



Specific Needs of Medical Students for Organ Donation Courses: A Qualitative Study in China

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ABSTRACT

Background. Global promotion of organ transplantation is contingent upon continuous improvement of the donation rate. Organ donation education is an important measure for changing public awareness and promoting organ donation. Therefore, it is important and urgent to conduct a systematic study of the organ donation courses offered in China and around the world. The aim of this study was to learn the views and needs of Chinese medical students and provide a reference for international peers.

Methods. Semistructured, in-depth interviews and purposive sampling were used in this study. A total of 18 university students majoring in medicine and nursing were selected according to the principle of data saturation and interviewed. The data were sorted and analyzed with phenomenology.

Results. These interviewees generally agreed that an organ donation course should be offered. They were in urgent need of knowledge regarding organ donation procedures and relevant policies and eager for a practical and experience-based teaching method design. The Chinese medical students surveyed also believed that the course should also be available to clinical practitioners, nonmedical students, and the public.

Conclusion. Medical students' demand for an organ donation course should be considered. To fully stimulate their interest in learning and to provide support and a guarantee for continuous improvement of transplant operations promotion and donation rate worldwide, specific organ donation courses and flexible training should be created.

ORGAN transplantation, as a critical medical method to treat patients with organ failure, is becoming increasingly mature; however, there is still a big gap between the number of organ donors and requests [1]. Over 90% of patients with organ failure in the world die while waiting for a suitable organ [2]. The mean ratio of organ supply to demand is just 1:25 [3]. Even in Spain, whose donation rate has ranked at the top with 40 donors per million population, not every organ request can be satisfied [2]. In China, the organ donation rate is only 2 donors per million population [4], but the urgent demand for organs has reached up to 1.5 million, which requires a high rate of donation [3]. Scholars in China and abroad have carried out relevant studies to learn more about the factors that affect organ donation [5–7]. The findings show that increasing organ donation awareness leads to a more positive attitude toward organ donation and a stronger willingness to donate. Hence, it

goes without saying that offering organ donation courses is of great importance. But in China, only a few media reports and little publicity in relation to organ donation are made. Scientific study and organ donation courses are lacking.

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As a significant group concerned with organ donation, medical students, who are both university students and medical staff, have wide social circles and could accept and spread new ideas and thoughts quickly [8]. Additionally, their medical education background and future work environment could help them better grasp organ donation knowledge and give full play to their abilities to identify potential donors and persuade patients and their relatives to donate organs [9]. At present, the majority of studies on organ donation in medical students are restricted to questionnaire surveys. Their feelings and demands for organ donation courses and education methods remain unclear. As a result, this study aims to look into medical students' feelings on, content requirement for, and methods of offering organ donation courses by means of a qualitative interview to promote organ donations and provide specific references.

METHODS

Study Design

Students from the best medical university in western China were selected for this study by purposive sampling. To determine the total number of participants for this study, semistructured qualitative interviews were conducted according to the principle of data saturation until new information having no concern with this topic [10]. When the interview outline (see Table 1) was decided after repeated demonstration by the project team, expert deliberation, and modification based on a preliminary interview, the qualitative study on offering an organ donation course was formally brought into operation.

Ethical Approval

This study was performed with the approval of the medical university's ethics committee, and the study process was in full accordance with the principles of free will and confidentiality. Before the formal interview, 2 researchers stated the purpose, significance, and matters needing attention of this study, and participants of this study signed informed consent forms. The interview data were used only for scientific study, and in the subsequent analysis, codes were used in consideration of anonymity and confidentiality.

Participants

From December 2017 to January 2018, purposive sampling was adopted to select participants for this study from full-time sophomores of this medical university. Inclusion criteria included the following: students whose participation had a reduced impact on admission or graduation; and medical university students who had no recent serious illness, had good communication skills, and volunteered for the interview. A total of 18 students were selected according to the principle of data saturation. The average age of the selected students was 20.61 ± 1.46 years (19–23 years). See details in Table 2.

Data Collection

A semistructured interview was used in this study. Researchers and interviewees had face-to-face, in-depth interviews when the interviewees signed informed consent forms. With the theme of an organ donation course, the method of questioning and order of

Table 1. Interview Outline for Medical Students Surveyed

1. Have you ever taken any organ donation courses or attended any related lectures?
2. Talk about your understanding and views of organ donation education.
3. What do you want to know about organ donation?
4. What's your advice for the participants, teaching mode, and duration of an organ donation course?
5. Will you take the organ donation course?

questions were adjusted as needed. Interview methods, such as rhetorical questions, elaborations, and clarifications, were also used in interviews to make the interviewees' opinions clear. The whole interview process was taped, and another researcher recorded the movement, facial expression, grammatical mood, and other nonverbal behaviors of the interviewees. Both researchers have received professional training in conducting qualitative interviews. The interview took place at an office in a dormitory that was familiar to interviewees to ensure the interviewees were relaxed and in a quiet and neat interview environment. The interview duration depended on the actual situation, ranging from 20 to 50 minutes.

Data Analysis and Quality Control

Two researchers who participated in the field interview transformed the sound recording into text data, which were sorted and analyzed by Colaizzi's method under the guidance of phenomenology after verification [11]. Researchers read the interview data back and forth to extract important representations in relation to this study and coded the recurring meaningful viewpoints. The coded viewpoints were then collected to write detailed and exhaustive descriptions and identify whether there were similar views. Repetitive viewpoints were deleted to sublime the theme. With respect to doubtful content, return visits were paid to verify whether the record was consistent with the interviewee's views. To ensure the accuracy and reliability of data analysis, other members of the project team reviewed the extracts to confirm that the content could truthfully reflect the thoughts and attitudes of interviewees.

Table 2. Demographic Characteristics of the Study Participants

Characteristic	Frequency, No. (%)
Sex	
Male	10 (55.56)
Female	8 (44.44)
Age	
≤ 20 y	10 (55.56)
> 20 y	8 (44.44)
Major	
Medicine	10 (55.56)
Nursing	8 (44.44)
Siblings (family's only child)	
Yes	5 (27.78)
No	13 (72.22)
Personal physical health	
Not bad	7 (38.89)
Good	11 (61.11)
Personal mental health	
Not bad	11 (55.56)
Good	7 (38.89)

RESULTS

Analysis on the Necessity and Reasons for Offering an Organ Donation Course

Demand of medical majors. The interviewees, who were medical students, believed that they should be provided with relevant knowledge so that they could give objective explanations and sincere advice when being consulted by patients or other people [12], although they may not directly participate in organ donation when taking up clinical work. S4: *As a medical major, I think it's of social significance and could help more people.* S8: *I may tell them something about organ donation because they might have little knowledge of this.*

Objective exposure, education, and deficient knowledge. The interviewees generally said that they lacked organ donation exposure and education and hoped that organ donation courses could be offered. S5: *I think we need to strengthen exposure.* S13: *I think we did not do very well in education concerning this field. It is necessary to offer [organ donation] courses.* S17: *I don't know much about it even as a medical major. Maybe we had far less exposure to knowledge in this field.*

Great practical significance to promote organ donation. Students stated that apart from spreading relevant knowledge, offering organ donation courses would be of great practical significance to promote organ donation. S4: *[Organ donation] can benefit many people. If one of your organs, which is no longer useful to you, could save other people's life, it makes a lot of sense. [So this course should be offered].* S6: *I think more education [of organ donation] is needed to let people learn relevant knowledge. I guess in this way people may not exclude [organ donation].*

Analysis on the Demand for Content and Level of Demand for an Organ Donation Course

According to relevant content provided by researchers, interviewees' demands for content and level of demand were prioritized in Table 3.

Donation procedures are greatly requested. Interviewees' demand for information of organ donation procedures reflected their lack of relevant knowledge and thirst for organ donation openness and transparency. S2: *I really want to know the procedures. Clear understanding of the procedures*

will dispel my worries. S5: *Procedures. Like how to donate? Where to donate? What are the procedures? How to transplant the organs?* S16: *The donation procedures. I hope the organs donated could be transplanted into patients who really need them.*

Donation policies, laws, and ethical content should be spread. The majority of interviewees said that they hoped to gain a lot of general knowledge on organ donation, including relevant policies, laws and regulations, and ethical issues. S6: *There are many rules and regulations. I think we need to learn more about this.* S15: *Laws and regulations, policies, acquisition, and allocation. Surely we need to know relevant laws. That's common sense.* S18: *Ethical issues should always be remembered when it comes to organ donation. I think there's a whitespace, and it's necessary to offer more information about it.*

Humanistic knowledge, including communication skills, should be added properly. The students surveyed in this study had less demand for traditional cultural education, like breaking the tradition of "retaining full body after death"; instead, they requested humanistic knowledge education, like professional communication skills. S1: *I think we need to learn some communication skills to talk about it with families.* S17: *First, I think we need some humanistic knowledge, like eliminating the traditional idea of retaining full body after death.*

Teaching Mode of an Organ Donation Course

Optional course-oriented. Medical university students have to take the fundamental compulsory courses and bear high academic pressure. Therefore, the interviewees suggested that the course may be offered as an elective for the students who are really interested in it to make for a wider spread of organ donation knowledge. S3: *The students who are interested in it will select the course. And an optional course is much more relaxing than the compulsory courses. I think a comfortable atmosphere would be more helpful.* S18: *It can be offered as an optional course, and I'm sure someone would like it.*

Absolutely necessary theory course. Currently, courses are still offered by theoretical teaching method. Although the interviewees did not directly state that a theory course should be actively offered, their behaviors in the interview

Table 3. Different Levels of Demand for Organ Donation Course Content

Items	Levels (Frequency, No. %)				
	Greatly Needed	Relatively Needed	Generally Needed	Maybe Not Needed	Not Needed At All
Introduction and the value of organ donation	9 (50.00)	8 (44.44)	1 (5.56)	0 (0.00)	0 (0.00)
Brain death criteria	10 (55.56)	4 (22.22)	3 (16.67)	1 (5.55)	0 (0.00)
Laws, regulations, and policies about organ donation	12 (66.67)	4 (22.22)	2 (11.11)	0 (0.00)	0 (0.00)
Basic procedures of organ donation	11 (61.11)	7 (38.89)	0 (0.00)	0 (0.00)	0 (0.00)
Organ acquisition and allocation	16 (88.89)	2 (11.11)	0 (0.00)	0 (0.00)	0 (0.00)
Organ donation-related medical knowledge	9 (50.00)	2 (11.11)	6 (33.33)	0 (0.00)	1 (5.56)
Expenses of organ donation	3 (16.67)	8 (44.44)	7 (38.89)	0 (0.00)	0 (0.00)
Traditional cultural education to promote organ donation	7 (38.89)	7 (38.89)	4 (22.22)	0 (0.00)	0 (0.00)
Ethical issue of organ donation	10 (55.56)	6 (33.33)	2 (11.11)	0 (0.00)	0 (0.00)

showed that a theory course is absolutely necessary in light of the organ donation course content and education experience of the interviewees. S1: *Theory course should be absolutely offered.* S2: *I prefer to take [a theory course] in the classroom because I feel it is easier.* S14: *The most common way is an enlarged class [a theory course given to a large number of students].*

Practical and experience-based teaching should be widely applied. Most of the interviewees hoped to deepen the impression of organ donation through practice or direct experience so as to raise their initiative to take an organ donation course and better understand and master relevant knowledge. S2: *Videos and activities may be used to let people experience and participate in it.* S7: *We want to talk with the people who received organ transplantation to listen to their inner thought. Or we can use media and micro films to show people the whole organ donation process. Dynamic ways may help us learn more about it.* S18: *Video is the most impressive way.*

Extension of Organ Donation Course Takers

Clinical practitioners. Based on the medical characteristics and environment for medical treatment promotion, the interviewees considered medical students and medical staff to be the intended targets of an organ donation course. S1: *We nurses must know the basic knowledge.* S2: *I think medical students and medical staff are the major targets.* S9: *The hospital should offer organ donation courses.*

Nonmedical students. University students are deemed to be the best organ donation course takers because they are well educated and are highly ideological, which would be conducive to the wide spread of organ donation knowledge. S3: *This would be more acceptable to university students, who are educated and are highly ideological.* S4: *Students like us should go to take such courses because we are open-minded, and I think all university students should understand it.* S15: *I think not only the medical students but also other nonmedical majors should learn something about [organ donation]. It is beneficial to humanistic development and can improve the university students' quality.*

The public. Some of the interviewees believed that an organ donation program for the public would be good because organ donation needs the support of the society for better development. S3: *The general population. It can be a public course. [Organ donation] needs everyone's support.* S6: *I think everyone could take this course. It may be hard for seniors to change their minds, but the people who have joined in work may change their minds after receiving more education.* S11: *I think society needs an education course for all.* S17: *It should be offered to all the people, such that everyone in the society can know it.*

Attitudes and Views of Personal Involvement in Organ Donation Course Promotion

Active promotion. Most interviewees fully agreed in the function and value of an organ donation course, hoping people's awareness and attitudes toward organ donation

could be changed after taking the courses, and they were willing to publicize and promote an organ donation course. S6: *I think they can understand me [after taking an organ donation course]. Although they can't do that, they may not be that opposed to me and understand me.* S7: *I will help with promotion because it's meaningful. I really hope that they can join me in this meaningful thing.* S15: *I will recommend it. It's a good thing, which should be recommended to others.*

Respect others' opinions. Some interviewees firstly chose to publicize and promote organ donation courses but would not require or persuade others to join them. S3: *I will share relevant publicity information, but they have the choice to read it or not, I will not persuade them.* S10: *I will ask how they feel about it. I will not persuade them if they are particularly averse to it; but if there're other reasons, I will try to persuade them.* S12: *I will spread relevant information, but if they disagree with it, they might be busy with something. I will join it myself.*

DISCUSSION

Medical students are fully aware of the importance of an organ donation course. Chinese people's poor awareness of organ donation has become the third factor hindering donation, next to family refusal and lack of trust [13]. Medical staff's lack of understanding of the registration, laws and regulations, and allocation process of organ donation limits the spread of organ donation knowledge and affects the fulfillment of organ donation intention [14]. A survey by Hakeem et al [15] revealed that junior doctors do not have enough knowledge of organ donation, and the relevant knowledge of medical students also presents a depressing picture [9,16]. But this study found that the medical students surveyed positively affirmed the value of offering an organ donation course and wished such courses could be offered in order to learn relevant knowledge and have a deep understanding of organ donation. It means that medical university students are clear about what they should do and fully understand the significance of organ donation. Therefore, an organ donation course needs to be designed and promoted urgently in order to improve the current situation.

Organ donation courses and courses' content designs for medical students have been constructed. Studies suggest that organ donation advertising could only make university students aware of it. University students' evaluation and acceptance of a thing rely more on conceptual knowledge [17]. Changes of awareness on organ donation and intention still require group discussion and agreement of values. Designing and offering an organ donation course could precisely satisfy these requirements [18]. In this study, the importance of the organ donation process, acquisition, and allocation was highly recognized by all interviewees, followed by the demand for its role and value, ethical issue, laws, regulations, and policies. However, brain death and medical treatment knowledge concerning organ donation were not widely approved, probably because the interviewees had medical knowledge. But since other medical

treatment knowledge, like brain death, may hinder organ donation to some extent, researchers have added brain death and relevant medical treatment knowledge as content options for further discussion in the design process.

Multiple teaching methods can be combined for organ donation education. A combination of multiple teaching methods could have better teaching results in comparison with problem-based learning and a large class [19]. Students are more impressed and satisfied with the knowledge learned. The interviewees proposed a combination of multiple teaching methods based on an optional course, especially by practice, case study, and video-based animation to maximally initiate the enthusiasm of learning. Such convenient ways, like massive open online courses, microlectures, posters, and brochures, are more helpful in organ donation promotion and publicity to the public. If the lecturers expand from 1 fixed teacher to clinical organ transplantation specialists, organ donation coordinators, and donors' families sharing their practical experience, medical university students may have a thorough and deep understanding of organ donation. It would be helpful to an organ donation course and substantially improve medical students' donation initiative.

Full play should be given to the subjective initiative of medical students to vigorously promote an organ donation course. Fully mobilizing the organ donation will of medical students and initiative of voluntary promotion would be conducive to the wide acceptance of organ donation in families and even the society. Currently the public still has some misunderstanding of organ donation, and medical staff is a professional channel for public understanding [20]. Meanwhile, medical staff is required to have a common understanding of organ donation because of the suddenness and urgency of deceased potential organ donors, and they are required to identify potential donors and provide professional introduction to them or their families [21,22]. Medical students are under cognitive development, and the cognitive content and beliefs are strongly flexible. Hence, an organ donation course should be designed and offered first in medical universities to enhance their understanding of relevant knowledge, such as organ donation situations and the donation process. On the basis of correct cognition, they can volunteer for organ donation and participate in volunteer activities. Following the path of school-family-society, correct guidance and a donation environment based on a system of correct self-cognition, strong support from families, and encouragement of the society can be built, and organ donation willingness and rate can be motivated under the guidance of "knowledge-attitude-practice" model, which has been widely used in health studies [23,24].

CONCLUSION

At present, organ donation education in China is in its infancy, and there has not been a mature education system. Knowing the course demands of Chinese medical students, designing course content in a scientific way according to

Chinese social and cultural features and applying multiple teaching methods can guarantee the spread of organ donation knowledge in China, improve organ donation rates, and also consistently increase the number and rate of organ transplants in the world.

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