



# FACTORS ASSOCIATED WITH THE LEVEL OF KNOWLEDGE ABOUT PALLIATIVE CARE AMONG MEDICAL STUDENTS AT A UNIVERSITY IN LIMA, PERU

FACTORES ASOCIADOS AL NIVEL DE CONOCIMIENTO SOBRE CUIDADOS PALIATIVOS EN ESTUDIANTES DE MEDICINA DE UNA UNIVERSIDAD EN LIMA, PERÚ

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## ABSTRACT

**Introduction:** In Peru, medical schools do not have any formal course on palliative care. **Objectives:** To determine the factors associated with the level of knowledge regarding palliative care among medical students of the sixth and seventh year at the Universidad Ricardo Palma, during the second semester of 2020. **Methods:** Observational, cross-sectional and analytical study. The sample consisted of 139 sixth and seventh year students, who were surveyed with the Palliative Care Knowledge Test (PCKT) modified by Ordoñez for medical students in Peru. Sampling was probabilistic, stratified. **Results:** 48.9% were sixth year students and 51.1% were seventh year students. 87.8% reported not having taken an elective/rotation course in Palliative Care. The prevailing level of knowledge was "intermediate" (61.9%) followed by "low" (23.7%). In addition, the variables sex predominantly female ( $p = 0.020$ ), age predominantly young ( $p = 0.017$ ) and year of study predominantly sixth year ( $p = 0.031$ ) had statistically significant associations with the level of knowledge, the variable elective course / previous rotation on Palliative Care did not show a significant association. According to the opinion / perception of medical students about the need for education and training in Palliative Care, undergraduate: about half of the population considers this inclusion as "very necessary", followed by "necessary". **Conclusions:** The Level of Knowledge about Palliative Care that predominates in sixth and seventh year students is the "intermediate" level followed by "low". The variables sex female group, age young group and year of study sixth year group showed a significant association.

**Key words:** Palliative Care; Medical students; Level of knowledge (source: MeSH NLM).

## RESUMEN

**Introducción:** En el Perú, las facultades de medicina no cuentan con algún curso formal sobre Cuidados Paliativos. **Objetivos:** Determinar los factores asociados al nivel de conocimiento sobre Cuidados Paliativos en los estudiantes de medicina del sexto y séptimo año de la Universidad Ricardo Palma, durante el segundo semestre del año 2020. **Métodos:** Estudio observacional, transversal y analítico. La muestra fue de 139 estudiantes del sexto y séptimo año, quienes fueron encuestados con el Palliative Care Knowledge Test (PCKT) modificado por Ordoñez para estudiantes de medicina en Perú. El muestreo fue probabilístico, estratificado. **Resultados:** El 48.9% fueron alumnos de sexto año y el 51,1% de séptimo año. El 87,8% refirió no haber llevado algún curso electivo/rotación en Cuidados Paliativos. El nivel de conocimiento que predominó, fue el "intermedio" (61,9%) seguido de "bajo" (23,7%). Las variables sexo a predominio femenino ( $p=0,020$ ), edad a predominio joven ( $p=0,017$ ) y año de estudio a predominio sexto año ( $p=0,031$ ) tuvieron asociaciones estadísticamente significativas con el nivel de conocimiento, la variable curso electivo/rotación previa sobre Cuidados Paliativos no mostró asociación significativa. Según la opinión/percepción de los estudiantes de medicina sobre la necesidad de formación y entrenamiento en Cuidados Paliativos, en pregrado: más de la mitad de la población considera esta inclusión como "muy necesaria", seguido de "necesaria". **Conclusión:** El Nivel de Conocimiento sobre Cuidados Paliativos que predomina en los estudiantes de medicina del sexto y séptimo año, es el nivel "intermedio" seguido de "bajo". Las variables sexo grupo femenino, edad grupo joven y año de estudio grupo sexto año, mostraron asociación significativa.

**Palabras clave:** Cuidados paliativos; Estudiantes de medicina; Nivel de conocimiento (fuente: DeCS BIREME).

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## INTRODUCTION

Palliative Care is a growing discipline worldwide, which emerged with the main objectives of providing quality of life and relief from suffering. The international Association for the Study of Pain (IASP) defines pain as “an undesired sensorial and emotional experience, associated to a real or potential tissue lesion, or described in terms of said injury”<sup>(1)</sup>. Therefore, what happens when the pain becomes chronic and limits life expectancy in a person? When does palliative care begin? Palliative care is a healthcare package that is required by a person with an illness that limits their life, severe suffering and with the objective to improve the quality of life for the patient, family and caretakers, alleviating the suffering through a support system together with a multidisciplinary team, that lasts far until after the patient dies<sup>(2)</sup>.

In 2014, in the number 67 Assembly of the WHO, the WHA67.19, was the first resolution where it was recognized that palliative care helped improve the quality of life for adults and children, through a series of strategies and they recognized that it is fundamental for the wellbeing and strengthening of human dignity until the last moment of life. Consequently, it was emphasized to apply this to all levels of attention: hospitals, community, home, etc.<sup>(3)</sup>.

In the present year 2020, 13% of medical schools have “some” Palliative Care in Latin America, with Peru finding itself without a program so far within the national academic education<sup>(4,5)</sup>. A good academic education is essential because it provides the basic and necessary tools so that future doctors are able to adequately identify who requires palliative assistance and confidently refer them to the corresponding units<sup>(1)</sup>.

There are different statistics, as described by por Sibel Eyigor, Pastrana et al., Ordoñez et al. and Elizalde et al., about the perception of knowledge among medical students regarding the management of physical symptoms, pharmacological management and decision making at the end of life, in the surveyed students that received training in palliative care, versus those that did not, and showed that obstacles about applying a good treatment within pain management in palliative care still exist. The main obstacles are difficulty recognizing patients that require palliative attention, little knowledge about pain relief at the end of life, little to no experience in the area of palliative care and the lack of valid

questionnaires for undergraduates, that can be used nationally, limit us in generating new strategies in this health field<sup>(6-9)</sup>.

It is essential to investigate and normalize general measures since the medical education in Palliative Care and the use of pain medication in this area, are not included in the Peruvian curriculum. Therefore, the following investigation's objective was to determine the associated factors in the level of knowledge about Palliative Care among students in sixth and seventh year of Medical School, in a university in Lima.

## METHODS

### Design and area of study

Observational, cross-sectional and analytic study.

### Population and Sample

The population reached the medical students of sixth year (Pre-interns) and seventh year (Interns) from the Universidad Ricardo Palma, during the second semester of 2020. Sixth year students that were not in the “Pre-interns 2021” category were excluded (students that began sixth year and would not do their internship in 2021) and the seventh year students that at the time the survey was sent they were not in their internship (internship was based on an obligatory annual rotation mainly clinical in hospitals and/or health centers). According to inclusion and exclusion criteria, the population was 334 students. A sample of 139 students was taken for a confidence interval of 95% and margin of error of 0.04. The sample was probabilistic, stratified proportional allocation type, according to sex.

### Variables and instruments

The principal variable was the Level of Knowledge about Palliative Care, and the other variables were age, sex, year of study and prior elective course / previous rotation on Palliative Care. The survey Palliative Care Knowledge Test (PCKT), was validated in Japan by Nakazawa et al.<sup>10</sup> in the year 2009 and for this study we used a survey modified from Ordoñez et al.<sup>(7)</sup>, those who adapted and validated the survey through expert judges to be applied for medical students in Peru. This survey contains 31 questions divided into 5 domains (1. Generalities in Palliative Care, 2. Bioethics, respect and communication with the patient and family, 3. Spirituality, 4. Symptomatology in Palliative Care, 5. Pharmacology), they are dichotomous (Yes-No) and an additional question based on opinion.



## Procedures

The project was carried out in the context of the degree thesis workshop, according to prior published methodology<sup>(11)</sup>. A new validity instrument was carried out by specialists in the topic for a confirmation of updated answers – there were two palliative physicians and one internal medicine physician. According to the Hernández-Nieto validation method<sup>(12)</sup>, the content validation coefficient (CVC) was 0.89 (good Validity and Concordance). Afterwards, a pilot study was performed with 14 students, resulting in a Kuder Richardson (KR-20) of 0.64 (High Reliability)<sup>(13,14)</sup>.

The survey was sent online using a Googleform platform, through the WhatsApp application, to the medical students of the Universidad Ricardo Palma.

## Statistical Analysis

The Stanones in the Gaussian Curve Scale was applied for the measurement of the principal variable. They were grouped in three categories: low (12-21 correct answers), intermediate (22-25 correct answers) and high (26-31 correct answers). Likewise, the principal variable contains 5 domains, which were evaluated according to average obtained as good (greater than or equal to average) and bad (below average). (APPENDIX 1)

The statistical analysis was carried out with an SPSS version 26 statistical program. The quantitative variables were analyzed with central and dispersion tendency measures, and for the qualitative variables we used frequency distributions and graphs.

Likewise, the Chi square test was used to analyze the variables and contrast the hypothesis and a multivariate analysis was performed through a generalized lineal model. Confidence interval of 95% and a statistical significance of  $p < 0.05$  was applied.

## Ethical Aspects

This research counts on the approval of the Faculty Council and Ethics Committee of the Universidad Ricardo Palma through the code PG-49-2020. Furthermore, it was carried out with the knowledge and consent of the participants. For this, we explained the characteristics and purpose of the research, ensuring the adequate understanding prior to sending the surveys. The information collected was secured and used only and exclusively for academic purposes that involved the study, respecting the confidentiality and identity of the students.

## RESULTS

In Table 1, we can observe the total surveyed: 59.7% were women and 40.3% were men. The young population covered 90.6%, while adults were 9.4%. We took into account the INEI15 classification as young, between 18-29 years of age, and adult, between 30-59 years of age. With respect to year of study, the population in sixth year were 48.9% and seventh year were 51.1%.

Within the population surveyed, 87.8% reported not having taken an elective course or a rotation in Palliative Care, while 12.2% had an affirmative response.

**Table 1.** Univariate Analysis of associated factors of level of knowledge about Palliative Care among Medical Students.

Evaluated factors		N	%	Coefficient of variation
Level of Knowledge about Palliative Care	Total	139	100	12.20%
	Low	33	23.7	
	Intermediate	86	61.9	
	High	20	14.4	
Age	Young	126	90.6	
	Adult	13	9.4	
Sex	Masculine	56	40.3	
	Feminine	83	59.7	
Year of Study	6 <sup>th</sup> year	68	48.9	
	7 <sup>th</sup> year	71	51.1	
Elective course or Rotation in Palliative Care	No	122	87.8	
	Yes	17	12.2	
Generalities in Palliative Care	Bad	29	20.9	
	Good	110	79.1	
Bioethics, respect and communication with the patient and family	Bad	68	48.9	
	Good	71	51.1	
Spirituality	Bad	31	22.3	
	Good	108	77.7	
Symptomatology in Palliative Care	Bad	65	46.8	
	Good	74	53.2	
Pharmacology	Bad	44	31.7	
	Good	95	68.3	

Source: INICIB/Own compilation

According to the global score of the survey, the lowest score was a person with 12/31 points and there was only one person that received the highest score had 31/31 points. Likewise, the domains that presented greater average in the correct responses were Spirituality (94%), and Generalities in Palliative Care (87%). The segment with the greatest number of errors was Symptomatology in Palliative Care (53%).

With respect to the opinion/perception of medical students in sixth and seventh year of medicine, regarding the need for undergraduate information and training in the area of Palliative Care, 51.1% considered it "very necessary", 43.9% considered it "necessary" and 5% considered it "little necessary".

Likewise, we observed that the sample used for this study was adequate, given that the dependent variable had a coefficient of variation less than 15%

(CV=12.2%).

Posteriorly a bivariate analysis (Table 2) and a multivariate analysis (Table 3) was performed with the Chi square hypothesis test and a confidence level of 95% to establish the association between the dependent variable and the study variables, giving the following results. In Table 2 and Table 3 we observe the variables predominantly female sex, predominantly young age, and predominantly 6th year of study are significantly associated with the variable Level of Knowledge. As a result, they are significant variables that influence the Level of Knowledge about Palliative Care. The opposite occurs with the variable "Elective course/Rotation in Palliative Care" with a  $p > 0.05$ .

With respect to the analysis of the five domains: 1. Generalities in Palliative Care, 2. Bioethics, respect

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and communication with patient and family, 3. Spirituality, 4. Symptomatology in Palliative Care, and 5. Pharmacology, the result was that there was a

significant relationship with the dependent variable, "Level of Knowledge about Palliative Care", due to having  $p < 0.001$  in all domains, respectively.

**Table 2.** Bivariate Analysis of the associated factors in the level of knowledge about Palliative Care among Medical Students.

Associated factors	Level of knowledge about palliative care								p value	
	Total		Low		Intermediate		High			
	N	%	N	%	N	%	N	%		
Age	Total	139	100	33	23.7	86	61.9	20	14.4	0.017*
	Joven	126	100	26	20.6	80	63.5	20	15.9	
	Adulto	13	100	7	53.8	6	46.2	0	0	
Sex	Masculino	56	100	20	35.7	28	50	8	14.3	0.020*
	Femenino	83	100	13	15.7	58	69.9	12	14.5	
Year of study	6to año	68	100	10	14.7	49	72.1	9	13.2	0.031*
	7to año	71	100	23	32.4	37	52.1	11	15.5	
Curso electivo o rotación en cuidados paliativos	No	122	100	29	23.8	76	62.3	17	13.9	0.921
	Sí	17	100	4	23.5	10	58.8	3	17.6	

Source: INICIB/Own compilation.  
\*Significative with Chi square test

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**Table 3.** Multivariate Analysis of the associated factors of level of knowledge about Palliative Care among Medical Students.

Level of knowledge about palliative care <sup>a</sup>	Adjusted OR	95% of confidence Interval for adjusted OR		p value		
		Lower limit	Higher limit			
Intermedio	Age	Joven	4.640	1.99	10.82	0.00
	Sex	Adulto	0.288	0.16	0.51	0.00
		Masculino				
	Year of study	Femenino	4.032	2.19	7.44	0.00
6to año						
Elective course or rotation in palliative care	No	0.812	0.34	1.93	0.64	
	7mo año					
High	Age	Young	0.000	0.00	0.00	*
	Sex	Adult	0.412	0.19	0.89	0.02
		Masculine				
	Year of study	Feminine	2.608	1.18	5.76	0.02
		6th year				
Curso electivo o rotación en cuidados paliativos	7th year	0.568	0.19	1.71	0.32	
No						
	Yes					

Source: INICIB/Own compilation / a. The reference category is: Low / \*There is no information on the high level of knowledge and on adult age.

## DISCUSSION

In Peru, the course on Palliative Care is still not included in the curriculum of universities nationwide.<sup>4</sup> This is why knowledge regarding topics related to Palliative Care and End of Life care are acquired through clinical rotations and subtopics within other courses throughout the career. By not going through the same experiences, clinical or in theory, many medical students graduate without being really prepared in the basic competencies of these types of care<sup>(8,9,16)</sup>.

In our study, according to the global score in the "Palliative Care Knowledge Test" survey modified by Ordoñez et al.<sup>(7)</sup>, an "intermediate" level of knowledge was reported in 61%. In a research study by Elizalde and Rivadeneira<sup>(8)</sup> only 19.6% of Ecuadorian students obtained an "acceptable" score, taking into account a score of >60% right answers. A different result observed in the study by Ordoñez et al.<sup>(7)</sup> where the "good" level predominated with 89.06%, they considered a score >22 with 31 questions as "good" or "adequate". According to our study, it would be equivalent to an Intermediate or High score. On the other hand, Eyigor<sup>(9)</sup> did not take into account the total survey score, rather he did so per question. However, in his question regarding perception on education in Palliative Care, 64.6% of Turkish students responded that their education was insufficient.

The deficient, insufficient or inadequate knowledge among medical students can be observed throughout several studies internationally, with self-developed surveys such as Weber et al.<sup>(17)</sup>, where he mentions that only 33% of German students answered more than half of the questions correctly. A similar case was observed in the study by Sujatha and Jayagowri<sup>(18)</sup>, where they mention more than 50% of Indian students did not know or had knowledge about the mental, physical, social and pharmacological preparation of a patient at the end of life. Furthermore, Pieters et al. 19 reported that 45% of the Dutch student population rated their Palliative Care.

In our study, the bivariate analysis (Table 2) as well as the multivariate analysis (Table 3), the "Elective course or Rotation in Palliative Care" variable did not show a statistically significant association. We consider that the number of people that took this course or rotation in our study was insufficient, therefore, we suggest expanding the sample to obtain a more homogenous population with respect to this variable. However, many studies mentioned,

relate not having a formal course on Palliative Care or not having a rotation in the areas mentioned, with a low level of knowledge or low confidence in dealing with these topics. Such is the case of Pastrana et al. 6, where they relate a greater comfort level among Colombian medical students that had prior education in Palliative Care, versus those that had no education or training in that area ( $p < 0.010$ ). A similar result is observed in the study by Elizalde and Rivadeneira<sup>8</sup>, where significant differences were found between taking an elective course about Palliative care with an "acceptable" score in the survey, in comparison to the students who did not take the course ( $p = 0.000$ ).

With respect to the "age" variable, we observed that our young group presented 4.64 times greater possibility of having intermediate knowledge about Palliative Care in comparison to the adult group. On the other hand, the possibility of the young group having high knowledge in Palliative Care compared to the adult group was not determined because no adult obtained a sufficient score to reach that category. However, not having other studies analyze this result makes it difficult to make a comparison or a deeper analysis. Likewise, in the "sex" variable, our masculine group showed 0.28 times less possibility of having intermediate knowledge and 0.41 times less possibility of having high knowledge about Palliative Care compared to the feminine group. However, the bivariate study by Elizalde and Rivadeneira<sup>8</sup> exposes that there were no significant differences between both sexes, except in the Pain domain ( $p = 0.00$ ), where women had a better score than men. We believe that women, being a majority group and having mostly an intermediate level of knowledge, predominate their results in our study.

Similarly, with the "year of study" variable, our group of sixth year (pre-interns) presented 4.03 times more possibility of having intermediate knowledge and 2.60 times more possibility of having high knowledge in Palliative Care in comparison to the group of seventh year (interns). We believe seventh year students recently incorporated into their medical internship, given the complex healthcare situation the country was undergoing at the time of collecting information, they had little contact with patients that could be in areas related to Palliative Care, so much as that their level of knowledge was less than the sixth-year students, who followed a constant virtual clinical training. However, in the study by Elizalde and Rivadeneira<sup>(8)</sup> there is no relation established having  $p = 0.21$ . More similar studies are needed to find the cause of these different results.



Regarding the average of the five domains, Ordoñez et al.<sup>(7)</sup> reported that the domains of Symptomatology in Palliative Care (average 3.36/7) and Pharmacological Management (average 4.21/6) were the ones that had the most errors. A similar score is observed in our study, with averages of 3.7/7 and 3.8/6, respectively. These results are explained by the high percentage of students that did not take elective courses or rotations in Palliative Care. In the study by Elizalde and Rivadeneira<sup>(8)</sup>, the domains with the most errors were Pain, Dyspnea and Gastrointestinal, in undergrad students as well as interns. In the same manner, in the study by Eyigor<sup>(9)</sup> the domain with the least number of correct responses was Pain. Considering that these domains have questions that were in our study and in the study by Ordoñez et al.<sup>(7)</sup>, and they equal the domains of Symptomatology and Pharmacology.

These domains are important for the doctor in training, we need to know how to recognize the diverse symptomatology that affect the palliative patient in order to provide good pharmacological and non-pharmacological treatment. While observing a precarious level of knowledge in these domains, our study shows a significant relation between the level of knowledge about palliative care and the five exposed domains.

On the other hand, one of the most used medications in Palliative Care are Opioids, which are very useful and secure if used correctly. The lack of knowledge about its benefits and false beliefs about addiction in these group of patients generate fear and produce a late use or no use of this product. According to the study by Ordoñez et al.<sup>(7)</sup>, only 4,69% of students were correct about the benefits of morphine in providing dyspnea relief, 22.4% were correct in the study by Eyigor<sup>9</sup> and in our study 43% of students were correct in the same question. Furthermore, in the question regarding if opioid use for prolonged periods induces addiction, in the study by Ordoñez et al.<sup>(7)</sup> only 9.38% responded correctly that it did not induce it, same percentage reported in our study and according to Eyigor<sup>(9)</sup>, close to 20% responded correctly. Opioids, used correctly in palliative patients, do not induce addiction, they produce tolerance. When facing toxic effects or lack of effectiveness, the most effective therapeutic option is opioid rotation<sup>(21)</sup>.

It is difficult to teach these topics and it requires skilled personnel. Palliative Care should be a priority in undergraduate medical education, this is reflected in the opinion question asked to our population, in which over 50% responded as being very necessary in education and training in this topic within our training as students, mainly due to the complex healthcare situation in which we find ourselves. The year 2020 has been a year where the Covid-19 pandemic has left many deaths worldwide, and not having a cure to this date, the treatment we offer is supportive, it is "palliative", the chronic consequences require basic palliative treatment<sup>(22)</sup>. Lastly, Palliative Care is a universal right that everybody has and, therefore, every doctor should have a basic training in this area for the adequate management of total pain and an early multidisciplinary treatment of the same<sup>(23)</sup>.

Due to the aforementioned, it is recommended to validate a national survey about Knowledge in Palliative Care, directed to healthcare students, also covering topics such as non-pharmacological treatments, limitations in therapeutic efforts, anticipated wills, and pediatric palliative care. Furthermore, extend the study to lower years in order to compare knowledge and evaluate in what year we should begin to introduce topics related to palliative care and end of life care. Lastly, attempt integrating the Palliative Care course into the university curriculum, introducing the student to the topic through workshops, contact with palliative patients within the different clinical specialties of the already established courses according to each Medical School.

With respect to limitations, one of which was the size of the population, we cannot confirm that the results from one medical school can be extrapolated to others, mainly at the national level. However, the inclusion criteria of the studied population coincide with those of the Peruvian student. Furthermore, given the way information was collected, it is possible that a bias was introduced in the process due to the electronic/virtual manner. However, this could underestimate the knowledge that the students may have. On the other hand, the lack of information on this topic, nationally and in Latin America, limits us to contrast with different realities. Another limitation is that the survey focused on 5 general dimensions, not offering the possibility of all possible topics.

## CONCLUSION

The Level of Knowledge about Palliative Care that predominates among medical students in sixth and seventh years is "intermediate", followed by "low". The predominantly feminine sex variable, predominantly

young age variable and predominantly sixth year of study variable showed significant association. The variable "elective course/rotation about Palliative Care" did not show a significant association in the study.

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