

ORIGINAL RESEARCH ARTICLE

On Knowledge and Attitudes towards Living Wills among Medical University students

Hanyu Chang¹, Xia Li², Kaiqiang Wang³, Lijun Yu⁴

Keywords: palliative care; end of life; living wills; medical students; knowledge; attitude

ABSTRACT

Objective:

During palliative care some patients cannot independently choose which therapies to accept or not to accept at the end of life and it is hence significant to promote and legalize the understanding of living wills amongst health professionals.

To explore the level of medical students' knowledge and attitudes towards living wills and provide a reference for following research and promotion in future.

Methods:

A random cluster sample of 718 students in a medical university in Dalian were surveyed during June 2019 to determine their knowledge and attitudes towards living wills.

Results:

The results showed that the knowledge rate of living wills among medical students was 31.9%, 31.2% of medical students knew the essence of living wills, and 16.7% fully understood the contents of living wills. 72.4% of medical students believed that was necessary to popularize living wills, and the biggest obstacle was that people's attitude towards life and concept of death, and the right to death autonomy was still controversial, accounting for 77.0%.

Conclusions:

The level of medical students' knowledge of living wills is poor, but their attitude is positive and supportive. We can improve their knowledge of living wills by taking measures including educational intervention, holding humanities courses, and creating a supporting environment.

Main Contribution to Evidence-Based Practice:

The paper contributes to learn about the knowledge and attitudes towards living wills, especially among medical students. It also found detailed difficulties of promoting living wills, which can play a part in popularizing and legalizing living wills around the World.

Authors' Affiliations:

- ¹ First Hospital of Lanzhou University, Lanzhou, China, 730013
- ² Shanghai HWEM Group, Shanghai, China, 200000
- ³ Children's Hospital Affiliated Shandong University, Jinan, China, 250000
- ⁴ Beijing BOE Hospital, Beijing, China, 100000

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Corresponding Author:

Hanyu Chang
First Hospital of Lanzhou University, Lanzhou, China, 730013
Email: 1664137476@qq.com

What do we already know about this topic?

With the accelerated aging of society and progress in the medical technology, many end-of-life patients can be maintained through supportive therapy, but they cannot obtain good quality of life. The UK, Canada, Germany, and other countries have enacted legislation of living wills. Palliative care and hospice care are at the initial stage in China, some patients cannot independently choose which therapies to accept or not to accept at the end of life due to the absence of legal protection and traditional concepts. It is hence significant to promote and legalize living wills.

What is the main contribution to Evidence-Based Practice from this article?

The result of the article updated the knowledge, attitudes, and popularization difficulties of living wills among medical students. Through the article, it will provide diversified ways of improving knowledge and attitudes towards living wills, which will help end-of-life patients and their families make choices according to their wishes easily in their clinical practice.

What are your research's implications towards theory, practice, or policy?

This research's implication can reach the survey samples of relevant research of living wills and help people learn about knowledge of living wills in-depth. It also serves as real evidence for policy makers to take measures to popularize and legalize living wills.

Authors' Contributions Statement:

Hanyu Chang contributed to the conception, design, review, writing, revision of the study. Xia Li performed the data collection, analysis and wrote original manuscript. Kaiqiang Wang and Lijun Yu contributed to the discussion and conclusion.

With the accelerated aging of society and changes in the medical model, the introduction and development of palliative care and hospice care, people are paying more and more attention to quality of life. Living will is a document that people sign when they are conscious and choose medical interventions they want or do not want at the end of an incurable illness or injury or at the end of life (Velasco-Sanz & Rayón-Valpuesta, 2016), which, together with the durable power of attorney, constitutes advance directives and provides a choice for patients' quality of life at their end of life. In addition to the inherent benefits for those special people, living wills also can minimize moral conflicts within health team that has to care for the person, and help the family to relieve the responsibility of making difficult decisions, avoiding family conflicts which arise in some delicate situations (Fernández-Rodríguez et al., 2022). But the lack of clear legislative protection and traditional views on life and death have made the promotion of living wills in China difficult. It is worth mentioning that in July 2022, the newly revised "Shenzhen Special Economic Zone Medical Regulations" was published.

This revision set special provisions for living wills, and Shenzhen became the first city to promote living wills into the law in China. Medical students, as the future reserve of medical human resources, will play a positive role in promoting living wills. The aim of this study is to explore medical students' knowledge and attitudes toward living wills to provide references for future related research and promotion.

1 Methodology**1.1 Data Sources**

Stratified random whole-group sampling method was conducted to select medical students in a medical university during June 2019 in Dalian, China. Samples were chosen in five majors including clinical medicine, preventive medicine, pharmacy, nursing, and public health management firstly. Then one class was selected in every grade of those majors respectively, totaling 22 classes of 750 medical students. Finally, 750 questionnaires were distributed among the medical students, 718 questionnaires are effective, and the effective rate was 95.7%.

1.2.1 Variable Definitions

In this study, we developed a self-administered Knowledge and Attitudes of Living wills Questionnaire" with reference to the Choices and Dignity website "My Five Wishes" (Lwpa.org.cn, 2022)., which was divided into four sections included basic information (6 items), knowledge of living wills (7 items), attitudes of living wills (5 items), and promotion of living wills (7 items), with a total of 25 entries.

The 7 questions in the knowledge section were assigned a value, in which 1 point was given for a correct answer to a single-choice question and no points for an incorrect answer; 1 point was given for each correct answer to a multiple-choice question and no points for an incorrect answer. The degree of knowledge was divided into three levels: 60% of the total score and above, i.e., score ≥ 9 is knowledge; score 4-8 is partial knowledge; score ≤ 3 is no knowledge.

1.2.2 Control Variables

To ensure the quality of the questionnaire, a person in charge must be designated for each survey class, and training was conducted to make them familiar with the meaning and matters of the questionnaire.

Based on the principle of prior and informed consent, the questionnaire was distributed on site, and questions were answered for the respondents at any time during the filling process, which was completed and collected in a uniform manner. Data entry using Excel, double entry, and mutual verification to ensure that the data is error-free.

1.2.3 Statistics

A descriptive statistical analyze was mainly performed on the basic information, level of knowledge and attitudes towards living wills among the medical students. X^2 Test were performed on accuracy of knowledge of living wills among different characteristics. Data was analyzed employing SPSS. The level of significance was set at $p < 0.05$.

2 Results

2.1 Baseline Results.

Among the 718 responses, 232 (32.3%) were male and 486 (67.7%) were female, and the number of female students was about twice that of male students; 215 (29.9%) were majoring in clinical medicine, 126 (17.5%) in preventive medicine, 147 (20.5%) in pharmacy, 122 (17.0%) in nursing, 108 (15.0%) in public health management 15.0%; 156 (21.7%) were freshmen, 134

(18.7%) were sophomores, 153 (21.3%) were juniors, 155 (21.6%) were in their senior year, and 120 (16.7%) were in their fifth year; 501 (69.8%) had experienced the death of families or friends.

2.2 Knowledge of living wills among the medical students.

The results showed that the overall knowledge rate of living wills among the medical students was 31.9%, partial knowledge rate was 63.9%, and non-knowledge rate was 4.2%. There is statistical significance of knowledge rate among five grades of the participants $X^2=53.346$, $P=0.000$.

2.2.1 Perception of the substance of living wills.

31.2% of the medical students chose the essence of living wills as death with dignity, 32.5% were not sure of its essence, and 36.3% confused death with dignity with the concepts of hospice, euthanasia, and palliative care. Accuracy of the essence of living wills were statistically different among five grades ($X^2=37.819$, $P=0.000$) and professions ($X^2=39.323$, $P=0.000$). The accuracy of nurses is highest, accounting for 38.5%.

2.2.2 Knowledge of the contents of living wills.

The degree of knowledge of living wills content was divided into three levels, and all five items were selected as fully understood; 2 to 4 items were selected as partially understood; and 1 item was selected as not understood.

The results of the survey showed that 16.7% of the medical students fully understood the content of living wills, 50.7% partially understood it, and 32.6% did not understand it at all. The results demonstrated statistical difference in five grades ($X^2=39.120$, $P=0.000$) and groups who experienced death of families or friends ($X^2=8.907$, $P=0.012$).

2.2.3 Perceptions of the meaning of living wills.

92.5% of the medical students believe that living wills can help people consider, face and arrange end-of-life related matters; 92.8% believe that living wills can help patients' families make reasonable decisions; 32.5% believe that living wills can avoid conflicts between patients and doctors, 49.3% believe that living wills can avoid conflicts between patients and families conflicts, 47.6% thought that living wills could avoid conflicts between doctors and patients' families, 43.3% thought that all of the above could be avoided, and only 2.3%

thought that conflicts could not be avoided.

2.4 Medical students' attitudes toward living wills.

2.4.1 Medical students' attitudes toward the need for medical care for patients at the end of life who are unable to make decisions about medical issues.

94.7% of the medical students felt the need for "adequate protection of patient privacy while being treated and cared for" while 34.4% did not accept "any treatment or test that increases pain, even if the health care provider believes it may be beneficial to clarify the diagnosis and improve health ". See Table 1 for details.

2.4.2 Medical students' attitudes toward forgoing life-support treatment measures for patients with no quality of survival.

67.7% of the medical students were more willing than not to give up life support treatment for patients with no quality of survival, of which 67.7 were willing to give up the use of expensive antibiotics, and 49.6% were willing to give up blood transfusion. See Table 2 for details.

2.4.3 Medical students' attitudes towards the use of life support treatment for patients in the following states.

41.8% and 41.6% of the medical students did not support the use of life support in irreversible coma and permanent persistent vegetative state, both higher than the percentage of supporters; the percentage of medical students who supported the use of life support treatment for end-of-life patients with survival time <6 months was 37.3%, slightly higher than the percentage of non-supporters, 33.4%. For details, see Table 3.

2.4.4 Medical students' attitudes toward patients' needs for wish fulfillment at the end of life.

The top three wishes were "to be accompanied by someone", "to be accompanied by patient's favorite music", and "to have a favorite picture or photo to hang in the room near patient's bed". The proportions were 91.4%, 89.4%, and 84.5%. For details, see Table 4.

2.4.5 Medical students' attitudes toward the wishes of patients who have reached the end of their lives and passed away.

The highest percentage of the medical students thought that patient's wish to be fulfilled at the end of his life was "for his families to resume normal life as

soon as possible after his death", accounting for 88.7%; the highest percentage of disapproval was "no memorial service", accounting for 23.8%. For details, see Table 5.

2.6 Medical students' attitudes towards the promotion of advance directives for living.

The survey results show that 72.4% of the medical students believe it is necessary to promote living wills, 22.4% are unsure, and 5.2% do not think it is necessary. The factors that hinder the promotion of living wills are shown in Table 6, and more than 60% of participants agree with them, where the hindering factor with the highest degree of agreement is that people's attitudes toward life and the concept of death are in a pluralistic and contradictory stage, death autonomy is still controversial, with a proportion of 77.0%; the second manifestation is the improvement of medical quality and doctors will be accused of abandoning support systems. The top three measures were: education intervention on the contents of living wills, timely communication of living wills by medical professionals to patients and their families, and community-based activities on the theme of "My Body is My Choice". See Table 7 for details.

3 Discussion

3.1 Medical students' knowledge of living wills is poor. The knowledge rate of living wills among the medical students in this survey was 31.9%, which was lower than the 36.7% knowledge rate of living wills in a survey of the general population in Japan (Maeda & Shintani, 2015), but higher than 10.1% in a survey of 427 medical students in three colleges and universities in Chengdu by Xueling Tan (Tan & Li, 2019) and was lower than 46.02% in a survey of 439 medical personnel in Zhengzhou City by Jia Sun (Sun et al., 2019), which was higher than 28.61% knowledge rate of 434 medical students by Chunyan Lin (Lin et al., 2020), which may be related to the medical humanities curriculum and more popularization of living wills in the teachers' lectures at this school.

3.2 Medical students have a vague perception of the content and essence of living wills.

The highest percentage of medical students who confused the concept of living wills with hospice, euthanasia, and palliative care were higher than those

who knew and did not know the essence of living wills. The essence of living wills is death with dignity, not euthanasia, which is an active lethal act performed by a physician on a terminally ill patient, hospice care is the provision of active and holistic care for patients with no hope of treatment to improve their quality of life, maintain their dignity and protect the physical and mental health of their families (Shen et al., 2019), and palliative care is the provision of active and support care for patients with poor treatment outcomes, control of pain, emesis and other related symptoms, and to improve patients' quality of life (Lin et al., 2022). The four are interconnected in purpose but differ in the subject of implementation. It is suggested that living wills should be introduced in medical humanities courses with life education and cultivation of correct concept of death, so that medical students can help patients and their families in decision making after they enter their clinical careers.

3.3 Diversification of barriers to living wills promotion during life.

72.4% of the medical students believe that it is necessary to promote advance directives, and most believe that the factors that hinder the development of living wills are that people's attitudes toward death are in a multiple and contradictory stage. Traditional concepts make people avoid talking about death-related topics and have a relatively negative understanding. At the end of a patient's life, their families are usually morally bound to choose to do their best to resuscitate him, and doctors must respect the family's decision. More than 60% of the medical students believe that it is extremely necessary to train medical staff on the content of living wills. A scholar suggest that innovative information visualization can be used to provide patients with a deep understanding of end-of-life choices and reflections, thus facilitating deep communication between healthcare professionals, patients, and their families (Woollen & Bakken, 2016). The UK, Canada and other countries have relevant legislation, and some government officials have proposed the promotion of living wills in China's legalized environment and the establishment of a government-directed living wills registry. In addition, the newly promulgated Civil Code stipulates that "natural persons have the right to life, and the safety of life and the dignity of life of natural persons

are protected by law", which is the first time that the dignity of life is included in the content of the right to life in China, and the promulgation of the Civil Code provides a legislative basis for the implementation of living wills (Wang et al., 2021). Therefore, China can gradually formulate policies of living wills that are adapted to our national conditions (Wei & Yang, 2013).

4. Conclusions

The study mainly reveals that a lack of knowledge about living wills among the students in a Medical University in Dalian, but which is better than other researchers' findings in China. The attitudes towards promoting and popularizing living wills are positive. Strengthening knowledge of living wills among medical students plays an important role in promoting the development of living wills in China.

Improving the knowledge of living wills among medical students, including the content, form, signing method and legal consequences, and taking some educational interventions, which help that they find the effective communication with end-of-life patients and their families easily in their clinical practice. Patients can understand in depth what a living will is and know its meaning and consequences from their doctors to help themselves to make decisions according to their own wishes. Moreover, it can also minimize the taboo surrounding death among younger generation (Fernández-Rodríguez et al., 2022). At the same time, China can speed up the legislative process of living wills according to the development needs, to build an excellent system for living wills in China and fully protect the rights of the testator to be realized.

APPENDIXES: Tables 1-7

Table 1 Attitudes of medical students toward the need for medical care for patients at the end of life who are unable to make decisions [n (%)]

<i>Medical Services</i>	<i>Not need</i>		<i>Need</i>	
	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>
<i>①Patients' food and water are always clean and warm</i>	28	3.9	690	96.1
<i>②Keep the patient's bed dry and clean, and if it is contaminated change it as quickly as possible</i>	27	3.8	691	96.2
<i>③Do not have any kind of pain, such as vomiting, seizures, convulsions, delirium, fear, or hallucinations, etc. Doctors and nurses are expected to do their best to help the patient stay comfortable.</i>	87	12.1	631	87.9
<i>④Patient privacy is fully protected while being treated and cared for</i>	38	5.3	680	94.7
<i>⑤No pain and expect the doctor to give the patient enough medication to relieve or alleviate his pain according to medical specifications</i>	57	7.9	661	92.1
<i>⑥Body stays clean and odor free at all times</i>	117	16.3	601	83.7
<i>⑦Caregivers regularly cut patients' nails, cut their hair, shave, and brush their teeth</i>	64	8.9	654	91.1
<i>⑧Useful organs and tissues donated by patients to those in need when permitted by law</i>	70	9.7	648	90.3
<i>⑨No treatments or tests that increase pain (e.g., radiation, chemotherapy, surgical exploration, etc.), even if your health care provider thinks it may be beneficial to clarify the diagnosis and improve your symptoms</i>	247	34.4	471	65.6

Table 2 Attitudes of medical students towards abandoning life support treatment in patients with no quality of survival [n (%)]

<i>Life Support Therapy</i>	<i>Reluctance</i>		<i>Willingness</i>	
	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>
<i>Abandonment of ventilator use</i>	281	39.1	437	60.9
<i>Abandoning CPR</i>	273	38.0	445	62.0
<i>Give up the use of expensive antibiotics</i>	232	32.3	486	67.7
<i>Abandoning the use of feeding tubes</i>	257	35.8	461	64.2
<i>Give up blood transfusion</i>	290	40.4	428	49.6

Table 3 Attitudes of medical students towards the use of life support treatment for patients in the following conditions [n (%)]

<i>Patient Profile</i>	<i>Support</i>		<i>No support</i>		<i>Not sure</i>	
	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>
<i>End of life (survival time <6 months)</i>	268	37.3	240	33.4	210	29.2
<i>Irreversible coma state</i>	241	33.6	300	41.8	177	24.7
<i>PVS</i>	245	34.1	299	41.6	174	24.2

Table 4 Attitudes of medical students towards the need to achieve the following wishes for patients at the end of life [n (%)]

<i>Wishes</i>	<i>Not need</i>		<i>Need</i>	
	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>
<i>Some company</i>	62	8.6	656	91.4
<i>Have the patient's favorite music with them</i>	76	10.6	642	89.4
<i>Have favorite pictures or photos to hang in the ward near the patient's bed</i>	111	15.5	607	84.5
<i>Religious rituals with patient designation</i>	175	24.4	543	75.6
<i>Receive as much volunteer service as possible</i>	267	37.2	451	62.8
<i>Patients die at home when possible</i>	194	27.0	524	73.0

Table 5 Attitudes of medical students towards the wishes of patients who have reached the end of their lives after death [n (%)]

<i>Post-mortem wishes</i>	<i>Support</i>		<i>Not support</i>	
	<i>Total</i>	<i>Proportion (%)</i>	<i>Total</i>	<i>Proportion (%)</i>
<i>Hope the relatives will resume normal life as soon as possible after his death</i>	637	88.7	81	11.3
<i>Hope the funeral is simple</i>	623	86.8	95	13.2
<i>Hope that only family and close friends will be notified of the memorial service</i>	607	84.5	111	15.5
<i>Hope relatives know how much he cares for them</i>	632	88.0	86	12.0
<i>Hope there will be no memorial service</i>	547	76.2	171	23.8

Table 6 Factors hindering the promotion of living wills [n (%)]

<i>Obstacles</i>	<i>Total</i>	<i>Proportion (%)</i>
① <i>Attitudes towards life and death are in a phase of multiple contradictions, and the autonomy of death is still quite controversial</i>	553	77.0
② <i>Doctors being accused of "abandoning life support systems" because of advanced medical technologies</i>	480	66.8
③ <i>No legal protections associated with living wills</i>	443	61.7
④ <i>Low social attention to it</i>	448	62.4

Table 7 Attitudes of medical students toward specific measures to promote Living wills [n (%)]

Measures	Seriously Unnecessary		Unnecessary		Unsure		Necessary		Seriously Necessary	
	Total	Proportion (%)	Total	Proportion (%)	Total	Proportion (%)	Total	Proportion (%)	Total	Proportion (%)
① Training of medical staff on the contents of living wills	7	1.7	31	4.3	116	16.2	388	54.0	171	23.8
② Medical staff communicate about the living wills for patients and their families at the right time	10	1.0	23	3.2	138	19.2	386	53.8	164	22.8
③ Hospitals are producing electronic displays, brochures and posters for living wills to promote them	12	1.7	45	6.3	193	26.9	346	48.2	122	17.0
④ School introduces living wills to medical humanities curriculum	11	1.5	46	6.4	178	24.8	357	49.7	126	17.5
⑤ Community activities on the theme of "I am in charge of my body"	10	1.4	34	4.7	139	19.4	407	56.7	128	17.8

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