# ORIGINAL RESEARCH Knowledge and Attitude of Chinese Non-Medical University Students Toward Living Organ **Donation: A Narrative Analysis**

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Objective: This study aims to explore Chinese non-medical university students' knowledge and attitudes toward living organ donation.

Methods: In this study, sixteen in-depth, semi-structured interviews were conducted at a Chinese university. Data collection lasted from April 2020 to May 2020. The interviews were recorded and transcribed verbatim. The method of content analysis was used to analyze non-medical university students' knowledge and attitudes toward living organ donation.

**Results:** Qualitative content analysis of the collected data yielded five themes. Themes involve (1) benefits of living organ donation; (2) disincentives to living organ donation; (3) ways to understand living organ donation; (4) ways to promote the dissemination of living organ donation; and (5) traditional Chinese culture as incentives to living organ donation.

Conclusion: This study suggests that almost all participants have positive attitudes toward living organ donation on condition that recipients are their lineal relatives including their parents, children, and siblings. What concerns participants most is the adverse impact of living organ donation on their health. These findings could shed some insight into how to strengthen the knowledge of non-medical university students regarding living organ donation.

Keywords: content analysis, living organ donation, Chinese non-medical university students

### Introduction

Living organ transplantation concerns the medical procedure that uses a living donor's organ to replace the recipient' s failed organ.<sup>1</sup> Living organ transplant is invaluable to patients with end-stage organ failure, which could extend their lifespan and improve the quality of their lives. Living organ donation is a great way to help patients who need transplants worldwide. In 2021, the United States performed 6541 living organ transplants.<sup>2</sup> In 2020, living donor transplantation contributed 21% of overall transplant cases and 29% of the total kidney transplant program in the UK.<sup>2</sup> In 2021, 268 living transplant cases were carried out in Spain, accounting for about 20% of the total transplant activity.<sup>3</sup> China performed 2109, 1795, 1753, 1727, and 1735 cases of living kidney transplant in the past 5 years, respectively.<sup>4</sup> Although China has made great progress in living organ transplantation, the gap between supply and demand for organ transplants continues to widen.<sup>5</sup> Each year, approximately 300,000 patients are waiting for organ transplantation, while only a small number of patients receive living organ transplant.<sup>6</sup>

The low donation rate is the main reason for the imbalance between the supply of and the demand for organs available for transplantation. The lack of sufficient knowledge about living organ donation among Chinese people is an important factor responsible for low rates of living organ donations.<sup>7</sup> In this sense, it is of significance to examine people's attitude and knowledge toward living organ donation. Previous studies have investigated the medical university students' attitudes toward living organ donation, and the results of those studies generally indicated that

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most of the medical students have positive attitude toward living organ donation.<sup>8-10</sup> It seems that medical education plays an important role in increasing medical students' knowledge about living organ transplant. However, few studies have examined the attitude and knowledge of non-medical university students about living organ donation. As an open-minded group, university students would play an important role in disseminating the knowledge of living organ donation.<sup>11,12</sup> Using the method of content analysis, this study aims to explore Chinese non-medical university students' knowledge and attitudes toward living organ donation. The research findings of this study could shed some insight into how to increase non-medical university students' knowledge about living organ donation.

# Methods

## Study Design

This qualitative study was conducted at a university in Northeast China. The face-to-face interview was conducted and the method of content analysis was used to examine non-medical university students' knowledge and attitudes toward living organ donation. The open-ended interview guide was developed by all researchers.<sup>13</sup> Ethical approval was obtained from the Ethics Committee of Qufu Normal University (QFNU2021-01). Written informed consent was obtained from all participants. The study was carried out in accordance with the Helsinki Declaration.

# Study Participants

We used a purposive sampling method with a maximum variation of ages and majors to recruit eligible participants.<sup>14</sup> 16 participants including 5 males and 11 females were finally recruited. All participants were non-medical university students. The recruiting process was summarized as follows: 1) distributing recruiting posters to students who are interested in medical education; 2) selecting eligible participants; 3) making preparations for semi-structured interviews.

# Data Collection

A total number of 16 semi-structured interviews based on interview guide (Table 1) were carried out from April 2020 to May 2020. All participants signed the informed consent form. The interview questions focused on participants' attitude toward living organ donation, ways to understand living organ donation, ways to promote the dissemination of living organ donation, and the influence of traditional Chinese culture on living organ donation. The interview lengths ranged from 15 to 40 minutes, which was performed by one researcher to ensure the coherence and consistency of all interviews.

# Data Analysis

In this study, the method of content analysis was used to analyze and interpret the interview data.<sup>15–17</sup> The analytical procedures consist of the following five parts. First, all the transcriptions were examined independently by all researchers to confirm the accuracy of data transcription. Second, after identifying meaningful words, phrases, and sentences in the data, researchers determined which quotations to be included or excluded. Third, the leading investigator summarized the coding concerning the knowledge and attitudes of participants towards living organ donation. Fourth, all the researchers worked together to further determine and confirm the reliability and validity of the identified themes and sub-themes. Finally, all the themes and sub-themes would be presented and discussed in detail.

Table I Interview Questions Outline

- Q I: What's your attitude towards living organ donation?
- Q 2: Why do you support living organ donation?
- Q 3: Why do not you support living organ donation?
- ${\sf Q}$  4: How do you know about living organ donation?
- Q 5: How do you think of the influence of traditional Chinese culture on living organ donation?

# Results

In this study, we identified five themes and fourteen sub-themes (Table 2) concerning Chinese non-medical university students' knowledge and attitudes toward living organ donation, which are discussed in detail in the following sections.

# Theme I: Benefits of Living Organ Donation

Participants reported that there are some benefits of living organ donation, which consists mainly of benefits to donors, benefits to recipients and benefits to society.

### Benefits to Donors

Living organ donation could save the lives of people with organ failures, and thus guarantee the integrity of a family. In this sense, living organ donation is a noble deed.

### Saving the Lives of Our Loved Ones

There was unanimous agreement among participants that living organ donation could save not only an individual's life but also probably his/her family.

The most important sense of living organ donation is that it can save the lives of our loved ones. The survival of our loved ones could guarantee the integrity of our families and thus the whole family can continue to function well. - P15

### Achieving Emotional Gratification

Living organ donation would bring a sense of pleasure and consolation for donors who donate their organs to save their beloved ones. It shows a kind of filial piety or kindness, which will be highly recognized and praised in China.

It's emotionally gratifying for people to save their loved one and thus individuals would like to donate their organs to their beloved ones in need. -P1

Living organ donation shows that the donor is filial to his/her parent. This action is highly recommend in China. - P3

### Getting Closer with Loved Ones

Participants said that there is an old Chinese saying that a friend in need is a friend indeed and thus working together to overcome difficulties could strengthen the bond of family relationships.

Living organ donation can unite family cohesion and the family is more capable of twisting into a rope. -9

 Table 2 Themes and Sub-Themes Extracted from the Study

Themes	Sub-themes
Benefits of living organ donation	Benefits to donors
	Benefits to recipients
	Benefits to society
Disincentives to living organ donation	The adverse effect of living organ donation
	Family opposition to living organ donation
Ways of understanding living organ donation	Family members as medical professionals
	Cases around the life
	Mass Media
	School education
Ways to promote the dissemination of living organ donation	Mass communication
	Medical education
	School or social activities about organ donation
Traditional culture incentivizing living organ donation	Confucian family values
	Buddhist altruism

#### Benefits to Recipients

Participants stated that living organ transplant could markedly improve the long-term survival of patients with organ failure and inspire them to keep optimistic attitude toward their future lives.

#### Life Extension

There was a consensus that one of main benefits of living organ donation is that the recipient would be given a new life.

Actually, most organ recipients are at the end of their lives when they need organ transplant. Organ transplant could extend their lifespan. -P2

The donor's organ likes a life gift, which would give the recipient a new life. --P13

#### Being More Optimistic About Their Future Lives

Living organ donation brings a new life to the recipient and thus direct them to a more positive attitude toward future life. They will cherish the new life and would show more positive attitude toward their future lives.

The recipient was given a new life. He/she may become more optimistic about his/her future life because he was given a unique opportunity to make sense of the world. -P3

### Benefits to Society

Living organ donation could be characterized by a spiritual dedication, which could motivate more and more individuals to engage in this philanthropic activity.

When living organ donation occurs in one family, it will exert positive influence on other families. This kind of philanthropy will be passed from one family to another one. -P15

# Theme 2 Disincentives to Living Organ Donation

The sub-themes that emerged from this theme included adverse effects of living organ donation and family opposition on living organ donation.

### The Adverse Effect of Living Organ Donation

Many participants stated that the damage to donors' health was an adverse effect of living organ donation, which could disturb the donor's family and personal life.

### Damaging the Donor's Health

Living organ donation seems to be a worrisome matter as a result of both short and long-term risks of physiological function and quality of life. For the organ donors, they may be exposed to surgery-related risks and follow-up health issues.

My dad told me that a living kidney donation may hamper the ability to perform basic activities of daily living. Donors who lose an organ may no longer do strenuous manual labor. — P4

What concerned me most is the physical damage to the donor. Even though extracting one of my wisdom teeth may cause turgescence for several days, extracting a living organ from my body would bring no benefits to my health. — P6

### Disturbance to Donors' Future Lives

Participants stated that living organ donors would not be treated fairly in the job market. They tend to be a vulnerable group.

Some private and small-medium enterprises discriminate against people who donated their organs. Generally speaking, it has been argued that living donors may be inferior to non-donors in terms of physical strength and energy. -P2

When living organ donors want to get married, they may have psychological pressure due to the lack of one or more organs. ---P11

#### Bringing Financial and Life Pressure on the Donor's Family

If the subsequent recovery of the donor cannot go well, the donor's family would face great financial and life pressure. Thus, it is of vital importance to seek a more secure way to decrease the damage to donors as much as possible.

People's incompetence with work after living organ donation may cause the household to be burdened with financial pressure in the long run. -P4

Caring for two people (the donor and the recipient) who are in poor health in a family can be stressful. It may increase the family's financial pressure and badly influence the normal life of the family. — P11

#### Family Opposition to Living Organ Donation

Participants argued that family's attitude toward the donor's decision played an important role in the successful completion of living organ transplant.

#### Opposition from the Recipient

In this study, most of participants argued that they would like to donate their organs to their parents. However, they were concerned that their parents would not accept their organs. Some participants said that they might also put the interests of their children first when they would become parents in the future. In this sense, the donor may be willing to donate his/ her organ while the recipient may be not willing to receive it.

Organ recipients would put the health of their family members first. Taking the parent-child relationship as an example, parents will probably not want to receive their children's organs even if they will lose their lives without organ transplant. — P5,13

If the patient's condition is severely serious, he/she may refuse living organ transplant in order to avoid damaging the donor's heath and putting a huge economic burden on his/her family. — P13

#### Opposition from the Donor's Family Members

An individual has multiple identities in the family. Before living organ donation, the donor needs to get approval from all his/her immediate family members. However, it is difficult for immediate family members to reach a consensus on the donor's willingness. Some family members may oppose the donor's willingness to organ donation as a result of taking into account the donor's health and future life. Thus, opposition from the other family members is also a disincentive to living organ donation.

For example, the male donor may be not only a son but also a husband or a father. His willingness to living organ donation may be opposed by his father, wife, son or daughter. - P13

# Theme 3 Ways of Understanding Living Organ Donation

This theme deals with university students' ways of understanding living organ donation, which could be further divided into four sub-themes, that is, family members as medical professionals, cases around life, media and curriculum.

#### Family Members as Medical Professionals

Medical professionals have a good knowledge of living organ donation, which will have a positive impact on their family members' attitude toward living organ donation. Some participants reported that they gained access to the knowledge of living organ donation through their family members as medical professionals.

There are several medical professionals in my family and they told me about the knowledge of living organ donation sometimes. They regard living organ donation as a good thing and hold a positive attitude toward it. - P11

#### Cases Around the Life

Some participants stated that transplant cases around their lives drew their attention to living organ donation. Actual cases of living organ donation are more likely to deepen individual's understanding of living organ donation.

A child in my neighbor's family went through a bone marrow transplant, which deepen my understanding of living organ donation. — P2

There was a real case that made me more interested in living organ donation. A female neighbor was hospitalised with organ failure and needed a kidney transplant. She received a kidney from her daughter whose kidney was a good medical match. — P5

#### Mass Media

Participants stated that mass media exerted a profound impact on their understanding of living organ donation. This subtheme could be further divided into documentary and self-media.

#### Documentary

In China, the documentary TV program Moving China has been hailed as "China' annual spiritual epic", which has been broadcasted since 2003. Participants reported that they got access to living organ donation through the documentary TV program Moving China.

I was deeply impressed by one of the mothers in the television program Top Ten People Who Moved China. In order to donate a portion of her liver to her son, the mother walked ten kilometers each day for seven months to get rid of her severe fatty liver. — P16

There were documentary TV series adapted from the real stories of living organ donation such as Secular Society and Emergency Room Stories, which helped me gain a better understanding of living organ donation. — P3, 16

#### Self-Media

Self-media is a good way to make social information well known to the general public. Some participants mentioned that self-media such as MicroBlog, Zhihu and Today's headlines contributed a lot to their understanding of living organ donation.

I got some knowledge about living organ donation through self-media such as Tencent Video, News headlines today and Tik Tok, which frequently deliver some news or videos about living organ donation. -7

#### School Education

School education is one of the most important ways for university students to understand living organ donation. Participants reported that relevant curriculum in school helped them gain access to living organ donation.

I learned some fundamental knowledge about organ transplantation in biology class during my senior year in high school. We have learned the ethical issues about living organ donation. -P3

The law teachers taught us about the legal provisions and regulations on living organ donation. - P10

# Theme 4 Ways to Promote the Dissemination of Living Organ Donation

This theme concerns how to promote the dissemination of living organ donation. Three sub-themes are identified, that is, mass communication, school education, and social or school activities about organ donation.

#### Mass Communication

Participants mentioned that documentary films and television programs and short-form videos were two effective ways to disseminate living organ donation in that the communication effect of videos is better than written texts.

#### Documentary Films and Television Programs

The documentary films and television programs could document the detailed process of living organ donation and present

stories from multiple perspectives, which could be a good way for individuals to understand living organ donation deeply.

I believe broadcasting vivid documentary films about living organ donation on influential platforms could be a good way to promote the dissemination of living organ donation. Documentaries with the positive spiritual guiding function could easily strengthen people's mood. -P9

I think the documentary television programs could be a good way to disseminate living organ donation. The authentic story in the TV documentary could arouse the audience's emotional resonance. -P10

#### Short-Form Video

Short-form videos usually last several minutes in length, which could spread out useful information to a large number of audiences as soon as possible. In this sense, short-form videos could play a vital role in popularizing the knowledge of living organ donation.

The authentic stories of living organ donation presented in a short video could reach out to audiences conveniently and appeal to audience's emotions easily. -P7

The public figure's short videos about living organ donation would easily arouse the audience's emotional resonance, and thus motivate people to pay more attention to living organ donation. — P16

#### Medical Education

Participants stated that medical education played an important role in granting them to access to the knowledge of living organ donation. Integration of living organ donation into school education could contribute to both the development of medical education and the improvement of students' in-depth appreciation of life.

The story about living organ donation in the textbook could deepen students' impression on living organ donation and enhance their awareness of living organ donation. I still remember what that picture of organ transplant looks like which I saw in the biology textbook of senior high school, and I discussed it with my classmates at that time. — P7

It is advisable to initiate courses or lectures regarding death and life in college. There are successful life education courses examples such as Death Courses at Harvard University and Death Open Yale Courses. -P16

### School or Social Activities About Organ Donation

Social or school activity about organ donation is a good way to engage students in understanding living organ donation. Participants said that they were willing to participate in social or school activities related to living organ donation. In the process of participating in those activities, they would get a better understanding of living organ donation.

Taking part in social or school activities concerning organ donation could help university students get access to living organ donation. Face-to-face communication is the best way to disseminate living organ donation, especially communication conducted between medical professionals and the general public. — P12

# Theme 5 Traditional Culture Incentivizing Living Organ Donation

Traditional Chinese culture such as Confucianism and Buddhism, has positive impacts on Chinese people's attitude toward living organ donation. This theme focuses primarily on how traditional Chinese culture incentivizes living organ donation.

### **Confucian Family Values**

Participants reported that traditional Confucian family values acting as the impetus of living organ donation played an important role in determining people's willingness toward living organ donation.

#### Parents Being Benevolent to Their Children

Participants said that parents are responsible for showing benevolence to their children and thus donating organs to their children is out of the parental instinct.

Parents are selfless to their children and thus they are more likely to donate their organs to their children than any other individuals. -P1

#### Children Being Filial to Their Parents

Traditional Chinese culture regards filial piety as a key virtue, which motivates participants to donate their organs in need.

In traditional Chinese culture, Confucianism attached great importance to filial piety, which could inevitably have a certain impact on the living organ donation. Specifically, children will actively donate their organs to their parents in need. — P8

There is an old saying that our body, including our hair and skin and many other organs, are given by our parents. Thus, we should donate our organs to our parents when organ transplant is needed. -P3, 10, 14

#### Uniting and Loving Each Other Among Siblings

Confucius held that unity and fraternal love among brothers and sisters was one of essential elements in Chinese family relations.

Confucian culture emphasizes the unity and fraternity among siblings. When my brother or sister needs organ transplant, I will definitely donate my organs to them. -P7, 8

#### **Buddhist Altruism**

Some participants stated that Buddhism advocating for goodness and dedication had a significant impact on people's attitude towards living organ donation.

Buddhism encourages people to do numerous good things and even sacrifice their lives to help others when necessary. Thus, we would very like to donate our organs to our patents when organ transplant is needed. -P3

# Discussion

This study was conducted to explore Chinese university students' knowledge and attitudes toward living organ donation. In line with findings in previous studies,<sup>6,14</sup> this study found that participants show positive attitude toward living organ donation while their knowledge about living organ donation was far from adequate. It is thus necessary to propagate living organ donation among Chinese university students,<sup>8,18</sup> who could be important facilitators for the development of living organ transplant.

The short or long term physical risks for living donors will discourage individuals from donating their organs. Participants reported that the potential damage to the donor's health is one of the main reasons why living organ donation is sometimes opposed by the recipient and his/her family members. This was similar to a study that was done in England that reported that the donor benefit standard would reduce the number of potential living organ donors.<sup>19</sup>

This study also examined how university students understand living organ donation. It has been identified that most participants have a good understanding of living organ donation. They approached the knowledge of living organ donation from the following three main sources, that is, family members as medical professionals, cases around them, and school curriculum. This was similar to studies conducted in USA and Australia.<sup>20,21</sup>

Furthermore, participants put forward several useful ways to promote the dissemination of living organ donation, that is, optimizing forms of mass communication, integrating the knowledge of living organ donation into school education, and engaging in relevant social activities. All participants reported that it is necessary to publicize information about living organ donation among university students, who will play an important role in advancing the development of living

organ donation. This is in line with the findings of previous studies, which hold that many university students did not have adequate knowledge about living organ donation and more efforts need to be done to advance the dissemination of knowledge of living organ donation among them.<sup>22,23</sup>

Finally, it has been found that traditional Chinese culture deeply influences participants' attitude toward living organ donation. On one hand, Confucian family values and Buddhist devotion act as incentives to living organ donation.<sup>24,25</sup> On the other hand, China is a family-oriented country where family relationship has been strongly emphasized.<sup>26,27</sup> Therefore, parents' benevolence, children filial piety, and siblings' unity motivate individuals to donate their organs to their loved ones in need.

### Conclusion

This study suggests that almost all participants have positive attitudes toward living organ donation on condition that recipients are their lineal relatives including their parents, children, and siblings. What concerns participants most is the adverse impact of living organ donation on their health. It has been found that traditional Chinese cultures such as Confucianism and Buddhism play an important role in influencing participant's attitudes toward living organ donation. Note that participants' knowledge toward living organ donation is far from adequate. Thus, more education on living organ donation for university students is urgently needed. Hence, these findings could shed some insight on how to disseminate the knowledge of living organ donation among Chinese non-medical university students.

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## Disclosure

The authors report no conflicts of interest in this work.

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