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Original Article

Oncology Section

Knowledge, Attitudes and Practices of Palliative Care among Postgraduate Medical Students: A Multicentre Cross-sectional Study from Kolhapur, India

CHAITANYA R PATIL[1], PRASAD TANAWADE[2], SNEHAL P CHAVAN[3], YOGESH B PATIL[4], AMRUT A SWAMI[5], SATABDI MITRA[6], PRADNYA JADHAV[7], MAHESH PURI[8]

ABSTRACT

Introduction: Palliative care is a multidisciplinary approach designed to enhance the quality of life of patients with life-limiting illnesses. Despite its growing importance, palliative care remains insufficiently represented within Indian postgraduate medical training, leading to gaps in knowledge, attitudes, and clinical practice.

Aim: To assess the Knowledge, Attitude, and Practice (KAP) of postgraduate medical students regarding palliative care in selected medical Institutions across Maharashtra, Karnataka, and Goa.

Materials and Methods: This multicentre, cross-sectional observational study was conducted between August 2021 and January 2022 in tertiary care medical colleges across Maharashtra, Karnataka, and Goa, India A structured, validated online questionnaire was distributed to 1st-, 2nd-, and 3rd-year postgraduate students using Google Forms and Survey Monkey. The survey captured demographic characteristics, levels of KAP, and previous exposure or training in palliative care. Data were analysed using EpiInfo version 7.2. Descriptive statistics summarised variables; Chi-square and Fisher's exact tests assessed associations between categorical variables; Student's t-test and one-way Analysis of Variance (ANOVA) were applied to continuous variables. Principal Component Analysis (PCA) and K-means clustering were used to identify learner profiles. A p-value <0.05 was considered statistically significant.

Results: Of 500 invited students, 345 (69.0%) responded, and analysis was performed on these respondents (n=345). Most participants were aged 24-35 years, 87 (25.22%), with balanced gender distribution males, 179 (51.87%), females, 166 (48.13%). Internal medicine, dental sciences, and orthopaedics were the most represented specialties. Knowledge levels were predominantly average in 182 students (52.75%), attitudes were largely neutral in 194 students (56.23%), and practice levels were moderate in 168 (48.7%) of respondents. Misconceptions persisted, particularly regarding opioid use and the World Health Organisation (WHO) analgesic ladder. Practical exposure was limited, with only 46.96% having participated in palliative rounds. PCA revealed three distinct learner clusters varying in readiness and confidence.

Conclusion: Although foundational knowledge was adequate, gaps in attitude, misconceptions, and limited clinical exposure highlight the need for structured, competency-based palliative-care training within postgraduate curricula.

Keywords: Clinical exposure, Curriculum development, Multicentre study, Palliative care training

INTRODUCTION

Palliative care is an approach designed to improve the quality of life of patients suffering from life-threatening illnesses. It addresses a spectrum of patient needs- including physical, psychological, social, and spiritual dimensions- through comprehensive assessment and compassionate care planning. These goals are achieved through meticulous symptom management, effective communication, and structured advance care planning for patients with serious illnesses [1,2].

Evidence supports the early integration of palliative care in both oncological and non oncological conditions, demonstrating improved patient outcomes and caregiver satisfaction [3-5]. However, the current healthcare education system in India largely emphasises curative approaches, often neglecting holistic, person-centered care, particularly in end-of-life situations. As a relatively new medical super-specialty in developing countries like India, palliative care is yet to be systematically incorporated into undergraduate and postgraduate medical curricula [6,7].

Postgraduate trainees, who will eventually become consultants and medical educators, play a pivotal role in shaping future healthcare delivery. Therefore, their understanding and practice of palliative principles are crucial. Integration of palliative care early in a specialist's medical career can contribute significantly to developing well-rounded, compassionate clinicians- doctors who are not only skilled but also humane [1,5,8,9].

Unfortunately, there is limited literature on the level of preparedness among postgraduates regarding palliative care. Most existing studies are single-center investigations with small sample sizes, limiting the generalisability of their findings [3,4,10]. The lack of structured exposure and formal training creates gaps in KAP among young doctors, despite the increasing relevance of palliative care across medical specialties. The primary objective was to assess the KAP related to palliative care among postgraduate medical students across multiple tertiary medical Institutions. And secondary were to identify distinct behavioural and learner profiles using cluster analysis and PCA, highlighting patterns that may inform targeted educational interventions; to evaluate the extent of prior exposure and formal training in palliative care among postgraduate medical students and to generate baseline data that can guide the design and integration of structured palliative-care training modules in postgraduate medical education.

MATERIALS AND METHODS

The present study was a multicentre, observational, cross-sectional survey conducted using an exploratory design. It was carried out between August 2021 and January 2022 across multiple tertiary care

medical colleges located in the Indian states of Maharashtra (Kolhapur, Pune, and Nagpur regions), Karnataka (Belagavi, Bengaluru, and Hubballi regions), and Goa (North and South Goa districts). This regional distribution ensured inclusion of diverse academic and clinical environments, enhancing representativeness across varied Institutional contexts. Data was analysed during the academic year 2024-2025 (data analysis performed in February 2025). The study was reviewed and approved by the Institutional Ethics Committee (IEC) under registration number ECR/523/Inst/MH/2015/RR-23.

The target population comprised postgraduate medical students enrolled in 1st, 2nd, and 3rd years of training across clinical and para-clinical specialties- including disciplines such as anatomy, physiology, pathology, pharmacology, microbiology, community medicine, general medicine, surgery, obstetrics and gynaecology, anaesthesiology, paediatrics, psychiatry, and oncology, among others.

Inclusion criteria:

- All postgraduate students currently enrolled in recognised medical colleges within the above-mentioned states.
- Students from both clinical and para-clinical departments, irrespective of their year of training.
- Participants who provided electronic informed consent via the online questionnaire platform (Google Forms or Survey Monkey).

Exclusion criteria:

- Undergraduate students, interns, or allied health professionals.
- Postgraduates on extended leave or those who did not provide consent.
- Incomplete or duplicate responses were excluded from final analysis.

Study Procedure

Bias and limitations: Potential selection bias could have arisen due to the voluntary, self-administered online format, which may have favoured participation from students more comfortable with digital tools or those already interested in palliative care. Additionally, the cross-sectional design captures perceptions at a single point in time, which may not reflect longitudinal changes in attitude or practice. Institutional representation across the three states was, however, balanced to minimise regional bias. The survey was administered using online platforms such as Google Forms and Survey Monkey to ensure accessibility and convenience for participants.

Survey Instrument and Development

The study utilised a structured, self-administered questionnaire developed by the research team at *Kolhapur Cancer Centre - Cancer Centers of America* in collaboration with academic faculty from tertiary medical Institutions in Maharashtra, Karnataka, and Goa. The questionnaire was designed specifically for postgraduate medical students and was prepared after an extensive review of validated KAP instruments from previously published studies on palliative care education among medical trainees in India and abroad. Input was also obtained from palliative-care specialists, community physicians, and academic experts in medical education to ensure contextual relevance and conceptual accuracy.

Questionnaire Structure [ANNEXURE 1]

The final tool comprised four sections containing 30 items in total:

1. **Section A - Demographics (5 items):** Age, gender, year of postgraduate training (1st/2nd/3rd), specialty (clinical/para-clinical)
2. **Section B - Knowledge (10 items):** Ten multiple-choice and true/false questions assessing understanding of palliative-care principles, indications, multidisciplinary nature, and opioid use.

   Examples:

   - "Palliative care is restricted to cancer patients only." (True/False)
   - "The primary goal of palliative care is relief from suffering and improvement in quality of life." (True/False)
   - "The WHO analgesic ladder applies only to malignant pain." (True/False)
3. **Section C - Attitude (10 items):** Ten statements rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Examples:
   - "Discussing end-of-life issues should be a routine part of medical care."
   - "All physicians, regardless of specialty, should have basic training in palliative care."
   - "I feel comfortable talking to patients about death and dying."
4. **Section D - Practice and Exposure (5 items):** Items assessing previous involvement, formal training, and application of palliative-care principles.

   Examples:

   - "Have you ever participated in palliative-care rounds or hospice visits?" (Yes/No)
   - "Have you received any structured palliative-care training or coursework?" (Yes/No)

Scoring System

- **Knowledge domain:** Each correct response = 1 point, incorrect/blank = 0 points.

  Total possible = **10 points**.
  - 0-4 = Poor knowledge
  - 5-7 = Average knowledge
  - 8-10 = Good knowledge
- **Attitude domain:** Scores ranged from 10 to 50 (5-point Likert scale × 10 items).
  - 10-25 = Unfavourable attitude
  - 26-40 = Neutral attitude
  - 41-50 = Favourable attitude
- **Practice domain:** Binary responses were scored (Yes = 1, No = 0) with a maximum of 5 points.
  - 0-2 = Poor practice
  - 3-4 = Moderate practice
  - 5 = Good practice

Composite KAP scores were also computed to derive overall learner profiles.

Validation Process

- **Face and content validity:** Evaluated by a 6-member expert panel consisting of palliative-care consultants, medical educationists, and statisticians. Each item was rated for relevance and clarity using a 4-point scale. The Content Validity Index (CVI) for individual items ranged from 0.84-0.96, and the scale-level CVI (S-CVI) was 0.91, indicating strong content validity.
- **Pilot testing:** Conducted on 15 postgraduate students (not included in the final sample) to assess comprehension, timing, and flow. Feedback resulted in minor wording refinements and reordering of two attitude statements for logical sequence.
- **Reliability:** Internal consistency was measured using Cronbach's alpha, yielding:
  - Knowledge = 0.81
  - Attitude = 0.87
  - Practice = 0.79
  - Overall KAP scale = 0.84, confirming satisfactory reliability.

STATISTICAL ANALYSIS

Upon closure of the survey, data was downloaded into Microsoft Excel and exported to Epi Info Version 7.2 (Centers for Disease Control and Prevention, Atlanta, USA) for statistical analysis. Data were first cleaned and screened for missing or inconsistent responses. Duplicate or incomplete submissions were excluded.

Categorical variables such as gender, year of study, exposure to palliative care, and training status were summarised using frequencies and percentages. Continuous variables were assessed for normality using the Kolmogorov-Smirnov test. Normally distributed data were expressed as mean and Standard Deviation (SD), while non normally distributed variables were reported as median and Interquartile Range (IQR). Additionally, PCA was employed to reduce the dimensionality of the attitude section and identify underlying components. Cluster analysis using K-means was applied to classify participants into distinct KAP profiles based on their standardised scores. The number of clusters was determined based on interpretability and inertia minimisation.

RESULTS

A total of 500 postgraduate medical students were invited to participate in the survey, of whom 345 responded (69.0%) and were included in the final analysis.

The demographic characteristics of the 345 postgraduate medical students included in the study are presented in [Table/Fig-1]. The age distribution shows that the cohort was predominantly young, with 86.1% of participants falling within the 24-35-year age range. Among these, the largest proportion belonged to the 33-35-year group (26.09%), followed closely by students aged 24-26 years (25.22%) and two equal groups aged 27-29 years and 30-32 years (24.35% each). Gender representation was nearly balanced, with a slightly higher proportion of males (51.87%) compared with females (48.13%). The distribution across residency years demonstrated an even spread, with 1st-year residents forming the largest group (35.36%), followed by 2nd-year (32.75%) and 3rd-year trainees (31.88%). Participants represented a broad mix of clinical specialties, ensuring diverse academic backgrounds within the sample. Internal medicine (12.75%), dental sciences (12.17%), and orthopaedics (11.88%) were the most common fields, collectively constituting more than one-third of the total sample. Other prominently represented specialties included paediatrics (10.72%), Ear, Nose and Throat (ENT) (10.43%), Obstetrics and Gynaecology (OBSGYNAE) (10.14%), and dermatology (9.86%). Anaesthesia (8.12%), surgery (6.96%), and radiology (6.96%) contributed smaller but meaningful proportions.

Category	Subcategory	n (%)
Age group (in years)	24-26	87 (25.22%)
	27-29	84 (24.35%)
	30-32	84 (24.35%)
	33-35	90 (26.09%)
Gender	Male	179 (51.87%)
	Female	166 (48.13%)
Year of residency	1st year	122 (35.36%)
	2nd year	113 (32.75%)
	3rd year	110 (31.88%)
Specialty	Internal medicine	44 (12.75%)
	Dental sciences	42 (12.17%)
	Orthopaedics	41 (11.88%)
	Paediatrics	37 (10.72%)
	ENT	36 (10.43%)
	OBSGYNAE	35 (10.14%)
	Dermatology	34 (9.86%)
	Anaesthesia	28 (8.12%)
	Surgery	24 (6.96%)
	Radiology	24 (6.96%)

[Table/Fig-1]: Demographic profile of study participants (N=345).

More than half of the respondents demonstrated average knowledge (52.75%), whereas 29.28% exhibited good knowledge and 17.97% had poor knowledge [Table/Fig-2]. Attitude scores revealed that the majority held a neutral attitude (56.23%), while 41.74% showed unfavourable attitudes toward palliative care, and only 2.03% had a favourable attitude.

Category	Subcategory	n (%)
Knowledge level	Average	182 (52.75%)
	Good	101 (29.28%)
	Poor	62 (17.97%)
Attitude level	Neutral	194 (56.23%)
	Unfavourable	144 (41.74%)
	Favourable	7 (2.03%)
Practice level	Moderate	168 (48.7%)
	Good	92 (26.67%)
	Poor	85 (24.64%)

[Table/Fig-2]: Distribution of Knowledge, Attitude and Practice (KAP) levels (N=345).

Practice scores indicated that *moderate practice* was most common (48.7%), followed by *good practice* (26.67%), whereas 24.64% reported *poor practice*.

High levels of correct responses were recorded for foundational principles such as the goal of palliative care (94.49%), inclusion of psychosocial support (93.33%), and the multidisciplinary nature of the care team (94.49%) [Table/Fig-3].

Knowledge question	True (Correct)	False (Incorrect)	Correct answer
Palliative care is only for terminally ill cancer patients	254 (73.62%)	91 (26.38%)	False
The main goal of palliative care is to relieve suffering	326 (94.49%)	19 (5.51%)	True
Palliative care includes pain management, psychological support, and bereavement care	322 (93.33%)	23 (6.67%)	True
Opioids should not be used in non cancer pain	182 (52.75%)	163 (52.75%)	False
A palliative care team includes physicians, nurses, and social workers	326 (94.49%)	19 (5.51%)	True
Palliative care can begin at the time of diagnosis of a serious illness	308 (89.27%)	37 (10.73%)	True
The WHO analgesic ladder is applicable only to cancer pain	112 (32.46%)	233 (67.54%)	False
Palliative care focuses only on physical symptoms	96 (27.83%)	249 (72.17%)	False
Palliative care improves outcomes even when curative treatment is ongoing	301 (87.24%)	44 (12.76%)	True
Opioids used in palliative care always lead to addiction	78 (22.61%)	267 (77.39%)	False

[Table/Fig-3]: Distribution of responses to knowledge-based questions on palliative care.

However, misconceptions persist regarding opioid use: nearly half the participants incorrectly believed opioids should not be used in non cancer pain (52.75%), and only 32.46% correctly recognised that the WHO analgesic ladder is not restricted to cancer pain. Additionally, 27.83% mistakenly believed palliative care focuses only on physical symptoms.

Responses showed substantial variability across items [Table/Fig-4]. While many participants agreed with the importance of communication, early integration of palliative care, and Institutional

support (e.g., dedicated palliative care services), there was notable hesitation around personal comfort in discussing death and choosing palliative medicine as a career.

Attitude question	Score 1	Score 2	Score 3	Score 4	Score 5
I feel comfortable discussing death with patients	45 (13.0%)	56 (16.2%)	70 (20.3%)	92 (26.7%)	82 (23.8%)
Palliative care should be introduced early in the course of illness	32 (9.3%)	54 (15.7%)	89 (25.8%)	101 (29.3%)	69 (20.0%)
Providing palliative care is the responsibility of all physicians, not just specialists	40 (11.6%)	53 (15.4%)	90 (26.1%)	85 (24.6%)	77 (22.3%)
I would consider a career in palliative medicine	47 (13.6%)	55 (15.9%)	89 (25.8%)	88 (25.5%)	66 (19.1%)
I believe palliative care training should be mandatory during postgraduate education	48 (13.9%)	58 (16.8%)	87 (25.2%)	86 (25.0%)	66 (19.1%)
I feel confident assessing physical symptoms in end-of-life patients	52 (15.1%)	62 (18.0%)	92 (26.7%)	81 (23.5%)	58 (16.8%)
Discussing prognosis honestly helps patients and families cope better	28 (8.1%)	44 (12.8%)	96 (27.8%)	103 (29.9%)	74 (21.4%)
Opioid usage in palliative care is safe when appropriately monitored	39 (11.3%)	59 (17.1%)	102 (29.6%)	88 (25.5%)	57 (16.5%)
All hospitals should have a dedicated palliative care service	22 (6.4%)	41 (11.9%)	84 (24.3%)	108 (31.3%)	90 (26.1%)
Communication skills are essential for providing quality palliative care	19 (5.5%)	38 (11.0%)	77 (22.3%)	112 (32.5%)	99 (28.7%)

[Table/Fig-4]: Distribution based on the questions related to attitude.

The highest positive responses (scores 4 & 5) were observed for:

- Communication skills are essential (61.2%)
- Hospitals should have dedicated palliative care services (57.4%)
- Early introduction of palliative care (49.3%)

In contrast, lower agreement was seen in:

- Comfort discussing death (50.5% scoring 4 or 5)
- Career interest in palliative medicine (~44.6%)
- Confidence in end-of-life symptom assessment (~40.3%)

Overall, the table shows generally positive attitudes, though personal readiness and confidence remain limited in several key areas.

A total of 53.04% of respondents reported receiving structured palliative care training, and 57.39% had managed end-of-life patients during clinical postings. However, only 46.96% had participated in palliative rounds or hospice visits, indicating limited hands-on exposure [Table/Fig-5].

Practice question	Yes n (%)	No n (%)
Have you participated in palliative care rounds or hospice visits?	162 (46.96%)	183 (53.04%)
Have you received structured palliative care training or coursework?	183 (53.04%)	162 (46.96%)
Have you managed patients requiring end-of-life care during your clinical postings?	198 (57.39%)	147 (42.61%)
Do you routinely assess pain using standard pain scales (VAS/NRS)?	176 (51.01%)	169 (48.99%)
Do you feel confident applying basic principles of symptom management?	154 (44.64%)	191 (55.36%)

[Table/Fig-5]: Distribution of practice-related responses.

Pain assessment practices showed moderate adherence, with 51.01% routinely using standard pain scales. Confidence in applying symptom management principles was low (44.64%), highlighting a gap between theoretical knowledge and clinical implementation.

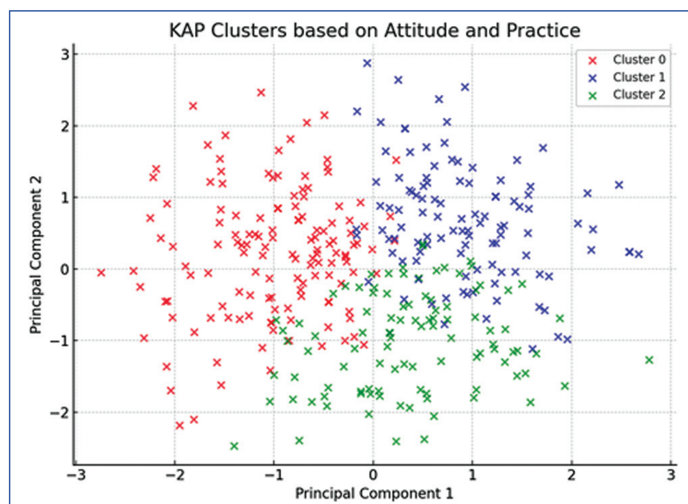
Clustering of participants based on attitude and practice scores, derived from K-means or PCA-based clustering. Three distinct clusters emerged:

- **Cluster 0:** Moderate scores across most attitude items, reflecting average openness and moderate readiness.
- **Cluster 1:** Mixed profile with relatively higher confidence in specific items (e.g., Attitude Q5), but lower motivation scores in others.
- **Cluster 2:** High scores on several attitude indicators (particularly Q1 and Q4), reflecting a more proactive and positive attitude toward palliative care [Table/Fig-6].

KAP Cluster*	Attitude Q1	Attitude Q2	Attitude Q3	Attitude Q4	Attitude Q5
0	2.74	3.47	2.43	2.82	2.13
1	2.85	3.07	3.2	2.24	4.01
2	3.99	2.06	3.58	4.08	2.91

[Table/Fig-6]: Cluster profiles based on attitude.
*Clustering based on PCA Analysis

The PCA-based visual separation of the three KAP clusters, illustrating how participants group based on combined KAP characteristics are displayed in [Table/Fig-7]. The scatter plot demonstrates clear spatial separation between clusters, supporting the validity of the cluster analysis. Cluster 2 appears more cohesive and distinct, whereas clusters 0 and 1 show partial overlap.



[Table/Fig-7]: Scatter plot showing clustering based on first two principal components derived from PCA of KAP variables.

DISCUSSION

The current study assessed the KAP regarding palliative care among postgraduate medical students in Maharashtra, Karnataka, and Goa. When compared to existing national and international literature, our findings align with broader trends while offering additional insights due to the diversity and methodological approach of the study. In terms of knowledge, only 29.3% of participants demonstrated good understanding, with the majority displaying average (52.8%) or poor (17.9%) knowledge. This mirrors findings from a 2024 cross-sectional study in Jordan by Younis WY and Hamdan-Mansour AM, where medical students possessed moderate knowledge, particularly in symptom management, but lacked awareness in family communication and end-of-life decision-making [11]. Similarly, a study in Pakistan by Altarifi AA et al., reported a mean PaCKS score of 9.7/13, with exposure being a key determinant of better knowledge [10]. Misconceptions such as equating hospice with palliative care persisted, a trend reflected in our study where 26.4% incorrectly believed palliative care is limited to terminal cancer patients.

Compared to undergraduate studies in India, our postgraduate cohort showed relatively better awareness. A study from Puducherry by Rajagopal MR and Kumar SK revealed that only 15.8% of undergraduate students were aware that palliative care should begin at diagnosis, although a large proportion supported its inclusion in the curriculum [12]. In the current study, 44.1% of postgraduate students believed palliative care training should be mandatory, indicating a more mature and clinically grounded perspective likely influenced by their level of training and patient exposure. This observation was further reinforced by the inclusion of students from diverse specialties and states, enhancing the representativeness and generalisability of our results.

Attitudinally, the present study found that only 2% of participants exhibited a favourable outlook toward palliative care, and fewer than half felt comfortable discussing death with patients. This is less optimistic compared to Jordanian students who demonstrated stronger empathy on the Frommelt Attitude Toward Care of the Dying Scale, Form B (FATCOD-B) scale [11]. However, our use of cluster analysis revealed three distinct learner profiles- uncertain but receptive, open and empathetic, and proactive and confident- allowing us to understand underlying variability and tailor educational strategies accordingly. This analytical approach distinguishes our study, as most previous research treated learners as a homogeneous group.

In terms of practice and training exposure, our data showed that 50.7% had prior exposure and 53.0% received formal training in palliative care. These figures are higher than those reported in similar studies from Pakistan [10] and among Indian undergraduates [12], reflecting some progress in postgraduate curricula. However, the gap between training and practical application persists, underscoring the need for more clinically integrated learning experiences. Misconceptions around opioid use and limited understanding of the WHO analgesic ladder were noted in the current study cohort, consistent with prior studies from Maharashtra and Bihar [13,14]. These recurring gaps suggest systemic curricular shortcomings across educational levels and Institutions.

The strength of the present study lies not only in its diverse sample- spanning three Indian states and multiple clinical disciplines- but also in its methodological rigour. The use of PCA and cluster modelling offered a nuanced view of learners' cognitive and attitudinal domains, a novel feature in palliative care education research. This analytical depth supports the design of stratified, competency-based interventions, which are essential given the variability in learners' readiness and attitudes.

Curriculum Integration: A Global Gap

The lack of structured teaching in palliative care remains a consistent gap across studies worldwide. In the Indian context, while the National Medical Commission (NMC) recommends elective modules in palliative care, it has yet to mandate its integration as a core component of postgraduate medical education [6]. The present study, along with supporting evidence from countries such as Jordan and Pakistan, as well as other regions within India, underscores the urgent need for a standardised curriculum that effectively addresses both theoretical knowledge and practical competencies. Furthermore, the current study application of PCA and cluster modelling offers a novel approach to visualising the cognitive and affective domains of learners. This methodological advancement strengthens the pedagogical value of study and provides a data-driven foundation for informed curriculum development and educational policy planning in palliative care.

Cluster analysis further demonstrated heterogeneous learner profiles, revealing distinct groups that differ in readiness, confidence, and openness toward palliative-care principles. Although foundational knowledge is strong, the findings collectively indicate the need for structured, competency-based palliative care training within postgraduate medical education. Strengthening clinical exposure, communication skills, and symptom-management competencies is essential to bridge the gap between theoretical understanding and effective practice. Overall, the study underscores the urgent importance of integrating comprehensive palliative care teaching into medical curricula to better prepare future clinicians for holistic, patient-centered care.

Limitation(s)

Although, it was conducted across three Indian states and included a diverse postgraduate cohort, the findings may not be fully generalisable due to regional and Institutional differences in exposure and curriculum. Data collection through a Google Forms-based online survey may have introduced selection bias, excluding students with limited internet access or lower digital literacy. The self-reported nature of the responses also carries a risk of recall and social desirability bias. The cross-sectional design prevents causal inference between training and KAP levels. Furthermore, the absence of qualitative validation methods such as interviews or faculty assessments limits deeper interpretation. Despite these limitations, the study provides important insights and a valuable foundation for strengthening palliative care education.

CONCLUSION(S)

The present study highlights that while postgraduate medical students possess a generally adequate understanding of the core principles of palliative care, significant gaps persist-particularly in areas related to opioid use, pain management, and the broader scope of the WHO analgesic ladder. Attitudes toward palliative care were largely neutral, with very few students demonstrating a clearly favourable outlook. Practice levels remained moderate, reflecting limited hands-on exposure, insufficient clinical engagement in palliative rounds, and low confidence in end-of-life symptom assessment.

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PARTICULARS OF CONTRIBUTORS:
1. Consultant, Department of Palliative Medicine, Kolhapur Cancer Centre, Kolhapur, Maharashtra, India.
2. Senior Consultant, Department of Radiation Oncology, Kolhapur Cancer Centre, Kolhapur, Maharashtra, India.
3. Scientist-E (Medical), Department of Occupational Health, ICMR-National Institute of Occupational Health, Ahmedabad, Gujarat, India.
4. Assistant Professor, Department of Community Medicine, Dr. D. Y. Patil Medical College, Kolhapur, Maharashtra, India.
5. Associate Professor, Department of Community Medicine, Dr. S. S. Tantia Medical College, Hospital and Research Centre, Sri Ganganagar, Rajasthan, India.
6. Assistant Professor, Department of Community Medicine, KPC Medical College and Hospital, Kolkata, West Bengal, India.
7. Assistant Professor, Department of Community Medicine, Rajiv Gandhi Medical College, Thane, Maharashtra, India.
8. Assistant Professor, Department of Community Medicine, ESIC Medical College and Hospital, Sanath Nagar, Telangana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Chaitanya R Patil,
Consultant, Department of Palliative Medicine, Kolhapur Cancer Centre, A/p. R. S. No. 238, Opp. Mayur Petrol Pump, Gokul Shirgaon-416004, Kolhapur, Maharashtra, India.
E-mail: docterchaitanya@gmail.com

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- For any images presented appropriate consent has been obtained from the subjects. NA

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[ANNEXURE 1]

KAP of Palliative Care among Postgraduate Medical Students

SECTION A – DEMOGRAPHIC DETAILS (5 ITEMS)

1. Age (in completed years):
   ☐ 24–26 ☐ 27–29 ☐ 30–32 ☐ 33–35 ☐>35
2. Gender:
   ☐ Male ☐ Female ☐ Other/Prefer not to say
3. Year of Postgraduate Training:
   ☐ 1st year ☐ 2nd year ☐ 3rd year
4. Specialty:
   ☐ Internal Medicine ☐ Surgery ☐ Paediatrics ☐ Orthopedics
   ☐ OBGYN ☐ ENT ☐ Anaesthesiology ☐ Dermatology
   ☐ Radiology ☐ Dental Sciences ☐ Community Medicine
   ☐ Pathology/Microbiology/Pharmacology/Physiology/Anatomy
   ☐ Other (specify): ____________
5. Previous Exposure to Palliative Care:
   ☐ Yes ☐ No

SECTION B – KNOWLEDGE (10 ITEMS)

(True/False)

1. Palliative care is only for terminally ill cancer patients.
   ☐ True ☐ False
2. The main goal of palliative care is to relieve suffering and improve the patient's quality of life.
   ☐ True ☐ False
3. Palliative care includes pain management, psychological support, and bereavement care.
   ☐ True ☐ False
4. Opioids should not be used in non cancer pain.
   ☐ True ☐ False
5. A palliative care team includes physicians, nurses, counselors, and social workers.
   ☐ True ☐ False
6. Palliative care can begin at the time of diagnosis of a serious illness.
   ☐ True ☐ False
7. The WHO analgesic ladder is applicable only to cancer-related pain.
   ☐ True ☐ False
8. Palliative care focuses only on physical symptoms.
   ☐ True ☐ False
9. Palliative care improves patient outcomes even when curative treatment is ongoing.
   ☐ True ☐ False
10. Opioids used in palliative care always lead to addiction.
   ☐ True ☐ False

SECTION C – ATTITUDE (10 ITEMS)

(Likert Scale: 1=Strongly Disagree to 5=Strongly Agree)

1. I feel comfortable discussing death with patients.
2. Palliative care should be introduced early in the course of serious illness.
3. Providing palliative care is the responsibility of all physicians.
4. I would consider a career in palliative medicine.
5. Palliative care training should be mandatory during postgraduate education.
6. I feel confident assessing physical symptoms in end-of-life patients.
7. Discussing prognosis honestly helps patients and families cope better.
8. Opioid usage in palliative care is safe when appropriately monitored.
9. All hospitals should have a dedicated palliative care service.
10. Communication skills are essential for quality palliative care.

SECTION D – PRACTICE AND EXPOSURE (5 ITEMS)

1. Have you participated in palliative care rounds or hospice visits?
   ☐ Yes ☐ No
2. Have you received structured palliative care training or coursework?
   ☐ Yes ☐ No
3. Have you managed patients requiring end-of-life care during your clinical postings?
   ☐ Yes ☐ No
4. Do you routinely assess pain using standard scales (VAS/NRS)?
   ☐ Yes ☐ No
5. Do you feel confident applying basic principles of symptom management?
   ☐ Yes ☐ No