Palliative Care Knowledge, Among Physicians in King Abdullah Medical City, Makkah, Saudi Arabia, 2024, Cross Section Study

ABSTRACT

Aims: To estimate the level of understanding of non-palliative physicians regarding the palliative approach and to identify areas of weakness in their management of advanced terminal symptoms.
Study Design: An observational study was conducted among physicians at a single center using a cross-sectional design.
Location and Duration of Study: King Abdullah Medical City, Makkah, Kingdom of Saudi Arabia.
Methodology: The sample size was determined using ROA software based on the number of physicians. A validated survey was used from a comparable study conducted in Vietnam. The data was transmitted via an electronic iteration of the authorized survey. Statistical significance will be assessed using a significance level of $P < 0.05$ and a confidence range of 95%.
Results: The study included a sample size of 80 individuals, with the highest proportion (37.5%) belonging to the age group of 31-40 years. The findings revealed that 57.5% of the participants have knowledge about comprehensive and appropriate palliative care. The study found significant positive correlations between healthcare provider practices and education ($r: 0.360$, $P <0.001$), as well as comprehensive Palliative Care Practices ($r: 0.476$, $P <0.001$). A negative correlation was seen between knowledge and belief of end-of-life ($r = -0.358$, $P <0.001$). Statistically significant correlations were observed between knowledge of palliative care and age ($p =0.028$), degree ($P <0.001$), and clinical practice area ($P =0.004$). The pain management category showed a significant positive correlation with healthcare providers and practices ($r: 0.316$, $P =0.004$).
Conclusion: The findings revealed that physicians possessed insufficient knowledge in the areas of pain management and palliative care. Knowledge is associated with age, educational attainment, and belief in the end-of-life. The study recommended the implementation of additional specialized facilities and the establishment of more efficient palliative care education programs.

Keywords: knowledge, pain management, palliative care, physicians

1. INTRODUCTION

Palliative care is considered a specialty with a holistic approach, as the World Health Organization (WHO) defines palliative it's the specialty that alleviates patient suffering including physical symptoms e.g. Pain as well as psychosocial and spiritual suffering. However, access to palliative care is limited in low and middle-income countries compared to high-income countries [1].

The goal of Palliative Medicine is to enhance the quality of life for patients and their families who are dealing with life-threatening diseases, not just at the end of life. Several challenges are associated with palliative care, such as the lack of specialized training for doctors and the availability of some medications such as opioids [2]. According to current data, it is expected that a significant portion of the global population will require palliative care due to various long-term conditions approach towards the end-of-life phase [3].

In many cases, the terminal phase is no longer a single event that leads to death but becomes an extended process that can last months or even years depending on the illness. Consequently, palliative care is seen as a viable option to provide dignified care for patients in their final stages of life, particularly those with cancer or severe neurological conditions [4,5].

Improving quality of life through appropriate care during this stage is vital from a human rights perspective, public health standpoint, and in pursuit of equitable end-of-life care. There is a global consensus on prioritizing citizens' access to palliative care as part of this human rights objective [6].

To ensure comprehensive care for patients in their final stages of life, it is crucial to attain an appropriate level of knowledge. Additionally, exposure to palliative care within clinical training years is important either as the undergraduate or postgraduate level. This includes addressing topics related to death and caregiving while raising awareness among the general population about palliative care [7].

Ensuring a high quality of life for patients at the terminal stage leads to a big role of resident doctors that evolved beyond a curative approach, now encompassing a more holistic and humanized perspective with a focus on the biopsychosocial aspects of care [8].

Drawing from existing studies on palliative care practices worldwide, this research aims to estimate knowledge of palliative care among non-palliative physicians [9,10].

The researcher's rationale is based on one similar study conducted in Vietnam in 2019, they selected this topic based on real clinical experiences that have highlighted a lack of understanding in managing palliative symptoms, providing end-of-life care, and stabilizing palliative cases.

2. LITERATURE REVIEW

In 2019 Lulu Tsao and colleagues conducted a study about knowledge, attitude, and self-assessment among physicians in Vietnam [7]. the study was conducted via a valid survey composed of 3 categories to assess palliative care. The survey assesses pain, opioid prescription, physical symptoms, psychological, social, spiritual, ethics, communications, and principles of palliative care. The Cronbach has been used to measure internal consistency with a very good internal consistency result. The sample size of this study was 392, with a reduced p-value of 0.0014 considered statically significant. Speaking about sample size about

one-third work in cancer centers, one-third in general medicine units, and 15 % work at HIV units.

Most participants did not receive a previous education in palliative specialty. A 90 % of them have been prescribed narcotics previously for pain mainly and less for shortness of breath. The results show that 75 % have appropriate medical attitudes but they answer only 44 % of knowledge questions correctly. 8% believed they had adequate learning and only 11 % felt they had adequate pain training [11].

Lulu Tsao conducted further study based on his survey of palliative care knowledge among physicians, in this study, he involved 392 physicians post comprehensive courses that last from 6 to 18 months. In this period Tsao used different models of learning either theoretical or bedside clinical. Post-training the result shows a significant increase in knowledge, self-assessment, and attitude with p p-value of 0.001 which is considered significant [12].

Dr. Pohl from the Medical University at Vienna conducted a survey to compare the old vs new curriculum with establishing palliative care teaching in the new one. This study was conducted between 2 groups, the first one was a 149 interns' group and the second group was 4th year medical students. The results show a higher level of knowledge among the new curriculum students with a p-value of 0.0001 compared to the intern group. Both groups show significant willingness to learn more about palliative care and from here a new suggestion was raised to introduce palliative care at medical college grades to improve future medical physicians' knowledge [13].

In 2021, Jaimi Martin published a cross-sectional study that was conducted in 600 healthcare professionals, 226 nurses, and 335 physicians, a total of 34.4 % of nurses and 67. 4 % of physicians show good to excellent knowledge. Physicians' scores for pain, dyspnea, and psychiatric disorders were greater than those of the nurses. Nurses scored significantly better in philosophy. Considering factors affecting knowledge the age and work experience of physicians and undergraduate training in nurses had significant weight in knowledge. This result leads us to suggest developing continuous training and enhancing undergraduate training in palliative care will lead to improved patient care at the end of life [14]. The objective of this study is to estimate the knowledge of a palliative approach to non-palliative physicians and to identify weak points regarding managing advanced terminal symptoms in non-palliative physicians.

3. MATERIAL AND METHODS

3.1 Study Design and Population

This is a cross-sectional, single-center, observational study among physicians working in King Abdullah Medical City, Makkah, KSA, 2024. Included in the study are physicians of both genders, from any age at oncology, hematology, and emergency department physicians. The physicians who are currently working in the palliative department, Physicians who refused to participate, and Undergraduate physicians are excluded from this study. 80 sample size calculated via ROA soft based on the physicians' number at the ER, hematology, and oncology departments in King Abdullah Medical City, Makkah, KSA.

3.2 Data Collection and Management

A valid survey from a similar study conducted at Vietnam was used, the surveys are a standard quantitative method to uncover misconceptions or misunderstandings in a specific population about a specific topic.

The data was delivered through an electronic version of the valid survey and this data not show any nominative information, after verification, data transferred to a secured statistical database.

3.2 Statistical Analysis

Data were analyzed using statistical product and service solution (SPSS), software version 23 (IBM Corp., Armonk, New York). For data analysis, descriptive statistics was applied to all variables. Proportion and frequency for qualitative variables mean and standard deviation for quantitative variables if normally distributive, and by median and interquartile range if not normally distributed. Analytic statistics was applied in the form of Chi-Square test for qualitative variables, and t-test for quantitative variables. Statistical significance will be considered at P value < 0.05 and a Confidence interval of (95%).

4. RESULTS

This cross-sectional study included a total of 80 participants, with the greatest percentage (37.5%) falling within the age range of 31-40 years. The majority of participants were male (70%) who had a Master of Science degree with the job title of Assistant Consultant. The participants' area of expertise in clinical work was specifically in Emergency Medicine, as indicated in Table 1.

Table 1. Demographic characteristics of 80 study samples.

Demographics		**N**	**Min**	**Max**	**Mean**	**SD**
Age		80	26	56	36.91	7.8
				Count		**%**
Total				80		100.0
Age	<=30			24		30.0
	31-40			30		37.5
	>40			26		32.5
Gender	Male			56		70.0
	Female			24		30.0
Degree	Consultant			17		21.3
	M.Sc (Assistant Consultant)			32		40.0
	Board (Resident)			20		25.0
	Fellow			8		10.0
	MBBS (General practitioner)			3		3.8
Area of clinical work	Emergency Medicine			37		46.3
	Hematology			16		20.0
	Oncology			27		33.8

Table 2 presents the participants' knowledge of palliative care. A study revealed that 52.5% of the participants were aware that non-opioid analgesics, such as paracetamol or ibuprofen, are the preferred initial treatment for cancer pain. 87.5% of the participants were aware that the presence of prolonged pain, even after receiving treatment with codeine and paracetamol, was a clear indicator to initiate the use of morphine. However, a mere 53.8% of the individuals accurately recognized the negative consequence of morphine, namely angioedema.

156 **Table 2. Assessment of Physicians knowledge of palliative care.**
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Variables		Count	%	Incorrect	Correct
Total		80	100.0		
What type of pain is often difficult to control, even with morphine?	Somatic pain	15	18.8	41(51.3)	39(48.8)
	Visceral pain	11	13.8		
	Neuropathic pain	39	48.8		
	Bone pain	15	18.8		
A patient with pain or dyspnea who has not taken any opioids in the past should be started on what oral dose?	10-20 mg every 8 hours as needed	10	12.7	47(59.5)	32(40.5)
	10-20 mg every 4 hours as needed	4	5.1		
	5-10 mg every 4 hours as needed	32	40.5		
	1-2 mg every 4 hours as needed	33	41.8		
	Missing	1			
According to the WHO analgesic ladder, what should be the first treatment for cancer pain?	A mild opioid such as codeine	14	17.5	38(47.5)	42(52.5)
	Nonopioid analgesics such as paracetamol or ibuprofen	42	52.5		
	Morphine	14	17.5		
	Reassurance	10	12.5		
What is a typical indication for starting morphine?	Pain with swallowing in patients with AIDS.	2	2.5	10(12.5)	70(87.5)
	Persistent pain despite treatment with codeine and paracetamol in patients with cancer.	70	87.5		
	Mild chronic lower back pain in patients who do not have cancer.	2	2.5		
	A patient with cancer and bony metastases but without pain.	6	7.5		
Which of the following is not a common side-effect of morphine?	Nausea	6	7.5	37(46.3)	43(53.8)
	Sedation	13	16.3		
	Constipation	18	22.5		
	Angioedema	43	53.8		
What does it mean if a cancer patient who has pain is physically dependent on morphine?	They may start taking extra doses of morphine compulsively, even when they do not have pain.	30	37.5	62(77.5)	18(22.5)
	A patient may begin to think about morphine all the time.	17	21.3		
	If morphine use suddenly stops, patients will experience withdrawal symptoms.	18	22.5		

	If their pain goes away, the patient will want to keep taking the morphine	15	18.8		
What does pseudo-addiction mean?	The patient has addictive behavior but has well-controlled pain	33	41.3	47(58.8)	33(41.3)
	The patient has addictive behavior that is not improved when additional doses of morphine are given.	13	16.3		
	The patient has addictive behavior but is willing to admit his addiction.	19	23.8		
	The patient has addictive behavior but also has uncontrolled pain.	15	18.8		
All of the following medications can be used to control nausea except:	Haloperidol	20	25.0	46(57.5)	34(42.5)
	Metoclopramide	9	11.3		
	Dexamethasone	17	21.3		
	Amitriptyline	34	42.5		
What is an appropriate morphine dose for breakthrough pain?	5 mg of morphine	39	49.4	60(75.9)	19(24.1)
	10 mg of morphine	8	10.1		
	5-15% of the daily dose	19	24.1		
	15-25% of the daily dose	13	16.5		
	Missing	1			
Which of the following is not included in an ideal, complete palliative care assessment?	Disease history and physical symptoms	9	11.3	34(42.5)	46(57.5)
	Psychological symptoms	5	6.3		
	Decision-making capacity	9	11.3		
	Spiritual needs	5	6.3		
	Practical needs and anticipatory planning for death	6	7.5		
	All of the above are included.	46	57.5		
Which of the following is a stimulant laxative at conventional doses?	Bisacodyl	38	47.5	42(52.5)	38(47.5)
	Sodium docusate	22	27.5		
	Mineral oil	9	11.3		
	Oral naloxone	11	13.8		
When a dying patient is treated with morphine for breathlessness, the drug is titrated based on:	Respiratory rate	40	50.0	52(65.0)	28(35.0)
	Pulse oximetry	6	7.5		
	Patient's comfort	28	35.0		
	Blood pressure	6	7.5		
	Scopolamine	16	20.0	38(47.5)	42(52.5)
	Metoclopramide	42	52.5		

Which of the following antiemetics acts primarily at dopamine receptors?	Haloperidol	14	17.5		
	Diphenhydramine	8	10.0		
In discussing an uncertain prognosis, it is best to:	Reassure the patient and family that all will be well	16	20.3	42(53.2)	37(46.8)
	Warn the family that the outcome is likely to be poor	17	21.5		
	Discuss possible outcomes, including likelihood	37	46.8		
	Say that no one knows what will happen	9	11.4		
	Missing	1			
When should palliative care be initiated?	When a patient is actively dying	11	13.8	49(61.3)	31(38.8)
	When a patient has a lot of symptoms such as pain or shortness of breath.	38	47.5		
	When a patient is first diagnosed with metastatic cancer.	31	38.8		
Objectives of palliative include	Maintain life by any means	2	2.5	44(55.0)	36(45.0)
	Promote adherence to ARV or cancer therapy.	3	3.8		
	Improve quality of life	16	20.0		
	All of the above	23	28.8		
	B and C	36	45.0		
Palliative care can be provided	In an outpatient setting.	2	2.5	28(35.0)	52(65.0)
	In the hospital.	15	18.8		
	b and c only.	11	13.8		
	All of the above.	52	65.0		
Ethical issues in palliative care include	Social justice.	4	5.1	17(21.5)	62(78.5)
	Autonomy.	3	3.8		
	Beneficence.	1	1.3		
	Non-maleficence.	1	1.3		
	Assuring that patients do not die in pain.	8	10.1		
	All of the above.	62	78.5		
	Missing	1			
Breaking bad news well is important because	It saves time.	1	1.3	45(57.0)	34(43.0)
	The patient can be harmed emotionally if bad news is given in an inappropriate way.	9	11.4		
	When it is given well, the patient /doctor relationship is strengthened.	11	13.9		

	All of the above.	34	43.0		
	b and c only.	24	30.4		
	Missing	1			
Important parts of the psycho-social assessment include:	Living situation.	3	3.8	17(21.8)	61(78.2)
	Financial status.	4	5.1		
	Family caregiver.	7	9.0		
	Community support.	3	3.8		
	All of the above.	61	78.2		
	Missing	2			
Which of the medicines below does not cause constipation?	Iron sulfate	4	5.1	30(38.0)	49(62.0)
	Anticholinergic	20	25.3		
	Anti-viral.	49	62.0		
	Opioids.	6	7.6		
	Missing	1			

The results additionally indicated that 57.5% of the participants possess knowledge about the comprehensive and optimal palliative care, including the understanding of disease history and physical symptoms, psychological symptoms, decision-making ability, spiritual requirements, practical needs, and preparation for death. Over 50% of the participants were aware that metoclopramide predominantly targets dopamine receptors.

Regarding the location of palliative care provision (65%) of ethical problems related to palliative care (78.5%), as well as significant aspects of psycho-social assessment (78.2%) and non-constipating medicines (62%), were answered correctly by over half of the participants.

Table 3 displays the reliability data for the palliative care scales. The Cronbach's Alpha values for Healthcare Provider Practices and Education in Palliative Care, Competence and Training in Palliative Care, Pain Management and Knowledge of Palliative Care, and Healthcare Provider Concerns are 0.767, 0.596, 0.620, and 0.694, respectively. The values suggest that the scales demonstrate good internal consistency, indicating a moderate level of reliability. The Cronbach's Alpha for Comprehensive Palliative Care Practices is 0.847. This scale exhibits strong internal consistency, indicating a high level of reliability in assessing complete palliative care methods. The Healthcare Provider Concerns survey yielded a Cronbach's Alpha coefficient of 0.711. The scale has strong internal consistency, indicating high reliability in assessing healthcare provider concerns pertaining to palliative care. However, the Beliefs About End-of-Life Care scale and the Positive Palliative Approach scale had Cronbach's Alpha values of 0.306 and 0.22, respectively. The scales demonstrate a lack of strong internal consistency, indicating a low level of reliability.

Table 3. Reliability statistics of the Study domains using Cronbach's alpha.

Reliability Statistics	Cronbach's Alpha	N of Items
Healthcare Provider Practices and Education in Palliative Care	0.767	10
Comprehensive Palliative Care Practices	0.847	9
Competence and Training in Palliative Care	0.596	4
Beliefs About End-of-Life Care	0.306	3
Positive Palliative Approaches	0.277	3
Pain Management	0.620	7
Healthcare Provider Concerns	0.711	7
Knowledge on Palliative Care	0.694	21

Table 4 presents the correlation analysis between healthcare provider practices and education, and other domains. The study revealed a significant and positive relationship between Healthcare Provider Practices and Education in Palliative Care, Comprehensive Palliative Care Practices (r:0.638, p<0.001), and Competence and Training in Palliative Care (r:0.645, p<0.001). This implies that increased involvement in palliative care practices and education leads to more extensive palliative care practices and training. The pain management category exhibited a significant positive association with healthcare providers and practices, suggesting that increased involvement in palliative care practices and education leads to improved pain management practices (r: 0.316, p=0.004). The Positive Palliative Approaches exhibited a modest positive association, indicating that a greater level of involvement in palliative care practices and education is associated with a higher prevalence of positive palliative approaches (r: 0.207, p=0.066). The study did not find any statistically significant correlations between beliefs regarding end-of-life care (r: -0.082, p=0.468) and Health care provider worries (r:0.153, p=0.174).

Table 4. Correlation of each domain to other palliative care domains.

Correlations		Comprehensive Palliative Care Practices	Competence and Training in Palliative Care	Beliefs About End-of-Life Care	Positive Palliative Approaches	Pain Management	Healthcare Provider Concerns
Healthcare Provider Practices and Education in Palliative Care	r	0.638**	0.645**	-0.082	0.207	0.316**	0.153
	p-value	<0.001	<0.001	0.468	0.066	0.004	0.174
	N	80	80	80	80	80	80
Comprehensive Palliative Care Practices	r		0.610**	-0.179	0.202	0.422**	0.202
	p-value		<0.001	0.112	0.073	<0.001	0.072
	N		80	80	80	80	80
Competence and Training in Palliative Care	r			-0.134	0.324**	0.443**	-0.079
	p-value			0.237	0.003	<0.001	0.485
	N			80	80	80	80
Beliefs About End-of-Life Care	r				-0.089	-0.016	-0.018
	p-value				0.435	0.890	0.873
	N				80	80	80
Positive Palliative Approaches	r					0.206	-0.291**
	p-value					0.067	0.009
	N					80	80
Pain Management	r						-0.064
	p-value						0.571
	N						80

***. Correlation is significant at the 0.01 level (2-tailed).*

Correlation analysis was conducted to determine the relationship between Knowledge of Palliative care and other domains as shown in Table 5. Strong favorable relationships were seen between healthcare provider practices and education (r:0.360, p= 0.001) as well as complete Palliative Care Practices (r:0.476, p < 0.001). These findings suggest that a stronger understanding of palliative care is linked to improved behaviors, more thorough care, and enhanced competence and training. The presence of these notable positive correlations indicates that having knowledge of palliative care is linked to enhanced practices, comprehensive care, and competence. This supports the validity of the scales in measuring these constructs. Conversely, a notable negative association was seen between Knowledge and thoughts regarding end-of-life (r:-0.358, p=0.001). Higher proficiency in palliative care is linked to a reduction in negative attitudes towards end-of-life care. The study did not find any statistically significant connections between Positive Palliative Approaches (r:0.098, p = 0.388) and Healthcare Provider Concerns (r:0.221, p = 0.049). Consequently, there is no correlation between knowledge of palliative care and the implementation of effective palliative approaches or the concerns of healthcare providers.

This study also examined the association between demographic variables and knowledge about palliative care, as presented in Table 6. Correlation analysis shown substantial variations in knowledge of palliative care based on age (p=0.028), degree (p<0.001), and clinical work area (p=0.004). Consultants and individuals in the field of oncology exhibited greater levels of knowledge. Table 6 further presents the parameter estimates for the level of understanding of palliative care. Age, educational attainment, and beliefs toward end-of-life matters exhibited substantial effects on knowledge. Assistant Consultants and individuals with an MSc degree have a greater level of knowledge compared to others. Conversely, individuals who hold negative ideas on end-of-life care have a lower level of knowledge.

5. DISCUSSION

The knowledge of palliative care among physicians in King Abdullah Medical City, Makkah, Saudi Arabia, was determined and evaluated in this study. Palliative care knowledge is particularly important for physicians, as they are the primary providers of patient care. Training and exposure are factors that influence palliative care knowledge. Although some physicians have a comprehensive knowledge, others may have limited awareness, which can affect the quality of patient care.

The findings of the research indicated that the physicians' understanding of palliative care was limited. The optimal and comprehensive palliative care was correctly determined by only 57.5% of the participants. Teng et al [2] conducted a cross-sectional study in Shanghai, China, which yielded a similar outcome. The mean correctness of the responses related to knowledge was 59.30%. The KAPHC scale was employed in their investigation to evaluate the knowledge, attitude, and practice of healthcare providers. The results indicated that higher KAPHC scores were correlated with experience and willingness, and that they varied based on professional specializations. The palliative care knowledge of the nurses and physicians was assessed using the Palliative Care Knowledge Test (PCKT) in the study conducted by Martín-Martín et al. [1]. A total of 34.41% of the nurses and 67.40% of the physicians exhibited adequate or excellent knowledge of palliative care.

The present study yielded a significantly higher result than the clinicians who participated in the study conducted by Abdel Gawad et al. [4] in primary clinics in Kuwait. Palliative care services were unfamiliar to 62.7% of the physicians, while only 6.7% possessed a high level of knowledge. The study conducted by Swed et al. [8] also demonstrated that only 14 out of 602 participants, including students, nurses, and physicians, are considered to possess

knowledge of palliative care. The study conducted by Tsao et al. [7] in Vietnam also revealed a lack of knowledge regarding palliative care. Only 8% of the participants felt that they were adequately trained in palliative care, and the mean knowledge assessment score was 44%. The observed discrepancy in the results could be attributed to a variety of factors, such as variations in the study population's characteristics, including occupation, educational attainment, work ward, and the outcome of a palliative care training program.

Effective pain management for individuals with terminal illnesses is one of the primary goals of palliative care. Opioids are essential for pain treatment, as they are a reliable indicator of the availability of primary care and the efficacy of pain management [13]. The WHO three-step ladder strategy for cancer pain treatment in adults has demonstrated that the successful treatment of cancer pain in adults is cost-effective and obtains a success rate of 80-90% when the appropriate medication is administered at the correct dosage and timing [12]. The initial treatment for cancer pain, which is morphine, was correctly identified by only over half of the physicians in this study. Additionally, physicians demonstrated inadequate comprehension regarding the management of morphine's adverse effects.

Scales were implemented in the present investigation to assess physicians' proficiency. The findings suggest a robust correlation between knowledge and two factors: Comprehensive Palliative Care Practices and Health Care Provider Practices and Education (r: 0.476, $p < 0.001$). One can develop a higher level of proficiency in palliative care by utilizing appropriate methods and obtaining sufficient education. Ashrafizadeh et al. [14] establish a positive correlation between increased knowledge and attitude toward palliative care and higher levels of education. The knowledge and attitude of care professionals toward palliative care also increase as the degree of educational attainment increases. It is evident that an increase in educational attainment will lead to a proportionate increase in professional expertise and knowledge. It seems that care professionals who have completed more extensive education programs obtain more comprehensive knowledge regarding palliative care. The results of the experiments conducted by Balicas [9] and Yamamoto et al. [11] were consistent.

The study's results indicated that age is a factor in the acquisition of knowledge in Palliative Care. The correlation between age and knowledge of PC has been the subject of varying results in previous studies. There were no significant associations between age and knowledge of PC in the study conducted by Ansari et al. [6]. Conversely, Ashrafizadeh et al. [14] and Nair et al. [15] reported a substantial correlation. While some studies suggest that younger physicians may possess more up-to-date theoretical knowledge, older physicians may possess a more profound, experience-based comprehension. Generally, it can be asserted that an individual's age has an impact on their ability to absorb information. The capacity to receive and analyze information increases as an individual matures, which is associated with the development of physical and cognitive functions.

The level of education and the knowledge of palliative care are correlated in this study. Individuals who possess Master of Science degrees demonstrate superior knowledge in comparison to their peers, according to this investigation. The level of knowledge in palliative care is positively correlated with the level of education and training of individuals [3]. Continuing education, whether acquired through structured instruction or autonomous study, is essential for the preservation and enhancement of a physician's knowledge and skill in palliative care throughout their professional career.

The present investigation identifies a correlation between the comprehension of palliative care and the belief in the end-of-life. The research demonstrated that individuals who hold beliefs regarding the end of life exhibited a reduced level of comprehension. It is imperative to investigate the correlation between attitudes toward end-of-life treatment and an

understanding of palliative care, as these variables significantly influence patient outcomes. Morstad Boldt [5] has demonstrated that physicians who possess inadequate knowledge or misconceptions regarding palliative care are inclined to assume that palliative care is exclusively administered during the terminal phase of life. These negative beliefs can be addressed and improved patient outcomes can be achieved by increasing physician education and awareness of palliative care. The results of a study conducted by Budkaew and Chumworathayi [16] suggest that the integration of palliative care into the curriculum of medical institutions can enhance the knowledge and favorable attitudes of physicians toward the provision of end-of-life care to cancer patients. This is accomplished through the dissemination of pertinent concepts and information regarding palliative care.

A comprehensive approach to palliative care is required, which includes the management of symptoms, the development of communication skills for challenging conversations, and the consideration of patients' emotional and spiritual requirements. Enhanced education and ongoing professional development are essential for bridging knowledge gaps, ensuring that all physicians can effectively collaborate within multidisciplinary teams to optimize the quality of life for patients and their families and advocate for patient-centered care

6. LIMITATIONS OF THE INVESTIGATION

There are potential limitations to the study. The generalization of the findings may be impacted by the small sample size. However, the result's internal consistency was assessed using Cronbach's alpha, and the results indicated moderate to excellent reliability. This small sample size as study applied in single center and this will be compensated in future to involve many center in future study. Lastly, the potential for response bias may have been increased by the overestimation or underestimation of the questions that may have resulted from the use of a self-reported questionnaire.

7. CONCLUSION

The palliative care knowledge of the physicians at King Abdullah Medical City in Makkah, Saudi Arabia, was illustrated in this investigation. The results indicated that physicians' expertise in pain management and palliative care was inadequate. The research also demonstrated that knowledge correlates to age, educational level, and belief in the end-of-life. In order to increase the awareness of both physicians and patients, this study suggested the implementation of more specialized facilities and effective palliative care education programs.

CONSENT

Informed written consent was obtained from the participants prior to their participation.

ETHICAL APPROVAL

Ethical approval was obtained from the Research Ethics Committee of King Abdullah Medical City (Approval No. 24-1236; date of approval 26/3/2024). Additionally, this study was carried out in accordance with the declarations of Helsinki.

REFERENCES

1. Martín-Martín J, López-García M, Medina-Abellán MD, Beltrán-Aroca CM, Martín-de-Las-Heras S, Rubio L, et al. Physicians' and Nurses' Knowledge in Palliative Care: Multidimensional Regression Models. Int J Environ Res Public Health. 2021;18(9).
2. Teng X, Tang M, Jing L, Xu Y, Shu Z. Healthcare Provider Knowledge, Attitudes, and Practices in Hospice Care and Their Influencing Factors: A Cross-sectional Study in Shanghai. Int J Health Policy Manag. 2022;11(12):3090-3100.
3. Hamdan KM, Al-Bashaireh AM, Al-Dalahmeh M, Saifan AR, Albqoor MA, Shaheen AM. Palliative care knowledge and attitudes toward end-of-life care among intensive care unit nurses in Jordan. Acute Crit Care. 2023;38(4):469-478.
4. Abdel Gawad W, Al-Ansari A, Suroor S, Aboserea S. Primary Care Physicians' Knowledge and Attitude towards Palliative Care. Is it time for integration? Egypt J Geriatr Gerontol. 2022;9(1):20-31.
5. Morstad Boldt A, Yusuf F, Himelstein BP. Perceptions of the term palliative care. J Palliat Med. 2006;9(5):1128-1136.
6. Ansari MPC, Rassouli MP, Akbari MM, Abbaszadeh AP, Akbari Sari AP. Educational Needs on Palliative Care for Cancer Patients in Iran: A SWOT Analysis. Int J Community Based Nurs Midwifery. 2018;6(2):111-124.
7. Tsao L, Slater SE, Doyle KP, Cuong DD, Khanh QT, Maurer R, et al. Palliative Care-Related Knowledge, Attitudes, and Self-Assessment Among Physicians in Vietnam. J Pain Symptom Manage. 2019;58(6):1015-1022.e1010.
8. Swed S, Bohsas H, Alibrahim H, Albakri K, Rais MA, Almoshantaf MB, et al. Knowledge and Attitude of Healthcare Providers Regarding Palliative Care and Related Factors: An Online Cross-Sectional Study. Cureus. 2024;16(2):e54477.
9. Balicas MR. The effect of palliative care nursing education to improve knowlegde in palliative care of hospital-based nurses caring for patients with chronic, serious illness. Available: https://hsrc.himmelfarb.gwu.edu/son_dnp/33 Accessed on 30 June 2024
10. Paknejadi F, Hasavari F, Mohammadi T, Leili E. Nurses' Knowledge of Palliative Care and Its Related Factors. J Holist Nurs Midwifery 2019;29:236-242.
11. Yamamoto R, Kizawa Y, Nakazawa Y, Ohde S, Tetsumi S, Miyashita M. Outcome evaluation of the Palliative care Emphasis program on symptom management and Assessment for Continuous Medical Education: nationwide physician education project for primary palliative care in Japan. J Palliat Med. 2015;18(1):45-49.
12. World Health Organization. Cancer pain relief. Available: https://iris.who.int/bitstream/handle/10665/43944/9241561009_eng.pdf Accessed on 22 June 2024
13. Manjiani D, Paul DB, Kunnumpurath S, Kaye AD, Vadivelu N. Availability and utilization of opioids for pain management: global issues. Ochsner J. 2014;14(2):208-215.

14. Ashrafizadeh H, Mojen L, Barasteh S, Beiranvand S, Farahani A, Eshaghian Dorcheh A, et al. Factors Related to Nurses and Physicians' Knowledge of and Attitudes Towards Palliative Care. Int J Cancer Manag. 2021;15(2):e122653.
15. Nair DN, Paul AS, Raveendran KU. Palliative care development in India: new WHO conceptual model. BMJ Support Palliat Care. 2023;13(3):298-304.
16. Budkaew J, Chumworathayi B. Knowledge and attitudes toward palliative terminal cancer care among Thai generalists. Asian Pac J Cancer Prev. 2013;14(10):6173-6180.