to third-year family medicine residents in certified Thai institutions, using an online self-administered questionnaire. The questionnaire comprised six sections, which are demographics, PC education and experience, knowledge, attitudes, confidence, and a qualitative component consisting of open-ended questions exploring barriers and suggestions related to PC education. The knowledge section included 18 true/false questions, while attitudes were assessed with eight dichotomous questions from agreement/disagreement. Confidence was evaluated using a 9-question binary scale of yes/no. Content validity was evaluated, with an item objective congruence value of 0.91. Multiple linear regression analyses were employed to examine the association. Thematic analysis was used to analyze qualitative data.

Results: Ninety-seven family medicine residents participated. Higher confidence was associated with in-patient visits, extracurricular PC activities, and training at university-based institutions. Qualitative analysis revealed challenges in PC education, including a lack of standardization, insufficient practical experience, and knowledge gaps. Suggestions for improvement included standardizing curricula, increasing practical experience, teaching hours, and having PC specialist in the institution.

Conclusion: While most residents have received PC education, significant disparities exist in their confidence levels. Standardizing PC curricula is recommended to enhance residents' confidence and improve the quality of PC provision.

Keywords: Palliative care; Family medicine; Residents; Confidence; Medical education

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The World Health Organization has recommended that health systems should integrate palliative care (PC) and symptom relief into primary care services to enhance accessibility[1]. As key providers of primary care, family medicine physicians play a crucial role in delivering PC, ensuring that patients with serious illnesses receive the necessary support and treatment. Evidence supports the notion that the involvement of family medicine physicians in PC is associated with improved outcomes for both patients and their families[2-4].

Effective PC delivery necessitates not only knowledge but also a positive attitude and confidence in handling sensitive conversations and symptom management. Research suggests that educational programs focused on palliative and end-of-life care can significantly improve primary care providers' attitudes, confidence, knowledge, and skills in delivering high-quality PC[5].

In spite of their importance, many studies have demonstrated deficiencies in knowledge, attitudes, and confidence in PC skills during their undergraduate medical education[6-9]. These persistent barriers continue to impede effective resident training. Highlighting these shortcomings, research has shown that a substantial proportion of family medicine residency programs, which is up to 25.8%, in the United States and Canada lack formal PC education. Moreover, a noteworthy majority, which is up to 62.5%, lack formal assessment of residents' competencies in this critical area[10].

In Thailand, the Medical Council of Thailand has indicated PC as a requirement in the medical curriculum for family medicine residents since 2018. The required topics include pain management and

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supportive care, end of life care such as advanced care plan, living will, and grief and bereavement, spiritual health, family meeting and counselling, and doctor-patient-family relationship.

Despite the presence of PC curricula for resident education and teaching, variations, such as teaching methods, availability of personnel, and learning resources, exist across medical schools. Furthermore, there is currently no research evaluating family medicine residents' confidence in PC. The present study aimed to explore confidence about PC among Thai family medicine residents and factors associated with their confidence in practicing PC.

Materials and Methods

Design and setting

The present study employed a mixed-methods design, integrating quantitative and qualitative approaches through an online self-administered questionnaire to explore factors associated with family medicine residents' confidence in practicing PC.

Participants and sampling

The population of the present study included all Thai family medicine residents, from the first to the third year under residency training in all certified institutions in Thailand during the academic year 2024. Information from the registry data indicated that there were 544 residents in family medicine during the respective academic year in Thailand. The response rate was 17.8% (97 out of 544).

A power analysis, using 80% power and a significance level of 0.05, was carried out using G*Power[11] to estimate the sample size for multiple linear regression analysis. A moderate effect size of 0.2 and a total predictor of 10 were assumed, resulting in a minimum sample size of 91.

Data collection methods

The questionnaire had been distributed in August 2024, and data was collected until October 2024. The online self-administered questionnaire was distributed individually and in groups to all year 1 to year 3 residents. Pertaining to the online questionnaire, the online research consent form was attached on the first page, explaining the rationale of the study and requesting participants' approval before starting the survey.

Tools and instruments

Quantitative data:

The questionnaire was developed by an interdisciplinary panel of experts in PC. It comprised five parts, as follows, 1) baseline characteristic of family medicine residents, including gender, age, academic year, and training affiliation, 2) information about PC learning experiences during residency training. This part assessed whether residents had received formal learning in eight core topics, which were the concepts of PC, pain management, other symptom management, advance care planning, dying stage, legal and ethics, psychological and spiritual care, and communication. Questions also inquired about PC extracurricular activities, which were defined as voluntary academic engagements outside the core curriculum that were not formally required by the residency program, as well as in-patient, out-patient, and home visiting experiences during training. 3) PC knowledge test, using 18 true or false questions, 4) attitudes towards PC using eight dichotomous questions. Participants were asked to indicate their agreement or disagreement with each statement, and 5) nine questions about confidence in skills for practicing PC. Confidence was assessed as either "yes" or "no", with "yes" indicating a confidence to practice independently and "no" indicating a need for supervision or lower levels of confidence.

Participants' knowledge scores were calculated by summing the scores from 18 knowledge tests, ranging from 0 to 18. Attitude scores were determined by summing the scores from eight attitude questions, ranging from 0 to 8. Confidence scores were estimated by summing the scores from the nine confidence tests, ranging from 0 to 9. The questionnaires were sent to three family physicians who have expertise in research and PC, to examine the content validity. Results showed a high Index of item objective congruence value of 0.91[12].

Qualitative data:

The qualitative component was integrated into the questionnaire through open-ended questions designed to capture information about problems, obstacles, and suggestions regarding teaching and learning about PC. These questions included: "What are the challenges or obstacles you face in learning PC?" and "What improvements would you suggest for PC training?".

Data analysis

The t-test was used to compare confidence scores between subgroups. To examine the association of confidence score, multiple linear regression analysis was employed, with robust standard error

being applied to account for heteroskedascity[13]. An alpha of 0.05 was applied to determine the level of significance. The statistical analyses were carried out using Stata, version 13[14]. To elucidate the qualitative information about problems, obstacles, and suggestions regarding PC teaching, thematic analysis was used.

The qualitative data were analyzed using thematic analysis through a series of systematic steps. Initially, the process began with familiarization, where all responses were read thoroughly to gain an initial understanding of the content. This was followed by the coding stage, during which key phrases and ideas were identified and assigned preliminary codes. Once the codes were established, related codes were grouped together into overarching themes that represented the central ideas in the responses. The authors collaboratively reviewed and discussed the results, which further contributed to the development and refinement of themes. Subsequently, the identified themes were reviewed to ensure they were distinct and comprehensive, capturing all relevant aspects of the data. To maintain rigor and ensure the trustworthiness of the analysis, the data were independently reviewed by two researchers experienced in qualitative analysis. Any discrepancies in coding and theme development were resolved through discussion until a consensus was reached, ensuring the validity and reliability of the findings.

Ethical approval

The present study was approved by the Research Ethics Committee with reference No. EC904/67. Informed consent was obtained from all participants. The residents who participated in the present study had no conflict of interest and were not under any obligation to participate as part of their academic responsibilities or due to faculty influence.

Results

Ninety-seven family medicine residents participated. Participants' characteristics are shown in Table 1. The majority of participants were female, at 61.9%, with a mean age of 29.15 years. Most participants were in their third year of study, at 51.5%, and the majority were affiliated with institutions in the Ministry of Public Health (MoPH), at 72.2%. The most commonly taught palliative topics were the concept of PC, with 94.8%, pain management with 93.8%, and other symptom management with 88.7%. The majority of participants also reported having out-patient, at 77.3%, in-patient at 82.5%, and home visits at 92.8% during the training. Additionally, 62.9% of participants attended extracurricular PC activities, and 77.3% had access to institutional PC specialists. The mean scores for knowledge, attitude, and confidence were 14.91, 4.63, and 7.07, respectively.

Table 1. Demographic characteristics of the samples

Characteristics	Values
Total; n (%)	97 (100)
Age (years); mean [SD]	29.16 [3.3]
Female; n (%)	60 (61.9)
Academic year; n (%)	
1	17 (17.5)
2	30 (30.9)
3	50 (51.5)
Training affiliation; n (%)	
University-based institutions	27 (27.8)
Institutions in the MoPH	70 (72.2)
Palliative topics learnt; n (%)	
Concept of PC	92 (94.8)
Pain management	91 (93.8)
Other symptoms management	86 (88.7)
Advance care planning	85 (87.6)
Dying stage	80 (82.5)
Legal and ethics	59 (60.8)
Psychological and spiritual care	65 (67.0)
Communication in PC	68 (70.1)
Out-patient visit experience; n (%)	75 (77.3)
In-patient visit experience; n (%)	80 (82.5)
Home visit experience; n (%)	90 (92.8)
Attendance in extracurricular PC activities; n (%)	61 (62.9)
Presence of institutional PC specialists; n (%)	75 (77.3)
Knowledge score (out of 18); mean [SD]	14.91 [1.9]
Attitude score (out of 8); mean [SD]	4.63 [1.9]
Confidence score (out of 9); mean [SD]	7.07 [3.2]

SD=standard deviation; MoPH=Ministry of Public Health; PC=palliative care

Table 2 compares the confidence scores by covariates. The analysis revealed that confidence scores were significantly associated with having in-patient visits, attending extracurricular PC activities, and training affiliation. Specifically, participants who had in-patient visits, attended extracurricular activities, and were training in the university-based institutions reported significantly higher confidence scores compared to Institutions in the MoPH.

Table 3 shows the association between confidence score and covariates using multiple linear regression analysis. It can be observed that training at university-based institutions, having in-patient visits, and attending extracurricular PC activities were positively

Table 2. Residents' confidence scores stratified by covariates

Factors	Confidence score; mean (SD)	p-value	Difference scores (95% CI)
Sex		0.270	0.71 (−0.63 to 2.06)
Male	7.51 (2.80)		
Female	6.80 (3.48)		
Out-patient visit experience		0.917	−0.08 (−1.65 to 1.49)
Yes	7.05 (3.26)		
No	7.14 (3.24)		
In-patient visit experience		0.011	2.80 (1.17 to 4.43)
Yes	7.56 (2.89)		
No	4.77 (3.87)		
Home visit experience		0.508	0.85 (−1.68 to 3.38)
Yes	7.13 (3.23)		
No	6.29 (3.50)		
Presence of institutional PC specialists		0.523	0.50 (−1.06 to 2.07)
Yes	7.19 (3.28)		
No	6.68 (3.15)		
Attendance in extracurricular PC activities		0.038	1.53 (0.20 to 2.85)
Yes	7.64 (2.78)		
No	6.11 (3.75)		
Training affiliation		0.019	1.44 (−2.88 to 0.00)
University-based centers	8.11 (2.26)		
Centers in the MoPH	6.67 (3.48)		

SD=standard deviation; CI=confidence interval; MoPH=Ministry of Public Health; PC=palliative care

Table 3. Factors associated with residents' confidence score using multiple linear regression analysis

Factors	Unstandardized coefficient	SE	p-value
Age	−0.255	0.135	0.851
Female (vs. male)	−0.589	0.623	0.347
Training at university-based institutions (vs. MoPH)	1.349	0.650	0.041
Out-patient visit experience	−1.185	0.681	0.086
In-patient visit experience	3.025	0.996	0.003
Home visit experience	0.268	1.171	0.820
Attendance in extracurricular PC activities	1.590	0.712	0.028
Presence of institutional PC specialists	0.053	0.851	0.950
Knowledge score	0.162	0.168	0.338
Attitude score	0.035	0.219	0.874
Constant	2.945	4.422	0.507

SE=standard error; MoPH=Ministry of Public Health; PC=palliative care
Adjusted R-squared=0.2419

associated with higher confidence scores.

Table 4 and 5 unveil the results concerning challenges, obstacles, and suggestions regarding PC education, using thematic analyses. The challenges faced by participants in PC education included a lack of standardization and consistency in curricula, insufficient practical experience and resource person, and knowledge gaps. Participants suggested addressing these challenges through standardization of curricula and guidelines, increased practical experience and skill development, and providing more support for PC specialists and teaching hours.

Discussion

To the best of the authors' knowledge, this is the first study to investigate the factors influencing the confidence of family medicine residents in providing PC. Findings from the present research

Table 4. Results from thematic analyses concerning challenges and obstacles regarding palliative care education

Themes	Subthemes	Exemplar quotes
1. Lack of standardization and consistency	• Varied curricula across institutions	"The PC education is different across institutions."
		"The lack of standardized training across institutions leads to disparities in the quality of care provided to patients. Graduates from different institutions may have varying levels of knowledge and skills, which can impact patient outcomes."
	• Absence of standardized guidelines	"Palliative care does not have a highly specific guideline; most knowledge is acquired through supervised experience with experts."
	• Difficulty to prepare for the exam	"I think it would be better if learning had a standardized guideline to follow. However, I understand that education can be both art and science, which can make exams challenging."
2. Insufficient practical experience and resource person	• Lack of hands-on experience	"The hospital does not have a system for residents to work in palliative care, both in the outpatient and inpatient departments. This lack of exposure hinders their ability to develop necessary skills, as palliative care requires frequent practice."
	• Insufficient PC specialist	"Some institutions lack palliative care specialists or have a limited number of them, resulting in insufficient learning opportunities for residents."
3. Knowledge gaps	• Need improving symptom management education	"The symptom management curriculum is incomplete. For instance, the institution only covers pain, dyspnea, nausea, and vomiting."
	• Need for more in-depth knowledge of specific diseases	"Some lecture topics lack in-depth information and practical application."
	• Institutional support	"There should be an increase in teaching hours."

PC=palliative care

Table 5. Results from thematic analyses concerning suggestions regarding palliative care education

Themes	Subthemes	Exemplar quotes
1. Standardization and consistency	• Need for standardized curriculum and consistent guidelines	"To ensure quality education for all students, there should be a consistent standard of learning across all schools."
2. Practical experience and skill development	• Case studies and hands-on experience	"There should be more real-patient case presentations and opportunities for residents to directly interact with patients and their families."
		"To increase the number of palliative care cases and improve the training of healthcare providers, we should implement a rotation program for trainees to experience a higher volume of palliative patients."
3. Resource allocation and support	• Faculty and staffing	"It would be better to have more PC specialists."
	• Institutional support	"There should be an increase in teaching hours."

PC=palliative care

could contribute to policymakers' decisions regarding curriculum development, with the goal of enhancing the quality of education and patient care in the future.

Results of the present study pointed out the adverse association between in-patient visits and extracurricular activities and confidence in PC practice. This issue was resonated with the qualitative results, which highlighted obstacles related to the lack of practical experience. Another issue echoed this, suggesting an increase in hands-on experience and case studies about PC to develop practical experience and skills.

Pertaining to this, the family medicine training program might consider revising the curriculum for family medicine residents to include a mandatory rotation in in-patient PC services. In addition to providing in-house experience, the training program may engage in collaborative efforts with local in-patient PC programs to create a curriculum tailored to the educational requirements of residents and aligned with the programmatic goals of in-patient care facilities. This would provide residents with valuable hands-on experience in caring for patients with complex medical needs, enhancing their confidence in providing PC.

Similarly, encouraging participation in extracurricular PC activities, such as academic conferences, PC workshops, special training sessions, or elective seminars, can be a valuable strategy for enhancing confidence and knowledge. Encouraging family medicine residents to attend such activities should be promoted to enhance their confidence in

palliative practice.

The present study also found that residents from MoPH institutions had significantly lower confidence scores compared to those from university-based institutions. This disparity may be attributed to factors, such as differences in curriculum structures and support systems. To address this issue, it is essential to investigate specific factors contributing to the lower confidence scores among MoPH residents. Information from this inquiry could be used to improve PC education for family medicine training in the MoPH.

To further enhance resident confidence, the curriculum should be strengthened to prioritize PC education. This could involve increasing the number of specialized PC courses, offering more hands-on clinical experiences, and incorporating evidence-based teaching methodologies.

Additionally, cultivating collaborative relationships between MoPH institutions and universities can facilitate the sharing of curriculum structures, resources, knowledge, and innovative approaches in PC education.

An issue worth noting pertains to suggestions about having a standardized curriculum in PC to ensure the quality of education. This could include specific required lecture topics and teaching hours in the curriculum. Moreover, a suggestion regarding having PC specialists in all training institutions would provide more opportunities for residents to learn from experts and gain valuable insights.

While the present study displayed the residents' confidence in PC practice, assessing residents' confidence levels may not accurately reflect their confidence post-graduation. It is suggested that future research should explore long-term outcomes regarding confidence. Furthermore, future studies may further explore outcomes at higher levels than confidence, such as quality of care, patient outcomes, and institutional impact.

The present study has limitations. First, it relied on participants' self-reported information, which may be subject to recall or response bias. Second, the study included residents from all three academic years, with varying levels of exposure to PC education and clinical practice. Notably, data collection took place between August and October 2024, which corresponded to the beginning of the academic year. At this stage, the first-year residents may not have yet received formal instruction about PC or participated in related clinical rotations. Their limited exposure may have affected their confidence levels, knowledge scores, and ability to respond to open-ended questions, potentially leading to an underestimation or misrepresentation of their true capabilities. Despite this, the inclusion of residents from all training years captures a comprehensive picture of confidence across the residency spectrum and identifies educational gaps at various stages. Ideally, a stratified analysis by training year or a follow-up study after course completion would better reflect the effects of PC training, but this was not feasible due to the limited response rate and sample size.

Conclusion

The present study identified significant disparities in PC confidence among family medicine residents. Factors, including training at university-based institutions, having in-patient visits, and attending extracurricular PC activities, were associated with higher confidence. To improve PC education, increasing in-patient rotations, encouraging extracurricular participation, and standardizing curricula may be recommended, with the aim of enhancing residents' confidence and quality of patient care.

What is already known about this topic?

Family medicine physicians play a vital role in PC, yet confidence in providing PC varies due to differences in education, clinical exposure, and training. Studies have highlighted gaps in PC education, including inconsistent curricula, limited hands-on experience, and inadequate training, leading to disparities in residents' knowledge, attitudes, and confidence.

What does this study add?

This study is the first to assess Thai family medicine residents' confidence in PC and its associated factors. It identifies in-patient visits, extracurricular PC activities, and university-based training as key predictors of confidence. Additionally, it highlights challenges such as inconsistent curricula, insufficient practical experience, and knowledge gaps. The study recommends standardizing curricula, increasing clinical exposure, and ensuring the presence of PC specialists to enhance PC education and training.

Conflicts of interest

The authors declare no conflict of interest.

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