

End-of-life practices: The opinions of undergraduate medical students at a South African university

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Background. Modern people live increasingly longer lives owing to advances in medicine and medical technology. This has raised many ethical questions regarding the prolongation of life, the right to die and euthanasia.

Objective. To determine the opinions of medical students at the University of the Free State (UFS), South Africa (SA), regarding end-of-life practices: terminal pain management, withholding/withdrawing potentially life-sustaining treatment, advance directives and assisted dying.

Methods. This was an observational, cross-sectional quantitative study. A self-administered and anonymous questionnaire was distributed to undergraduate medical students (preclinical and clinical). Demographic data were collected.

Results. The overall response rate was 71.6% (481/672; preclinical 82.4% and clinical 64.4%). Students agreed that patients should have access to medical care (90.0%), and that pain medication should be state-supplied (86.3%). Students agreed that patients should have the right to refuse medical care (72.1%) and/or potentially life-preserving treatments (69.8%). Overall, 67.3% of students agreed that doctors should have the right to turn off life support if requested in the patient's living will. Students (78.4%) disagreed that life support may be turned off without consent. Clinical students (54.5%) supported assisted dying being legal in SA, compared with the preclinical students (31.4%). While 43.0% of students agreed that assisted dying should be legal, only 36.2% were willing to perform the procedure themselves.

Conclusion. Medical students at UFS agree with the legislation of three of the end-of-life practices: terminal pain management, withholding/withdrawing potentially life-sustaining treatment and advance directives. The clinical students, however, are more in favour than preclinical students of assisted dying becoming legal.

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Modern people live increasingly longer lives owing to advances in medicine and the application of medical technology, but this has raised many ethical questions regarding the prolongation of life, the right to die and euthanasia.^[1,2] In South Africa (SA), it is illegal to terminate a person's life or assist therein in order to end pain and suffering, even for a terminally ill patient. The common law criminalises euthanasia, but allows a patient to instruct a doctor to withhold/withdraw potentially life-sustaining treatment.^[1]

According to the SA Law Commission, terminal illness refers to an illness, injury or other physical or mental condition that, in medical judgment, will inevitably cause the patient's death and is producing extreme suffering, or will cause an irreversible vegetative condition.^[1] In 2011, the Ethics Institute of SA (EthicsSA)^[3] conducted a scoping survey among doctors and specialists at two medical schools in SA, in which more than 80% of participating doctors indicated that assisted dying should only be contemplated when a patient is terminally ill, while 12% believed that assisted dying does not require a terminal illness.

End-of-life decisions are categorised into the following four practices by the legal fraternity: (i) terminal pain management; (ii) withholding or withdrawing of potentially life-sustaining treatment; (iii) advance directives; and (iv) assisted dying. Patients in SA have the right to affordable palliative care in the case of a terminal illness.^[4]

Under the *National Patients' Rights Charter*, published by the Health Professions Council of SA (HPCSA),^[4-6] patients have the right to refuse treatment. The National Health Act No. 61 of 2003^[6] allows patients, in writing, to designate a person to act on their behalf when they are no longer capable of doing so themselves.

'Assisted dying' is an umbrella term that entails all end-of-life interventions in the dying process.^[3] 'Assisted suicide' means that a person intentionally provides the means for a competent person to take their own life. 'Voluntary active euthanasia' means that a competent person at the end of life asks another person to perform an act which is the proximate cause of death. In this article, the term 'assisted dying' will be used in a narrower sense to refer to both assisted suicide and voluntary active euthanasia.

While studies have concentrated on what qualified doctors think about end-of-life decisions, it is of interest to ascertain the opinions of medical students ('doctors in training'). A study was conducted among medical students at a university in Croatia about their opinion on euthanasia, before and after bioethics education on the topic.^[7] Before the course, their attitudes toward euthanasia largely varied with respect to religion and according to whether they were rural or urban. After the training, students were significantly more positive towards euthanasia, and no differences between subgroups were

found. A study by Weber *et al.*^[8] among German final-year medical students revealed limited confidence and knowledge concerning palliative-care issues. A study in the Netherlands highlighted the need to pay more attention to education on end-of-life care in the medical curriculum.^[9]

Objective

This study aimed to determine the opinions of medical students at the University of the Free State (UFS), Bloemfontein, SA, regarding end-of-life practices.

Methods

Study design and population

This was an observational, cross-sectional quantitative study, conducted between July and November 2016. The study population was all the registered first- to fifth-year medical students at the School of Medicine, UFS: 672 students in total.

The undergraduate MB ChB curriculum presented by UFS spans 5 academic years. During the second part of their studies, students gain clinical experience in teaching hospitals and clinics. For this study, first- and second-year students are referred to as the preclinical group. Third-year students had started with their first clinical semester at the time of the study, and are referred to, together with the fourth- and fifth-year students, as the clinical group. At the beginning of the third year, as part of an ethics module, students have four sessions on palliative care.

Measurement

The measurement tool, designed by the researchers, was a self-administered and anonymous questionnaire adapted from the survey used by Landman,^[3] and was available in English only. Demographic data were collected. Students' opinions on the four end-of-life practices were determined by formulated questions or statements. Each question or statement had five options, of which participants had to mark one: strongly agree, agree, neutral, disagree and strongly disagree. Of the 12 questions, two questions focused on terminal pain management, withholding or withdrawing potentially life-sustaining treatment and advance directives. Six questions focused on the practice of assisted dying.

Questionnaires were handed out by the student researchers to the preclinical and third-year students during lectures, and collected after immediate completion. The clinical students completed their questionnaires in their respective rotation groups.

Pilot study

A pilot study was done on a convenient sample of 10 second-year occupational therapy students of the Faculty of Health Sciences, UFS, to enhance the validity of the questionnaire. Minor spelling changes were made to the questionnaire, and an additional question allowing the students to comment was added.

Analysis of the data

Data were analysed by the Department of Biostatistics, Faculty of Health Sciences, UFS. Categorical information was summarised by frequencies and percentages, and numerical variables by means, standard deviations or percentiles. For reporting of results, the categories 'strongly agree' and 'agree' were grouped together, as were the categories 'disagree' and 'strongly disagree'.

Ethical considerations

The protocol was approved by the Health Sciences Ethics Committee, UFS (ref. no. HSREC-S-45/2016). Permission was obtained from the Vice Rector: Research, Dean of the Faculty of Health Sciences and head of the School of Medicine, UFS. Participation was voluntary. Completing and handing in the questionnaire was considered to constitute consent to the study.

Results

The overall response rate was 71.6% (481/672). The response rate for each medical year group is indicated in Table 1. Almost all of the participants (96.8%) were in the age range 17 - 25 years, and 41.3% were male and 58.7% female.

Terminal pain management

The majority of students (90.0%) agreed that all people should be granted full medical care (Table 2). The fifth-year group had the lowest percentage agreeing (79.0%), and the highest percentage disagreeing (8.1%). Most students (86.3%) agreed that patients should have access to state-supplied pain medication during end-of-life care. The first-year group had the lowest percentage agreeing (77.0%) and the highest percentage choosing the neutral option (17.6%).

Withholding potentially life-sustaining treatment

Most of the students (72.1%) agreed that a patient should have the right to refuse medical care, while 69.8% agreed that patients should be allowed to refuse potentially life-preserving treatment (Table 3). A fifth (20.3%) of the first-year students felt that patients should not have this right, compared with 9.7% of fifth-year students. First-year students were also the group with the highest percentage (26.4%) disagreeing that patients should be allowed to refuse treatment.

Advance directives

Only 54.4% of first-year students agreed that they would turn off life support if this was requested in the patient's living will, compared with 79.0% of fifth-year students (Table 4). The majority of students (78.4%) were of the opinion that a doctor should not be allowed to turn off life support without the consent of the family or the patient. More preclinical students were opposed to this practice than clinical students. However, at least 20% of fourth- and fifth-year students were neutral on this practice, compared with less than 10% each in the remaining groups.

Assisted dying

Across all five groups, only 36.2% would assist a patient in carrying out

Table 1. The response rates of undergraduate medical students in their respective year groups

	Students in year, <i>N</i>	Participants, <i>n</i> (%)
Preclinical		
1st year	178	148 (83.1)
2nd year	109	89 (81.7)
Clinical		
3rd year	140	90 (64.3)
4th year	123	92 (74.8)
5th year	122	62 (50.8)

Table 2. The opinions of undergraduate medical students regarding pain management as an end-of-life practice (%)

	All	Preclinical		Clinical		
		1st year	2nd year	3rd year	4th year	5th year
All people, irrespective of age or health status, should be granted full medical care						
Strongly agree	65.0	94.6	92.1	86.5	91.3	79.0
Agree	25.0	5.4	4.5	7.9	6.5	12.9
Neutral	6.9	0	3.4	5.6	2.2	8.1
Disagree	2.1					
Strongly disagree	1.0					
Patients should have state-supplied access to pain medication during end-of-life care						
Strongly agree	51.8	77.0	85.4	93.3	91.3	91.9
Agree	34.5	17.6	7.9	3.3	5.4	3.2
Neutral	8.9	5.4	6.7	3.3	3.3	4.8
Disagree	2.5					
Strongly disagree	2.3					

Table 3. The opinions of undergraduate medical students regarding withholding potentially life-sustaining treatment as an end-of-life practice (%)

	All	Preclinical		Clinical		
		1st year	2nd year	3rd year	4th year	5th year
The patient should not have the right to deny medical care*						
Strongly agree	4.8	20.3	14.6	12.2	8.7	9.7
Agree	9.4	19.6	12.4	12.2	5.4	16.1
Neutral	13.7	60.1	73.0	75.6	85.9	74.2
Disagree	37.2					
Strongly disagree	34.9					
Patients should be allowed to deny potentially life-preserving treatment*						
Strongly agree	26.3	58.8	68.5	75.3	83.7	69.4
Agree	43.5	14.9	14.6	13.5	5.4	12.9
Neutral	12.5	26.4	16.9	11.2	10.9	17.7
Disagree	11.9					
Strongly disagree	5.8					

*Phrasing as on questionnaire, in text referred to as 'refuse'.

Table 4. The opinions of undergraduate medical students regarding advance directives as an end-of-life practice (%)

	All	Preclinical		Clinical		
		1st year	2nd year	3rd year	4th year	5th year
A doctor should have the right to turn off life support provided it is in the living will of the patient						
Strongly agree	24.0	54.4	65.2	78.9	70.7	79.0
Agree	43.3	17.7	15.7	13.3	22.8	12.9
Neutral	16.9	27.9	19.1	7.8	6.5	8.1
Disagree	8.5					
Strongly disagree	7.3					
A doctor should have the right to turn off life support, with evidence of life not being sustainable, without the consent of family or the patient						
Strongly agree	2.1	6.9	6.7	13.8	10.0	13.8
Agree	7.5	8.3	6.7	9.2	18.9	22.4
Neutral	12.0	84.7	86.5	77.0	71.1	63.8
Disagree	32.5					
Strongly disagree	45.9					

a procedure linked to assisted dying, while 45.3% would not assist and 18.5% were neutral (Table 5). Half (53.8%) of the preclinical students would not assist a patient in carrying out a procedure linked to assisted dying. The clinical group was slightly more in favour of the idea, with at

least 40% willing to carry out the procedure. A higher percentage of this group, however, remained neutral compared with the preclinical group.

Clinical students were more inclined to opt for assisted dying if they were ever terminally ill themselves (54.9%), while only 31.0%

Table 5. The opinions of undergraduate medical students regarding assisted dying as an end-of-life practice (%)

	All	Preclinical		Clinical		
		1st year	2nd year	3rd year	4th year	5th year
Would you as a medical professional assist a patient in carrying out a procedure linked to assisted dying, provided it was legal to do so?						
Strongly agree	11.9					
Agree	24.3	32.4	25.8	41.1	43.5	41.9
Neutral	18.5	12.8	21.4	17.8	23.9	21.0
Disagree	17.9					
Strongly disagree	27.4	54.7	52.8	41.1	32.6	37.1
If ever in the position of being terminally ill, would you perhaps opt for assisted dying, provided it was legal?						
Strongly agree	16.2					
Agree	27.0	30.4	31.5	55.6	57.6	51.6
Neutral	20.2	21.6	24.7	13.3	17.4	24.2
Disagree	15.2					
Strongly disagree	21.4	48.0	43.8	31.1	25.0	24.2
Would you, as a medical professional, carry out a euthanising procedure, provided it was legal?						
Strongly agree	11.3					
Agree	18.8	22.9	23.6	35.6	38.9	36.2
Neutral	20.1	20.8	11.2	18.4	28.9	20.7
Disagree	15.4					
Strongly disagree	34.4	56.3	65.2	46.0	32.2	43.1
A committee consisting of medical professionals and lawyers should determine whether a patient is eligible for an assisted-dying procedure						
Strongly agree	15.8					
Agree	25.6	31.8	46.1	35.6	52.2	50.0
Neutral	17.7	13.5	12.4	25.6	20.7	19.4
Disagree	23.1					
Strongly disagree	17.9	54.7	41.6	38.9	27.2	30.7
The decision on whether the assisted-dying procedure may be carried out should be legally decided upon by the patient and doctor alone						
Strongly agree	11.9					
Agree	27.1	40.5	45.5	51.1	28.3	24.2
Neutral	20.6	16.9	14.8	18.9	28.3	29.0
Disagree	23.8					
Strongly disagree	16.7	42.6	39.8	30.0	43.5	46.8
Assisted dying should remain illegal in South Africa						
Strongly agree	15.7					
Agree	14.6	42.9	30.3	24.4	19.6	24.6
Neutral	26.7	25.9	38.2	22.2	26.1	19.7
Disagree	26.7					
Strongly disagree	16.3	31.3	31.5	53.3	54.4	55.7

of preclinical students agreed, and 23.2% remained neutral. In the clinical group, the percentage of students remaining neutral increased from 13.3% in the third years to 24.2% in the fifth years.

Except for the fourth-year students, the highest percentage in each group would not carry out a euthanising procedure, even if it was legal. Just over 60% of preclinical students would not carry out this procedure, compared with 44.6% of third- and fifth-year students. Overall, second-year students had the highest percentage of disagree responses (65.2%). Even though the highest percentage of fourth-year students (38.9%) agreed that they would carry out a euthanising procedure, they were also the group with the highest percentage of neutral responses (28.9%).

Medical students were almost equally divided between agreeing (41.4%) and disagreeing (41.0%) that a committee consisting of medical professionals and lawyers should determine whether a patient is eligible for an assisted-dying procedure. First-year students mostly disagreed (54.7%), while half of fourth- and fifth-year students agreed. There was no definite trend between the preclinical and

clinical groups; second, fourth and fifth years were more inclined to agree, while first and third-years tended to disagree.

The students were also almost equally divided (39.0% agree; 40.5% disagree) on whether or not the decision to carry out an assisted dying procedure should be legally regulated upon by the patient and doctor alone. No definite trend was apparent. The highest percentage in second- and third-years agreed, while first, fourth and fifth years disagreed.

While 43.0% of students disagreed that the practice of assisted dying should remain illegal in SA, more than a quarter (26.7%) were neutral. First-year students tended to agree with this statement (42.9%), whereas more than 50% of clinical students disagreed.

Discussion

Results from this study show that undergraduate medical students at UFS agree that terminally-ill patients should receive terminal pain management and have access to pain medication during end-of-life care. This is in line with the HPCSA's *National Patients' Rights Charter*.^[4]

There was a strong leniency towards the patient having the right to refuse medical care and potentially life-preserving treatment, which is in line with current legislation.^[1] The clinical group was more in agreement with this practice than the preclinical group, showing that students in their clinical years are more accommodating of patient autonomy.

The clinical students clearly supported the practice of allowing patients to make decisions regarding their life and health. Most of the students would turn off life support if this was specified in a living will; however, a percentage of students indicated that they would not turn off life support even when consent was given in a living will. The majority of students were clear on the issue that life support should not be turned off unless prior permission or discussion had occurred with the family or patient. In the EthicsSA survey, 75% of responding doctors agreed that advance directives help to clarify a patient's wishes regarding treatment when incompetent and at the end of life, whereas only 12% disagreed.^[3]

Differing opinions were seen between the preclinical and clinical groups regarding the practice of assisted dying. The role of clinical exposure and responsibility affecting the view of assisted dying needs to be further investigated.

The question on whether students would opt for assisted dying should they themselves be terminally ill showed that it seems a more realistic possibility for the clinical students, after exposure to terminal cases. There was a 20.0% difference between the preclinical and clinical groups for this scenario, with clinical students more in favour of opting for assisted dying if they were the patient. When the question was directed at their professional opinion as to whether they are willing to carry out an assisted dying procedure, the difference dropped to under 10%. This may be the result of clinical students realising that their professional and personal opinions overlap. They need to accept that, if they would ever want the procedure carried out on themselves, they may be obliged to perform an assisted dying procedure. A slightly higher percentage of medical students (30.1%) would be willing to carry out a euthanising procedure than the 25% of respondents in the EthicsSA study,^[3] affirming that they would administer a lethal drug, if requested, provided euthanasia was legal. Our results also showed that 36.2% of the students would help a patient to carry out an assisted-dying procedure, compared with 30.1% who would carry out voluntary active euthanasia. Although the difference is only 6.1%, the results may indicate that medical students make a moral distinction between assisted dying and euthanasia.

First-year students showed more support for the doctor and patient to make an end-of-life decision rather than a multi-professional committee consisting of medical professionals and lawyers. However, the more experienced clinical students (fourth and fifth years) showed more support for allowing a committee to make the decision rather than the doctor and patient alone. These two year-groups also had the highest neutral percentages of 28.3% and 29.0%, respectively, on whether they think the doctor and patient should have sole responsibility in end-of-life decisions. The clinical students therefore seem to better appreciate the support of the multi-professional committee, or to want to delegate the responsibility to someone else.

Current laws in SA do not allow either assisted dying or the carrying out of euthanising procedures. In 2016, SA's laws were challenged on this matter by the Stransham-Ford v the State case, where the

Supreme Court of Appeals denied the prosecutor the right to have the procedure carried out on Robert Stransham-Ford, overturning the ruling of SA's High Court made in 2015.^[10] The question as to whether assisted dying should remain illegal in SA is central to this study. Overall, 43.0% of students felt that assisted dying should be legalised, while 26.7% remained neutral. However, just over 30% of preclinical students supported legalising assisted dying, compared with more than 50% of clinical students. According to the EthicsSA survey, 38% of physicians indicated that doctor-assisted suicide should be legalised. When further asked if voluntary active euthanasia should be legalised, 34% strongly agreed or agreed.^[3]

Even though 43.0% of the students agreed that assisted dying should be legalised in SA, only 36.2% would be willing to be involved. This result shows that clinical students at UFS have similar views to practising doctors in Bloemfontein on this issue.^[3] A similar study on attitudes towards euthanasia and physician-assisted suicide in Switzerland showed significant variations among medical students, oncology clinicians and palliative-care specialists.^[11] It does seem that, in general, fewer doctors than students are in favour of assisted dying. However, another study in 2009 that aimed to find out the opinions of doctors in the private sector in Bloemfontein indicated that 82.3% of the doctors would never perform an assisted-dying procedure.^[12] It is not clear whether this may indicate a change in views over time, or a lack of standardised measuring tools used by the different studies.

Study limitations

During the study, fifth-year students were busy with their final examinations. The poor response rate among the fifth-year students may have resulted in biased results.

The measuring tool was adapted to create scenarios more understandable to medical students, rather than medical practitioners.

Students were not given much time to deliberate and prepare, nor to discuss answers to the questions. Furthermore, this study only reports on the opinion of the current medical students of one medical institution in the country.

Conclusion and recommendations

From the results, medical students at UFS agree with the legislation of three of the end-of-life practices: terminal pain management, withholding or withdrawing potentially life-sustaining treatment and advance directives. The clinical students, however, are more in favour than the preclinical of assisted dying becoming legal.

The topic of assisted dying should be integrated into the curriculum, making available adequate background information and implications for practice, so that a well-informed decision can be made. The authors recommend further studies to obtain opinions from other medical schools in SA.

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