

Evaluation of Medical Students' Knowledge on Palliative Care: A Single Institution Cross-sectional Study

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Background: Palliative care is the branch of medicine which has a target of setting focus on the improvement of the quality of life of patients, particularly toward their end of life, such as cases of terminal diseases with low prognosis. Despite growing recognition of the importance of palliative care, a gap remains in medical education. Our study aims to evaluate the current level of knowledge of medical students in regard to palliative care.

Methods: A cross-sectional descriptive study was conducted in Batterjee Medical College, Jeddah, Saudi Arabia, through a period of three months from December 2021 to March 2022.

Results: A total of 254 students participated in our study. Psychosocial and spiritual needs of the patient alongside definition of palliative care were perceived the most important by the students with a mean score of 3.9 each.

Conclusion: Our study concludes that there is an overall lack of confidence among medical students in providing palliative care. We recommend further enhancement and implementation of palliative care as part of undergraduate mandatory courses.

Keywords: medical education, palliative care, undergraduate education, end of life care, medical students, curriculum improvement

Introduction

Palliative care is a branch of medicine that focuses on providing a wide range of relief from various sources of disease-related distress.¹ Despite growing recognition of the importance of palliative care, a gap remains in medical education.² Palliative care (PC) provides an essential aspect of clinical management and support to various patients and their families.³ According to the World Health Organization (WHO), palliative care is looked to as an approach that enhances the quality of life for patients and their families.⁴ During their careers, all doctors will at some point be involved in the care of patients dying, thus future doctors need to be well-prepared for this.⁵ Our study aims to evaluate the current level of knowledge of medical students in regard to palliative care.

Materials and Methods

Study Design and Setting

A cross-sectional descriptive study conducted in Batterjee Medical College, Jeddah, Saudi Arabia, through a period of three months from December 2021 to March 2022.

Study Population and Sampling Technique

Medical education in Saudi Arabia lasts seven years and consists of a one-year foundation year program (FY1) prior to the first year of medical school (M1). The remaining six years consist of three years (M1, M2, M3) focusing on basic sciences, two years (M4, M5) focusing on clinical sciences, and one year (M6) of obligatory internship. Students from M1 to M5, studying at Batterjee Medical College, not transferred from any other medical institution were included in this study. All students of the faculty of medicine, attending the Batterjee Medical College, were eligible to participate in the study. The minimum sample size was calculated considering a level of confidence of 95%, expected prevalence of 50%, and precision of 0.05 and was found to be 232. To comply with the physical distancing rules in response to the COVID-19 pandemic, recruitment of study participants was done through online invitations on different platforms of social media and in-person interviews conducted with the participants on campus. The survey platform used to administer the survey was Google Forms. Participation was voluntary and participants had the right to withdraw at any time.

Study Tool

The questionnaire used in this research is based on the work of Weber et al.⁶ The questionnaire contained three components, two of which we utilized in our study. The first component was “perceived importance and education received”. This first part of the questionnaire was based on a translation of the questionnaire done by Weber et al.⁶ and was elaborated with 11 statements concerning various aspects of palliative care. Participants were asked to evaluate these 11 aspects in two ways (as shown in Table 1). The second component was “self-reported confidence”. This part was also based on a translation of the questionnaire by Weber et al.⁶ Students were asked to report their confidence level with regard to 10 situations in which palliative care was required (as shown in Table 2). The final component was “knowledge”. This portion was evaluated by utilization of the palliative care knowledge questionnaire PEACE-Q.⁷ Copyright permission for the utilization of the PEACE-Q questionnaire has been purchased and obtained from the original publisher and the authors of the study. No further translation of the questionnaire was needed due to that the primary language used in the medicine program of Batterjee Medical College is English. A pilot study with five M5 students was conducted. The students filled out the questionnaire to establish the comprehensibility, clarity of the questions, handling, and duration. No further changes were needed. A link was then formulated and sent to the study participants. The data were analyzed using SPSS v23. To obtain descriptive results, data were analyzed in line with Weber et al.⁶ For perceived importance and education, it was reported on a 5-point scale. A score of 3 or below was considered to be an indicator of the item being unimportant and not sufficiently covered, for perceived importance and education respectively. Permission for using the PEACE-Q questioner has been obtained.

Ethical Considerations

Approvals from Ethics and Scientific Committees (UB-RES-2022) of Batterjee Medical College were obtained before the conduction of the study. Informed online consent was obtained from each participant; the aim of the study was clearly explained and the “Agree to participate” icon was a condition before proceeding in responding to the questionnaire items. Participation was voluntary and participants had the right to withdraw at any time. Data were collected anonymously and the confidentiality of collected data was guaranteed.

Table 1 Characteristics of the Study Participants

		N (254)	%
Gender	Male	77	30.3
	Female	177	69.7
Academic year	Preclinical (M1, M2, M3)	209	82.3
	Clinical (M4, M5, M6)	45	17.7
Age	Mean	20.9	

Table 2 Students' Views on Palliative Care Education and Perception of its Importance (N Students = 254) (Scale 1–5; 1 = Lowest Score; 5 = Highest Score)

Question	Perceived Importance Mean (SD)	Education Received Mean (SD)
Definition of palliative care	3.9	1.3
Patient-focused work with palliative care patients	3.8	1.2
Knowledge of symptom control in palliative patients	3.6	1.3
Communication with palliative care patient and their care system	3.7	1.3
Psychosocial and spiritual needs of the patient	3.9	1.2
Knowing what kind of care is available for palliative patients and who plays a role in it	3.8	1.2
Can work with various health-care providers in the care of palliative patients	3.7	1.3
Ethical issues concerned with the end of life	3.6	1.4
Grief and loss	3.6	1.4
Reflection on own ideas about death and dying	3.6	1.4
Self-care for physicians in providing palliative care	3.6	1.3

Data Analysis

The collected data were statistically analyzed using statistical package for social studies (SPSS) version 23 created by IBM, Chicago, IL, USA. Categorical variables were presented as numbers and percentages. For perceived importance and education, it was reported on a 5-point scale. A score of 3 or below was considered to be an indicator of the item being unimportant and not sufficiently covered, for perceived importance and education respectively. For self-reported confidence levels and the knowledge, scores were calculated within answer categories. The scores for self-reported confidence were coded into “confident” for scores of 3 or more and not “not confident” for scores of 2 or less. For knowledge, several categories were considered and are listed below:

1. Philosophy of palliative care (questions 1–3 in Table 4)
2. Cancer pain (questions 4–12 in Table 3)
3. Side effects of opioids (question 13–15 in Table 4)

Table 3 Self-reported Confidence in the Domains of Palliative Care (N Students = 254)

	Non-confident % (Score 1–2)	Confident % (Score 3–5)
Integrating the psychological aspects of treating and supervising severely ill and dying patients, I feel ...	14.0	86.0
Communicating with severely ill and dying patients, I feel ...	30.1	69.9
When explaining to a patient that their tumor-specific treatment (eg chemotherapy) will be changed to palliative care, I feel ...	32.5	67.5
Treating and guiding terminally ill and dying patients, I feel ...	36.5	63.5
Assessing and examining patients with cancer pain, I feel ...	42.9	57.1
The basic principles and contents of palliative care, I feel ...	36.1	63.9

(Continued)

Table 3 (Continued).

	Non-confident % (Score 1–2)	Confident % (Score 3–5)
Treating symptoms that might occur in advanced cancer, I feel ...	37.5	62.5
Treating cancer pain, I feel ...	41.4	58.6
Integrating the spiritual aspects of treating and guiding severely ill and dying patients, I feel ...	33.7	66.3
Overall mean	33.9	66.1

Table 4 Knowledge Extrapolated in Relation to Four Topic Scores (%) (N Students = 254)

	Correct Answer	Wrong Answer	Unsure	Questions Used in Table 4	N Items
Philosophy of palliative care	29.8	16.3	53.9	1–3	3
Cancer pain	27.3	16.5	56.2	4–12	9
Side effects of opioids	47.9	16.9	35.2	13–15	3
Dyspnea	27.2	22.2	50.6	16–18	3
Nausea and vomiting	34.1	17.8	48.0	19–21	3
Psychological distress	46.9	12.6	40.6	22–24	3
Delirium	31.0	15.4	53.6	25–27	3
Communication	43.4	21.0	35.6	28–30	3
Community-based palliative care	30.4	17.6	52.0	31–33	3

4. Dyspnea (questions 16–18 in Table 4)
5. Nausea and vomiting (questions 19–21 in Table 4)
6. Psychological distress (questions 22–24 in Table 4)
7. Delirium (questions 25–27 in Table 4)
8. Communication (questions 28–30 in Table 4)
9. Community-based palliative care (questions 31–33).

Results

Demographics Data

A total of 254 students participated in our study. Among the participants, males 30.3% (77) represented a smaller portion of the sample, whereas the majority were females 69.7% (177). Our participants ranged from first year to senior year medical students in which preclinical students represented 82.3% (209) and clinical year students represented 17.7% (45). The mean age for the participants was 20.9. (Table 1) shows a summary of the demographic data.

Students' Views

We evaluated the students views on palliative care education and how they perceived its importance (Table 2). Psychosocial and spiritual needs of the patient alongside definition of palliative care were perceived the most important by the students with a mean score of 3.9 each. In addition, the students reported two metrics to be the least for which they

received education for, patient-focused work with palliative care patients, psychosocial and spiritual needs of the patient, and knowing what kind of care is available for palliative patients and who plays a role in, each with a mean score of 1.2.

Self-reported Confidence

Self-reported confidence in the domains of palliative care was evaluated (Tables 3 and 4) shows a summary of the knowledge extrapolated in relation to four topic scores. Assessing and examining patients with cancer pain was show to be the most domain in which students reported lack of confidence in 42.9%. In contrast, integrating the psychological aspects of treating and supervising severely ill and dying patients ranked first among the domains which students reported highest confidence in 86.0%. The knowledge extrapolated in relation to four topic scores was assessed and the item which was answered correctly the most was related to the side effects of opioids whereas the item which students showed most wrong answers in was in the questions related to dyspnea. Answers to 33 questions exploring knowledge (%) in responding students is shown (Table 5).

Table 5 Answers to 33 Questions Exploring Knowledge (%) in Responding Students (N Students = 254)

	Correct	Wrong	Do Not Know
Philosophy of palliative care			
Palliative care is synonymous with terminal care	83	66	105
In Japan, 50% or less of the general population believe that, if they have cancer, they want to feel secure about receiving cancer treatment and living without severe pain	71	27	156
The total consumption of opioids for pain is less in Japan than in the UK, Canada, and Germany	73	31	150
Cancer Pain			
When cancer pain is severe, one of the third-step drugs of WHO's Pain Relief Ladder is used as an initial analgesic	94	31	129
When opioids are initially prescribed, all non-opioid analgesics should be discontinued	69	58	127
Morphine is used safely in a patient with renal failure	62	76	116
The rescue dose of opioid is 5% of the total daily dose	47	24	183
Because the tolerance does not occur for opioid-induced nausea, an antiemetic should be prescribed for all patients	68	41	145
Total dose of daily opioids increases by 10% if pain is unrelieved	62	44	148
Opioid rotation or switching should be considered when it is difficult to increase the dose of opioid	82	32	140
About 10% of the patients with controlled baseline pain have breakthrough pain	66	39	149
Invasive dental procedures should be avoided during bisphosphonate treatment	75	32	147
Side Effects of Opioids			
Opioid-induced nausea and/or vomiting occur in 80% or more of patients taking opioids.	95	40	119
It is necessary to use a laxative together with oral opioids, because most patients who take opioids experience constipation	89	48	117
Opioids cause addiction in 0.2% or less of cancer patients under careful monitoring	84	41	129
Dyspnea			
If a patient has dyspnea, the PaO ₂ of the patient is under 60 torr	68	52	134

(Continued)

Table 5 (Continued).

	Correct	Wrong	Do Not Know
Morphine is effective for dyspnea	66	69	119
If room temperature is maintained higher (hot), a patient with dyspnea often experiences relief	73	48	133
Nausea and vomiting			
The neurotransmitters in the vomiting center are dopamine, histamine, acetylcholine, and serotonin	103	49	102
The neurotransmitters in the vomiting center are dopamine, histamine, acetylcholine, and serotonin	94	39	121
Prochlorperazine sometimes causes akathisia	63	48	143
Psychological Distress			
When a patient has a high level of psychological distress, clinicians are recommended to examine whether the patient has suicidal ideation	129	25	100
When the patient has suicidal ideation, psychiatric consultation is recommended	133	38	83
An anxiolytic is one of the useful medications for patients with psychological distress	95	33	126
Delirium			
Delirium occurs due to drugs or physical etiologies	95	26	133
Benzodiazepines should be used first for delirium	64	60	130
It is better to make the room pitch black for a patient with delirium, so that he or she can sleep well	77	31	146
Communication			
An open-ended question means that it cannot be answered with a simple “yes” or “no”, and requires an unrestricted answer based on the subject’s own feelings	139	28	87
When physicians convey bad news, they should ask the patient’s concern and understanding about the disease	124	53	77
It is better to repeatedly use the word “cancer” when telling the patient about his or her malignancy	68	79	107
Community-based palliative care			
There is a consultation support center in all designated cancer centers	93	36	125
All terminally ill cancer patients 40 years of age can access long-term care insurance	53	51	150
All designated clinics with home hospice function have a 24-hour seven-day system	86	47	121

Notes: Used with permission of Mary Ann Liebert Inc., from The palliative care knowledge questionnaire for PEACE: reliability and validity of an instrument to measure palliative care knowledge among physicians, Yamamoto R, Kizawa Y, Nakazawa Y, Morita T, 16, 11 2013; permission conveyed through Copyright Clearance Center, Inc.²⁰

Discussion

Our study showed that there is a relative lack of confidence towards a wide range of elements related to palliative care. Many elements were shown to not be covered properly in the educational curriculum. Various studies from different countries (Table 6) showed results like ours that shed light on the gap and the lack of preparedness of medical students to provide palliative care. Anneser et al reported that German medical students go through distress frequently in end-of-life care.⁹ This finding is in line with our results from Table 4 that show the fact the majority of students claim to be unsure about most of the domains related to palliative care. However, among our findings in Table 3, which evaluated self-reported confidence of students, most students reported to be confident, which is an alarming sign shedding light on a false perception the students have toward their levels of confidence.

Table 6 Summary of Key Findings from Other Studies

Reference	Study Title	Sampled Population	Key Findings	Country of the Study
Gibbins et al ⁶	Why are newly qualified doctors unprepared for patients at the end of life?	26 FYI doctors	Undergraduate education is currently failing to prepare junior doctors in their role for caring for dying patients	UK
Chen et al ⁷	Medical education in the United States: do residents feel prepared	2287 US medical graduates	Residents may feel less prepared facing professional issues such as end-of-life care	USA
Storriari et al ⁸	Confidence in palliative care issues by medical students and internal medicine residents	293 students and 43 residents	Facing terminally ill patients aids in better confidence with providing palliative care	Brazil
Abuhammad et al ¹⁷	Knowledge of pediatric palliative care among medical students in Jordan: A cross-sectional study	326 medical students	Medical students had inadequate knowledge regarding palliative care. Only gender was identified as a significant metric to differentiation in knowledge	Jordan

Reasons for false perception vary, a specific reason was addressed by Zimmermann et al¹⁰ which found that there is a strong stigma attached to palliative care which may persist even after positive experiences with an early palliative care intervention. Another study conducted by Helen B. Miltiades²¹ found that almost 40% of students reported not having sufficient knowledge. A study conducted by Leung and Wong¹¹ investigated the confidence of students in providing palliative care and their findings showed that 59.5% were non-confident in providing palliative care. Our study while exploring the knowledge of students had three parameters, correct, wrong, and I do not know, the latter showed to be the most utilized answer by our respondents which reflects the lack of confidence, a finding which is consistent with that of Leung and Wong.¹¹

Deficiency in undergraduate medical students' knowledge is a serious issue which has been highlighted from various perspectives in several studies. A study conducted by Spruit et al¹² revealed that the majority of students in the United States stated that they did not get palliative care education whereas just 22% of physicians revealed that they received some form of palliative care education, highlighting a wide gap. Another study conducted in Malaysia including 292 undergraduate medical students and 69 pediatricians found that only a quarter of the respondents thought they have familiarity with fundamentals of palliative care knowledge.¹³

A specific domain related to the lack of education on certain psychosocial aspects which was a contributor to the relative lack of confidence in knowledge with palliative care. Several studies had findings in line with such a finding. Best et al¹⁴ found a confusion present between religious aspects and certain spiritual domains. In their study they investigated and found that such a finding is one of the major contributing factors to reluctance of doctors to discuss palliative care aspects related to spirituality with patients. Another study done by Ellis et al¹⁵ found that doctors, on very rare occasions, discuss issues around spirituality with patients in medical consultations. These findings likely stem from the fact the medical school curriculums are primarily based on a biopsychosocial model rather than biopsychosocial-spiritual model.¹⁶ Certain studies address challenges in palliative care education in different parts of the world as the Asia-Pacific region has shown interesting findings and a different scope of challenges. An interesting study conducted by Mills et al¹⁸ stated there has been progress toward palliative care development in medical education. This progress has been evidenced by many findings including educational preparation, use of medicines, and palliative care services provision in the Asia-Pacific region. International efforts outside the USA have been notable as well. The UK recognized palliative medicine as a core specialty in 1987 and since then massive efforts have been done to constantly and repeatedly update guidelines on palliative care education.¹⁹

Limitations

Certain limitations existed in our study. First the inclusion of a single medical school only may have resulted in the generation of results that may not necessarily reflect the overall level of palliative care knowledge of medical students across Saudi Arabia. In addition, the gap present between preclinical and clinical year participants may have led to a somewhat uneven comparison between the different groups due to the varying level of knowledge.

Conclusion

Our study concludes that there is an overall lack of confidence among medical students in providing palliative care. Moreover, an alarming finding was that false perception of good knowledge was present among medical students at an alarming rate evident by most students perceiving themselves as confident with various aspects of providing palliative care yet answering wrongly or being unsure regarding the vast majority of aspects related to palliative care information. Finally, we recommend further enhancement and implementation of palliative care as part of undergraduate mandatory courses.

Data Sharing Statement

Data supporting the findings of the study are available upon request from the corresponding author.

Ethics Approval and Consent to Participate

An informed consent was obtained from all the participating individuals, all the participants had the right to withdraw from the study at any time.

Acknowledgments

The authors would like to thank Reema Dakhilallah Alghanmi, Waqqas Zubair, Nuha Fatima Khan, Taif Mansour, and Bushra Wadi Bin Saddiq who helped in data collection.

Author Contributions

All authors made significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted, and agree to be accountable for all aspects of the work.

Funding

No funding was provided for this study.

Disclosure

The authors report no conflicts of interest in this work.

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