

# Attitudes of Portuguese medical students towards euthanasia

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## Abstract

This study analyzes the opinions of medical students about euthanasia and physician-assisted suicide. Students from all Portuguese medical schools who attended the last year of the course and those who completed it in 2015/2016 were invited to the survey. To assess the association with religious beliefs, the Chi-square or the Fisher's exact test was used. Of the 405 valid answers, most respondents were female, single, and with an average age of 24 years. Most reported religious beliefs and more than half had treated terminally ill patients. Regarding the legalization of euthanasia and assisted suicide, 73% and 56%, respectively, were in favor of these practices. Future Portuguese doctors are clearly in favor of euthanasia and physician-assisted suicide, unlike similar studies in other European countries.

**Keywords:** Euthanasia. Assisted suicide. Students, medical.

## Resumo

### Atitudes de estudantes de medicina portugueses em relação à eutanásia

O objetivo deste estudo é analisar as opiniões da próxima geração de médicos sobre a eutanásia e o suicídio medicamente assistido. Os estudantes de todas as faculdades de medicina portuguesas que frequentaram o último ano do curso e os que o concluíram no ano letivo 2015/2016 foram convidados a preencher um inquérito. Para avaliar a existência de associação com crenças religiosas foi utilizado o teste Qui-quadrado ou o teste Fisher. Das 405 respostas válidas, a maioria dos respondentes era do sexo feminino, solteira, e a média de idade foi de 24 anos. A maioria referiu ter crenças religiosas. Mais de metade lidou com pacientes em estado terminal. Em relação à legalização da eutanásia e do suicídio medicamente assistido, 73% e 56%, respetivamente, foram a favor. Os futuros médicos portugueses são claramente a favor da eutanásia e do suicídio assistido por médico, ao contrário de estudos semelhantes em outros países europeus.

**Palavras-chave:** Eutanásia. Suicídio assistido. Estudantes de medicina.

## Resumen

### Actitudes de los estudiantes de medicina portugueses hacia la eutanasia

Este estudio analiza las opiniones de estudiantes de medicina sobre la eutanasia y el suicidio asistido por un médico. Los estudiantes que asistieron al último año del curso y los que lo completaron en 2015/2016 de todas las escuelas de medicina portuguesas fueron invitados a recopilar datos. Para evaluar la asociación con creencias religiosas, se utilizó la prueba de Chi-cuadrado o la prueba exacta de Fisher. La mayoría de los encuestados eran mujeres, solteras y con una edad media de 24 años. La mayoría reportó creencias religiosas y más de la mitad trató a pacientes terminales. En cuanto a la legalización de la eutanasia y el suicidio asistido, el 73% y el 56%, respectivamente, estaban a favor de esas prácticas. Los futuros médicos portugueses están claramente a favor de la eutanasia y el suicidio asistido por un médico, a diferencia de estudios similares realizados en otros países europeos.

**Palabras clave:** Eutanasia. Muerte asistida. Medicina. Estudiantes de medicina.

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In many medical specialties, professionals have regular contact with end-of-life patients. These physicians will often have the power to decide and improve the quality of life of patients. In this sense, euthanasia, physician-assisted suicide and other end-of-life decisions have been at the center of medical discussions<sup>1</sup>. Euthanasia can be defined as the action or omission that aims to cause the death of a human being to put an end to suffering. The discussion on the legalization of euthanasia is today a social issue, and a petition was submitted in April 2016 to the Portuguese Parliament to decriminalize euthanasia and related practices, such as physician-assisted suicide. At present they are legal in Belgium, Luxembourg and the Netherlands. On the other hand, Canada, Finland, Germany, Switzerland, and the United States of America (Oregon, Washington, Montana, Vermont and California) have legalized only physician-assisted suicide, and Colombia and Uruguay, only euthanasia<sup>2</sup>.

Regarding physicians, medical students and other health professionals in Portugal, there is only one study conducted in 2016 with oncologists that revealed that most of them opposed the legalization of euthanasia<sup>3,4</sup>. Although there are studies with medical students in other European countries with acceptance rates (30%)<sup>5,6</sup>, this subject has not yet been fully discussed in the Portuguese reality. In most studies on the acceptance by medical students of physician-assisted suicide, we observe a growing proportion of students accepting euthanasia as a possible solution in terminal conditions, but the majority is still against this practice<sup>7,8</sup>. Also, many argue that physician-assisted suicide is not in accordance with fundamental ethical principles and that palliative care could be a solution to deal with these patients<sup>9</sup>.

New generations of physicians may bring new opinions, even though they may change later with their experience in the profession, as values may change over time<sup>10</sup>. Young students tend to be influenced by new social paradigms and ethical values such as respect for patient self-determination and personal autonomy, which are widespread in society. However, clinical experience and peer group influence may change their opinions and beliefs, and professional identities may be also influenced by more traditional values.

This study analyzes the opinions of Portuguese final year medical students and Portuguese physicians in their first year of clinical practice concerning end-of-life decisions, that is, euthanasia and physician-assisted suicide.

## Method

Two different groups were invited to our survey: a) students who during the study (November 2016 to January 2017) were in the 6th year (final year); and b) former students (who completed the course in the previous year) and that at the date of the study were in their first year of clinical practice. The survey was based on a questionnaire used by Ferraz Gonçalves to interview final year students<sup>3</sup>. The original questionnaire was developed after analyzing questionnaires used in other countries such as Australia, Switzerland and the United States of America (Michigan), and was validated by 15 physicians<sup>4</sup>.

All medical schools in Portugal were asked to send an e-mail with a link to the questionnaire to students in their final year and those who had completed the course in the previous year. The researchers received their answers from November 21, 2016, until January 2, 2017. Their consent was considered implicit when completing the questionnaire, and we requested the consent of all medical schools involved in the research. As this study was not carried out in a specific institution, it was approved by the Ethics Committee of the Portuguese Association of Bioethics.

The survey is divided into 8 categories: demographic data, euthanasia, assisted suicide, cognitively impaired patients, treatment suspension, symptoms control, palliative care, and extension of the concept of euthanasia and palliative care. We used multiple-choice questions (Yes/No/I have no opinion), except for age. In each category definitions and additional information of key concepts was added to help participants answer the questions without misunderstandings. Euthanasia: "Deliberately ending someone's life, a patient suffering from an incurable and progressive disease that will inevitably lead to death, with the

patient's explicit, repeated, informed and well-considered request, by administering lethal doses of medication"; Assisted Suicide: "Aiding the suicide of a terminally ill patient person with an incurable, advanced and progressive disease, at the patient explicit, repeated, informed and well-considered request, prescribing drugs and giving the necessary instructions for their use". We also added the following definition from the World Health Organization for Palliative Care: *An approach that improves the quality of life of patients and their families, who are facing problems associated with life-threatening illness. It prevents and relieves suffering through the early identification, correct assessment and treatment of pain and other problems, whether physical, psychosocial or spiritual*<sup>11</sup>. When analyzing the questionnaire consistency reliability, an  $\alpha=0.78$  was obtained. All items were valid ( $p<0.001$ ), and the item "Do you believe that palliative care can prevent requests for euthanasia and assisted suicide?" had the following values:  $r=-0.83$ ,  $n=401$ ,  $p=0.09$ .

The researchers emphasized the possible relation between physician-assisted suicide/euthanasia and the religious beliefs of the respondents due to different reasons. Portugal, as other European countries, have a long-standing influence from the Roman Catholic Church, and a huge sociological shift regarding the influence of religion in moral issues has been observed in the last decades – Portuguese society has become much less conservative concerning issues such as abortion, reproductive rights of single women and homosexual couples adoption rights, and even the general acceptance of the living will. Moreover, there are significant geographical differences in the country regarding religious convictions: the North's population is much more prone to follow the Roman Catholic doctrine than the South's, where the majority is agnostic.

For data analysis we used SPSS (version 24). Responses to the survey were statistically described using relative and absolute frequencies. To evaluate the correlation between having or not religious convictions and the answers given, the Chi-Square or Fisher's exact test was used. In questions where significant differences were found between respondents with and without religion, a logistic regression was conducted for

adjusting the demographic variables that showed a different frequency between the two groups (with and without religion). A significance level of 5% was adopted.

## Results

In total, 428 questionnaires were completed, but 23 were disregarded because the respondents were not in the target audience of the research, that is, they were not final year students nor had graduated in 2015/2016. Most of the questions were mandatory and only few questions were not answered. We highlight that each year 1800 students graduate from medical schools in Portugal. This means that almost 3600 could have participated in the survey. Considering that an e-mail with a link to the questionnaire was sent by the medical schools to each enrolled student, we assumed that all of them received the document. Thus, considering the potential number of respondents, 11,88% of the total number of students participated in the study (428/3600). Moreover, when the questionnaire was delivered euthanasia was a topic of social controversy and public discussion in Portugal, namely in the media. As medical students were deeply committed to this discussion, we expected respondents with different opinions in our study.

We believe this sample represents the population because it accurately reflects the feeling of the overall population of students. The key variables under examination were at the same level – age, gender or education level –, which could reduce the number of biased answers. For instance, the fact that 74% of the respondents were women is in accordance with the demographic evolution of medical practice and teaching in Portugal. Also, the fact that there are only 6 respondents from one medical school does not change the overall purpose of our study. Finally, the study included all the target population, the data collection method reached all individuals of the target population and nonresponse bias was residual due to an appropriate distribution method.

## Demographic data

Most respondents were women (74%) and single/living alone (92%). Average age was 24 years

old, being the youngest 22 years and the oldest 40. One student did not answer the age question. Of the 405 students, 286 (71%) followed a religion: 90% Catholic, 8% Christians and only 2% declared other religions.

When asked about how many people with incurable and progressive disease they had treated in the last year, only 9% answered “none”. Most (56%) answered between 1 to 5 patients in terminal condition, and 25% between 16 and 30 (Table 1).

**Table 1.** Demographic data

	Do you have a religion?			p
	Yes (n=119)	No (n=286)		
	n (%)	n (%)	n (%)	
Female	300 (74)	72 (61)	228 (80)	<0.001
Married/non-marital partnership	31 (8)	8 (7)	23 (8)	0.649
<b>School</b>				<b>0.342</b>
University of Algarve	6 (2)	3 (3)	3 (1)	
University of Beira Interior	25 (6)	5 (4)	20 (7)	
University of Minho	28 (7)	6 (5)	22 (8)	
Nova University Lisbon	58 (14)	17 (14)	41 (14)	
University of Coimbra	88 (22)	22 (19)	66 (23)	
University of Lisbon	75 (19)	24 (20)	51 (18)	
University of Porto	83 (20)	24 (20)	59 (21)	
School of Medicine and Biomedical Sciences	42 (10)	18 (15)	24 (8)	
<b>In the last year how many people with a terminal illness have you been confronted with in your clinical practice?</b>				<b>0.076</b>
0	36 (9)	8 (7)	28 (10)	
1-5	226 (56)	68 (57)	158 (55)	
6-15	23 (6)	3 (2)	20 (7)	
16-30	103 (25)	31 (26)	72 (25)	
>30	17 (4)	9 (8)	8 (3)	

### Euthanasia

Regarding euthanasia, 36% answered that they would practice it despite being prohibited by the Portuguese legislation, and 47% would not do it in these circumstances. There is still a high number of students (71 or 17%) without a formed opinion on the subject. If the legislation permitted, the percentage of future physicians practicing euthanasia would rise by 35% (to 71%), and the percentage of those who would not do it would drop from 47% to 21%, with no change in

the number of those who do not have a formed opinion. Only 13% and 6% have become aware, during their clinical experience, of either a request or practice of euthanasia, respectively.

Most students said that euthanasia should be allowed by the Portuguese law (73%), and only 11% had an opposing view. The percentage of those who did not have a formed opinion remained almost unaltered: 16%. Placing themselves in the situation of patients with a terminal illness, 66% said they would choose euthanasia, 12% would not do it and 22% did not have a formed opinion.

### Relation with religion

Regarding euthanasia, there were significant differences between respondents who had a religion and those who did not in questions about whether they would practice euthanasia if it was allowed ( $p=0.042$ ), on whether it should be allowed by the Portuguese legal system ( $p=0.008$ ), and if the participant would like to opt for euthanasia in case they had a terminal illness ( $p=0.040$ ): respondents who had no religion were more likely to claim that they would perform euthanasia if allowed by law, when compared

with those with religion, even after adjusting for gender (OR=1.858,  $p=0.010$ ).

Students without religion are more likely to affirm that euthanasia should be allowed by the Portuguese legal system compared to those with religion, even after adjusting for gender (OR=2.187,  $p=0.005$ ). Women are also more likely to state that euthanasia should be allowed by law than men (OR=1.661,  $p=0.048$ ). Non-religious students are significantly more likely to answer that they would like to opt for euthanasia if they had a terminal illness than those who declared a religion, even after adjusting for gender (OR=1.762,  $p=0.023$ ) (Table 2).

**Table 2.** Euthanasia

	Do you have a religion?			p
		No (n=119)	Yes (n=286)	
	n (%)	n (%)	n (%)	
1. Legislation does not allow it. However, are there any circumstances in which you would practice it?				0.623
No	189 (47)	55 (46)	134 (47)	
I have no formed opinion	71 (17)	18 (15)	53 (18)	
Yes	145 (36)	46 (39)	99 (35)	
2. If the legislation allowed it, would you do it?				0.042
No	84 (21)	17 (14)	67 (23)	
I have no formed opinion	72 (18)	18 (15)	54 (19)	
Yes	249 (71)	84 (71)	165 (58)	
3. Have you known, during your clinical experience, of a request for euthanasia?	51 (13)	13 (11)	38 (13)	0.514
4. Have you known, during your clinical experience, of a practice of euthanasia?	25 (6)	8 (7)	17 (6)	0.767
5. Do you think it should be allowed under the Portuguese legal system?				0.008
No	46 (11)	5 (4)	41 (14)	
I have no formed opinion	64 (16)	17 (14)	47 (17)	
Yes	295 (73)	97 (82)	198 (69)	
6. If you had a terminal illness would you like to opt for euthanasia?				0.040
No	47 (12)	7 (6)	40 (14)	
I have no formed opinion	89 (22)	24 (20)	65 (23)	
Yes	269 (66)	88 (74)	181 (63)	

### Assisted suicide

Concerning assisted suicide, the general trend was similar to that of euthanasia: if it was illegal, 28% would practice it, and 54% would refuse to do it. If legalized, these percentages would change to 52% and 28%, respectively. The number of people without formed opinion remained close to the previous group: 18 and 20% for the first and second questions. Similarly to the answers for euthanasia, only a residual amount became aware of a request (8) or assisted suicide practice (2) in their clinical years. Regarding its legalization, most (56%) are favorable, 21% are against and about a quarter of them have no formed opinion.

If they found themselves in a terminal condition, 51% would opt for assisted suicide, 21% would not do it and many had no confirmed opinion (27%).

### Relation with religion

Non-religious participants are significantly more likely to claim that they would participate in assisted suicide if the law allowed it than religious respondents, even after adjusting for gender (OR=2.101,  $p=0.001$ ). Non-religious students are more likely to say that assisted suicide should be permitted by law than those who have a religion, even after adjusting for gender (OR=2.032,  $p=0.002$ ) (Table 3).

**Table 3.** Assisted suicide

	Do you have a religion?			p
	No (n=119)	Yes (n=286)		
	n (%)	n (%)	n (%)	
				0.612
1. Legislation does not allow it. However, are there any circumstances in which you would practice it?				
No	218 (54)	60 (50)	158 (55)	
I have no formed opinion	74 (18)	22 (18.5)	52 (18)	
Yes	113 (28)	37 (31)	76 (27)	
2. If the legislation allowed it, would you do it?				0.001
No	113 (28)	18 (15)	95 (33)	
I have no formed opinion	83 (20)	25 (21)	58 (20)	
Yes	209 (52)	76 (64)	133 (47)	
3. Have you ever known, during your clinical experience, of an assisted suicide request?	32 (8)	8 (7)	24 (8)	0.571
4. Do you have knowledge of any assisted suicide practice during your clinical experience?	7 (2)	2 (2)	5 (2)	0.962
5. Do you think it should be allowed in the Portuguese legal system?				0.001
No	79 (20)	11 (9)	68 (24)	
I have no formed opinion	97 (24)	27 (23)	70 (25)	
Yes	229 (56)	81 (68)	148 (52)	
6. If you had a terminal illness would you like to opt for assisted suicide?				0.259
No	85 (21)	20 (17)	65 (22)	
I have no formed opinion	109 (27)	30 (25)	79 (28)	
Yes	211 (52)	69 (58)	142 (50)	

### **Cognitively impaired patients**

When questioned if, at the request of a relative or a close person, they would give one or more drugs in lethal doses to a person with a terminal illness who is unable to make decisions due to their condition, most responded negatively (67%), and only 10% answered “yes”. Moreover, 23% of them had no formed opinion. Only 41 (10%) students had knowledge of such a request and 9 (2%) had knowledge of it being carried out. As for the legalization of this practice, approximately half (49%) is against, and the rest is divided in 21% in favor and 30% with no formed opinion. If they a terminal illness and were unable to make decisions, 41% would not want a physician to put an end to their lives at the request of a relative or a close person, 30% considered this hypothesis favorable and 29% did not have a formed opinion.

In the case of giving drugs in lethal doses – as a physician’s own initiative and not at the request of a relative or close person – the answers were considerably different: twice as much (81%) of the respondents would not do it, 12% had no formed opinion and only 6% admitted this possibility. Returning to the circumstance of facing a terminal illness, 74% would not like the physician to give them drugs in lethal doses based only on their understanding, 16% had no formed opinion and 10% agreed.

### **Relation with religion**

Comparing the answers of religious with non-religious participants, we verify that the first gave more negative answers (“no”), although the difference is not significant.

### **Treatment suspension**

When asked if it would be legitimate to suspend life support measures at the request of patients, most respondents had a positive answer: “yes” (79%) and “yes, but in certain circumstances” (5%), and more respondents without formed opinion (9%) than negative answers (7%). Following this question, it was asked if they would suspend measures such as nutrition or hydration and here the answers were the opposite: 71% said “no”, 18% said

“yes” and 11% had no formed opinion. In the case of suspension of support measures being requested by a family member or close person, 43% said it would not be legitimate, 23% agreed (“yes”) and 12% said “yes, but in certain circumstances”. Those who said “yes” had a similar percentage of those who “had no formed opinion” (23%). The question if they would end support measures such as nutrition or hydration was repeated and the previous pattern remained: 79% answered “no”, 12% have “no formed opinion” and only 9% answered “yes”. If the decision to stop end-of-life care was unilateral on the part of the physician or health team, most considered it would be illegitimate (66%), 15% had “no formed opinion”, 13% said it would be legitimate, and 6% agreed only in certain circumstances. Again, most respondents would not stop hydration measures (82%).

### **Relation with religion**

Comparing the numbers of religious with non-religious participants, we find that they were very similar.

### **Symptoms control**

Most respondents admitted that they would administer drugs to control suffering even though they could shorten the patient’s life span (93% answered “yes”, 3% responded “yes, in certain circumstances”). In the role of patients, future physicians would like to be given the same treatment as their patients (96%). In this category, the number of participants without a formed opinion was reduced (3% and 2%) and differences between religious and non-religious respondents were residual.

### **Relation with religion**

Comparing the numbers of religious with non-religious responses, results show that they are very similar.

### **Other cases**

In total, 65% of the prospective physicians surveyed understand that the concept of euthanasia should not be extended to people

without terminal or somatic illnesses, those chronically ill, mentally ill and people who are tired of living due to old age, physical deterioration, loneliness or dependency. About one fifth have no opinion on the subject and only 16% agree with this measure. Once again, those who have no religion were slightly more favorable to extending the concept of euthanasia than those who have a religion: 19% against 15% – results consistent with those that were unfavorable, 62% and 66%, respectively (no statistical significance).

### **Palliative care**

To the question of whether palliative care could reduce euthanasia requests, 50% of religious and 41% of non-religious participants considers that “many” can be avoided. The pattern of answers regarding the option “some” was the opposite, with a higher percentage (52%) of non-religious and lower (44%) of religious participants (no statistical significance).

### **Discussion**

Euthanasia is currently being debated all over the world and is of particular interest for those graduating from medical schools. Despite advances on the discussion of euthanasia, physician-assisted suicide and other end-of-life decisions, medical ethics has remained relatively stable over the years<sup>12,13</sup>. Thus, there is no reason to assume that those in favor of decriminalizing end-of-life decisions have responded in greater percentage compared to those who agree with the current legal framework.

Of the eight medical schools in Portugal, the number of answers obtained can be considered proportional to the number of students attending them. Moreover, the set of answers forms a representative sample as it corresponds to approximately 10% of all students in the curricular years analyzed. For these reasons, the results can represent the opinion of medical students who have been treating patients for more years but who have not yet started their professional career.

Regarding euthanasia and physician-assisted suicide specifically, most students would not practice either of them under the current legal

framework. Nevertheless, there is a considerable percentage – about a third – that admits the possibility of acting in disagreement with the law. If euthanasia and assisted suicide were decriminalized, the percentage of future physicians who would practice them would increase significantly (to 71% and 52%, respectively). It is noteworthy the high rate of students – almost three-quarters – who are favorable to euthanasia in the Portuguese legal system, and to assisted suicide (more than half).

The acceptance of euthanasia and physician-assisted suicide by medical students is strongly related with their legalization. This association might be linked to different factors. Firstly, to the fact that despite having a strong ethical basis, medical practices should be in accordance with the rule of law except in specific circumstances, namely when law and ethics are clearly opposed – for instance, the participation of physicians in torture and other inhuman practices. The law itself has an important ethical symbolism, and it is generally accepted that especially constitutional laws should embrace the fundamental values of a particular society. It is not surprising that students are more willing to practice voluntary euthanasia or physician-assisted suicide if it is in accordance with the law and with professional guidelines that would prevent abuses such as involuntary euthanasia.

Although the results are in accordance with recent developments in some European countries<sup>14</sup>, they raise important questions about the future of medical education<sup>15</sup>. If physicians, including young residents, will have the responsibility for carrying out euthanasia and physician-assisted suicide, it is necessary to promote an objective debate about these practices<sup>16</sup>. Another issue to consider is if the teaching of medical ethics will evolve considering the fundamental values of the profession, mainly respect for human life<sup>15</sup>.

This is especially important as there is growing evidence that in some cases euthanasia becomes a non-voluntary and even an involuntary practice. Recent studies in Belgium, where euthanasia was legalized in 2002, show that nearly 5% of all reported deaths are due to euthanasia<sup>17</sup>, and medical teaching and training should be emphasized to avoid practices that could undermine patient autonomy.



As suggested by the results of this study, although medical students seem to progressively accept the practice of voluntary euthanasia, most of them do not accept non-voluntary or involuntary euthanasia (depressed patients, for instance) or even euthanasia in patients with reduced autonomy, such as children or people with disabilities.

If they had a terminal illness, the percentage of those who would like to opt for euthanasia or assisted suicide is lower than those who are in favor of euthanasia, which leads us to conclude that they would give the patients the same treatment they would like for themselves.

A survey similar to ours was made in Germany in 2007, time of great public discussion with the legalization of euthanasia in the Netherlands<sup>18</sup>, Belgium<sup>19</sup>, and in some US states<sup>20,21</sup>, with an overall population approval rate ranging from 42% to 73%. For this research, a survey with medical students of two German universities was conducted, with very similar questions to the ones used in our questionnaire<sup>7</sup>. The following differences was identified in the answers obtained: only about 30% of 6th year students were in favor of decriminalizing euthanasia; if it was legal, approximately 25% would practice it, and about 50% would like to opt for euthanasia in the future. In addition to a much larger proportion of German students who reject the legalization of euthanasia, there was an opposite trend to that of the Portuguese: the percentage of those who would like to opt for euthanasia as patients is higher than those in favor of legalization. More recent data from 2015 and from the same country (but from 4th year students at the University of Munich) show that only 19.2% see euthanasia as an ethically acceptable procedure<sup>6</sup>.

In Sweden, a study conducted between 2001 and 2003 with first and final year medical school students, revealed that 34% had a positive opinion regarding the legalization of euthanasia and 52% a negative opinion<sup>5</sup>. A study with third-year medical students at the University of Poznan, mostly Catholic, showed that 48% would be willing to practice euthanasia or assisted suicide, even though only 26% were favorable to its legalization<sup>22</sup>. In Austria (University of Graz) a study was carried out between 2001 and 2009 and found that 31% of students agreed to euthanasia<sup>23</sup>.

Concerning the Portuguese context, and although studies show that students have a more

positive attitude toward euthanasia and assisted suicide, in the study by Ferraz Gonçalves, where a preliminary version of this survey was used but applied only to oncologists, the author concluded that the overwhelming majority of the physicians questioned rejected euthanasia, even if it was legally permitted, a fact with which they also did not agree<sup>3</sup>. In this study, Catholics corresponded to 90% of those who claimed to be religious.

Despite these results it should remain clear that the differences in responses among religious and non-religious students is merely a correlation, lacking any demonstrable causation. Several factors contributed to these results, such as education and cultural and ideological background. This correlation may be responsible for the different results obtained concerning assisted suicide versus euthanasia, although Curlin and collaborators<sup>24</sup> have suggested that highly religious physicians are more likely than those with low religiosity to object to physician-assisted suicide.

Concerning both procedures in cognitively impaired patients, almost all the answers to administering drugs in lethal doses to a patient of this type were negative: they would not do so at the request of a relative or by their own initiative, and they did not agree with their legalization. That is, medical students recognize that although it is legitimate to discuss the exercise of autonomy in impaired people, through a living will for example<sup>25</sup>, “the merciful death” (involuntary euthanasia) unlike voluntary euthanasia<sup>26</sup> evokes ethical issues of enormous magnitude, particularly for vulnerable populations<sup>27</sup>.

In case of role reversal, from physician to patient, they had the same opinion: no administering drugs in lethal doses either at the request of a family member or a close person or at the physician’s initiative. Comparing with the study carried out in 2006 by Gonçalves<sup>3</sup>, most of the answers are similar to the ones obtained in our study, except for the legalization of euthanasia: 92% of the oncologists protesting against it and only 49% of students having the same opinion. In this group there was consensus between religious and non-religious participants.

Regarding withholding or withdrawing treatment in the case of terminally ill patients, most respondents considered it legitimate to suspend support measures once the patient has

expressly stated this will, which is in accordance with the recommendations in the matter. They understand that if the request for withdrawal of these measures comes from a relative or a close person, it should not be accepted and that the physician/medical team should not have a role in the decision. These issues make it clear that prospective physicians consider that the patient alone should decide whether to suspend treatment, not letting others interfere at this point. They rejected the possibility of withdrawing other measures such as nutrition or hydration, either at the request of the patient or a close person or relative, either by decision of the physician or medical teams. Portuguese oncologists showed the same tendency in the responses<sup>3</sup>. Also, in this group of questions there was proximity between the answers given by religious and non-religious respondents.

Concerning symptoms control, almost all (93%) future physicians would administer drugs to terminally ill patients to reduce suffering, even if this would shorten their life, and an even higher number would like to have this practice applied to themselves if they were patients. Religion does not prove to be a factor that differentiates symptom control responses. Palliative sedation, among others, seems to be an acceptable practice even if, according to international consensus, sedation should not anticipate the natural process of death<sup>28</sup>. Also on palliative care, the number of respondents who answered “some” and “many” regarding the question whether palliative care could avoid requests for euthanasia was practically the same. However, participants with religious convictions are more likely to consider that palliative care can avoid “many” requests for euthanasia comparatively to avoid “some”, and for the non-religious the opposite is true. Is it legitimate to conclude that religious participants associate requests for euthanasia and assisted suicide with insufficient palliative care? Portuguese oncologists, for the most part, believe that palliative care can prevent “many” requests for end-of-life procedures<sup>3</sup>.

In fact, a palliative care network is an imperative for any health system. Moreover, an adequate spiritual support and guidance, along with the assistance measures in palliative medicine are today the best practices for caring for the

terminally ill<sup>29</sup>. Future studies should therefore analyze the fact that most respondents do not consider acceptable a request for euthanasia by chronically and mentally ill patients, people tired of living, or with physical deterioration, loneliness or dependency to be acceptable.

In summary, the results of this study seem to show that prospective physicians are clearly in favor of legalizing euthanasia and physician-assisted suicide, contrary to the studies conducted in other European countries and to the study with Portuguese physicians. Despite being a country with a catholic population (81%), Portuguese society have been more liberal about some traditional dogmas as demonstrated by the outcome of the 2007 referendum on the abortion decriminalization. Similar results were obtained when we compared the answers of religious and non-religious respondents: although the former are less favorable to the legalization of euthanasia and assisted suicide, the differences are not significant. This raises questions concerning the limits of personal autonomy<sup>30</sup>, the role of physicians in this context<sup>31,32</sup> and even how to guarantee that the application of euthanasia and physician-assisted suicide is not merely appealing, that is, that there is no underlying treatable disorder such as depression<sup>33</sup>.

Regarding withholding or withdrawing treatments, this should happen exclusively when the patient autonomously decide and make it clear to be their will. This majority position on the part of the respondents is also in agreement with the most consensual perspective on the role of the family and especially of the health care surrogate (proxy/durable power of attorney) in defense of the patient's best interest<sup>34</sup>. Even if that was the patient's will, most respondents did not admit the withdrawal of hydration and nutrition. The greatest consensus was found for the control of symptoms, having as priorities the attenuation or extinction of the patient's suffering, even if this implies reducing life span.

In short, a consensus on these issues will never be reached given the controversy on the subject, which is fueled by a growing acceptance of different health care professionals, even at a graduation level, and in different backgrounds. Indeed, a study carried out in a Muslim country by Hosseinzadeh and Rafiei<sup>35</sup> showed that most

nursing students with clinical experience agreed with active euthanasia, an ethical evolution in line with our study. However, euthanasia and physician-assisted suicide will always be an important source of social debate<sup>36</sup> and further studies are needed to assess the consequences of this practice for patients, family members<sup>37</sup>, medicine and society.


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**Participation of the authors**

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## Appendix

### Questionnaire

#### Demographic data

1. Genre:

- Male
- Female

2. Age

3. Marital status:

- Single/living alone
- Married/non-marital partnership
- Divorced/separated
- Widowed/living alone

4. Do you have a religion?

- Yes
- No

4.1. If yes, which one?

- Catholicism
- Christianity (other)
- Islam
- Judaism

4.2 If yes, are you a practicing religious person?

- Yes
- No

5. Medical school

- Medical School – University of Minho
- Faculty of Medicine – University of Porto
- Institute of Biomedical Sciences Abel Salazar
- Faculty of Medicine of the University of Coimbra
- Faculty of Health Sciences – University of Beira Interior
- Faculty of Medicine of the University of Lisbon
- Nova Medical School – Nova University Lisbon
- Department of Biomedical Sciences and Medicine – University of Algarve

6. Curricular status

- Currently in the 6th year/last year
- I finished the course in 2015/2016

7. In the last year, how many situations of people with an incurable and progressive disease were you confronted with in your clinical practice?

- 0
- 1 to 5
- 6 to 15
- 16 to 30
- More than 30

**Euthanasia**

Definition: Deliberate and painless termination of a person's life with an incurable and progressive illness that will lead inexorably to death at the patient's explicit, repeated, informed and well-reflected request, by administering one or more drugs in lethal doses.

Given this definition of euthanasia, please answer the following questions:

1. Portuguese legislation does not allow the practice of Euthanasia. Nevertheless, are there circumstances under which you would practice it?

- Yes
- No
- I have no formed opinion

2. If legislation allowed the practice of euthanasia, would you do it?

- Yes
- No
- I have no formed opinion

3. Have you ever, during your clinical experience, been aware of a *request* for euthanasia in Portugal?

- Yes
- No

4. Have you ever, during your clinical experience, been aware of the *practice* of euthanasia in Portugal?

- Yes
- No

5. Do you think that euthanasia should be allowed under the Portuguese legal system?

- Yes
- No
- I have no formed opinion

6. If you had an incurable and progressive disease, would you like to be able to choose euthanasia?

- Yes
- No
- I have no formed opinion

### Assisted Suicide

Definition: Helping the suicide of a person with an incurable, advanced and progressive illness that will inexorably lead to death, at the patient's explicit, repeated, informed and well reflected request, prescribing the drugs and giving the patient the necessary instructions for their use.

Given this definition of assisted suicide, please answer the following questions:

1. Portuguese legislation does not allow the practice of assisted suicide. Nevertheless, are there circumstances in which you would practice it?

- Yes
- No
- I have no formed opinion

2. If the legislation allowed the practice of assisted suicide, would it do it?

- Yes
- No
- I have no formed opinion

3. Have you ever, during your clinical experience, been aware of a *request* for assisted suicide in Portugal?

- Yes
- No

4. Have you ever, during your clinical experience, been aware of the *practice* of assisted suicide in Portugal?

- Yes
- No

5. Do you consider that assisted suicide should be allowed under the Portuguese legal system?

- Yes
- No
- I have no formed opinion

6. If you had an incurable and progressive disease that led inexorably to death, would you like to be able to choose assisted suicide?

- Yes
- No
- I have no formed opinion



### Cognitively Impaired Patients

1. Would you administer one or more drugs in lethal doses to a person with an incurable, advanced, progressive disease that would lead inexorably to death and unable to make decisions for reasons of altered consciousness, at the request of a family member or other close person?

- Yes
- No
- I have no formed opinion

2. Have you ever, during your clinical experience, been aware of a *request* of this type in Portugal?

- Yes
- No

3. Have you ever, during your clinical experience, been aware of such a *practice* in Portugal?

- Yes
- No

4. Do you consider that such acts should be permitted by law?

- Yes
- No
- I have no formed opinion

5. If you had an incurable, advanced, progressive disease that led inexorably to death and were unable to make decisions for reasons of altered consciousness, would you want a physician to give you one or more drugs in lethal doses if asked to do so by a relative or other close person?

- Yes
- No
- I have no formed opinion

6. Would you administer one or more drugs in lethal doses to a person with an incurable, advanced, progressive disease that would lead inexorably to death and unable to make decisions for reasons of altered consciousness on your own initiative?

- Yes
- No
- I have no formed opinion

7. If you had an incurable, advanced, progressive disease that led inexorably to death and were unable to make decisions due to altered consciousness, would you like a physician to give you one or more drugs in lethal doses, based solely on the physician's judgment?

- Yes
- No
- I have no formed opinion

### Suspension of Treatments

Do you think that in a person with an incurable, advanced and progressive illness that would inexorably lead to death:

1. Is it legitimate to suspend life support measures at the patient's explicit, repeated, informed and well reflected *request*? Specify in "other" if you select "yes, in certain circumstances".

- Yes
- No
- I have no formed opinion
- Other

1. a) Would you suspend measures like nutrition or hydration?

- Yes
- No
- I have no formed opinion

2. If unable to make decisions for reasons of altered consciousness, is it legitimate to suspend life support measures at the request of a *relative* or another close person? Specify in "other" if you select "yes, in certain circumstances".

- Yes
  - No
  - I have no formed opinion
- Other

2. a) Would you suspend nutrition or hydration?

- Yes
- No
- I have no formed opinion

3. If unable to make decisions for reasons of altered consciousness, is it legitimate to suspend life support measures by a *unilateral physician's* or health care team *decision*? Specify in "other" if you select "yes, in certain circumstances".

- Yes
  - No
  - I have no formed opinion
- Other

3. a) Would you suspend nutrition or hydration?

- Yes
- No
- I have no formed opinion

### Symptoms Control

1. Would you administer drugs (e.g., morphine) to control severe suffering to people with incurable, advanced, and progressive illnesses that inexorably lead to death, even if it might shorten their lives (without that being your intention)? Specify in "other" if you "select yes, in certain circumstances".

- Yes
- No
- I have no formed opinion
- Other

2. If you had an incurable, advanced, progressive disease that led inexorably to death and were severe suffering, would you want a physician to give you drugs (e.g., morphine) to control your distress even if it could shorten your life (without that being the intention)?

- Yes
- No
- I have no formed opinion
- Other

### Palliative care

Definition: An approach that aims to improve the quality of life of patients and their families who face problems due to an incurable and/or severe illness and with limited prognosis, through the prevention and alleviation of suffering, using early identification and rigorous treatment of not only physical problems, such as pain, but also of psychosocial and spiritual problems.

Given this definition of palliative care, please answer the following questions:

1. Do you consider that palliative care can prevent requests for euthanasia and assisted suicide?

- All
- Many
- Some
- None
- I have no formed opinion

### Other cases

1. In your view, does the concept of euthanasia (with all its ethical, legal, social or other implications) should be extended to situations of people without a terminal illness or somatic illness, including chronic patients, the mentally ill, people tired of living due to old age, physical deterioration, loneliness or dependency?

- Yes
- No
- I have no formed opinion