

# The Nursing Students' Perceptions of Organ Transplantation in Japan: Considering The Need for The Education on Organ Transplantation

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## ABSTRACT

**Objective:** To examine the nursing students' perceptions of organ transplantation in Japan.

**Materials and Methods:** This is a mixed methods research. Firstly, we conducted the questionnaire survey on the degree of recognition about organ transplantation of nursing students who had not taken the education concerning organ transplantation. Secondly, we conducted through the group interviews with 19 nursing students for their perceptions of organ transplantation. We analyzed the data quantitatively and qualitatively.

**Results:** The quantitative data showed that 225 students (95.7%) responded, and the number of valid responses was 209 (88.9%). Those students who had not taken any educational classes related to organ transplantation and nursing students had less understanding on organ transplantation, but they were highly interested in these, and felt the need for education of organ transplantation. These were not significant by the academic grade year. The qualitative data analysis led to 394 codes, and led to 31 sub categories. Finally, 6 categories such as "The wrong perceptions of recipients and donors of organ transplantation", "The feeling of appreciation for donors giving their organs", "The wish for the lifesaving and popularization of organ transplantation", "The question about the rules of the organ donation", "The imagination about the nurses and coordinators of organ transplantation", "The necessity of the education concerning organ transplantation" were yielded from the sub categories.

**Conclusion:** There was lack of the nursing students' perceptions of organ transplantation. It is necessary to review the educational contents concerning medical treatment of organ transplantation more actively in the nursing education more actively.

## Keywords

Transplantation, Organ transplantation, Nursing-student, Perception.

## Introduction

Organ transplantation has gradually been a part of common medical treatments in Japan [1]. The organ transplant law went into effect in 1997. The organs from 44 brain-dead people were used for 167 transplants [2]. After that, the organ transplant law in 1997 was revised in 2010. The revision to the organ transplant law enforced allows transplants in the absence of prior written consent from a donor if approval of the family is obtained [3]. Even though the organ transplant law was revised, the number of the living organ transplantation is still much higher than the number

of organ transplantation from brain-dead people. One of reasons of this number, most Japanese seems unlikely to accept brain death as actual death. The results of a survey from the Health, Welfare and Labour Ministry showed that only 39 % of doctors, nurses and other medical staffs regard brain death as a valid criterion for pronouncing death. In contrast, similar research in seven European countries found that 82 % of those surveyed considered it valid to regard brain death as actual death [2]. From the viewpoint of the large number of living organ transplantations in Japan, health care workers including nurses need to acquire the correct knowledge of organ transplantation. The survey of education for organ transplantation in Japan, the number of universities which provide the subject of organ transplantation as a part of nursing education was 72 % of the university in Japan. However, 61.1 %

of the university which provide the class of organ transplantation answered the contents and time of the education were not enough as a nursing education [4]. The other survey showed that the contents and time of the educational classes in each university were different individually. For example, the contents of the educational classes for organ transplantation were structured by basic and general knowledge, but other universities provided more professional knowledge [5].

Moreover, the time used for the class was different. One of university provides just one hour to one and half hour, but the other provides more than several hours [5]. The nurses play a significant role on their care for the donor and family members who might have physically and mentally problem. The nursing educators at university in Japan have to consider the lack of present education for organ transplantation and have to understand the nursing students' perceptions of organ transplantation.

## Methods

### Quantitative method

**Participants:** Participants were 235 nursing students who were studying at the college in Japan. They were first year, second year and third year students at the faculty of nursing and they have not received the education for organ transplantation.

### Data collection analysis period

December 2017 - February 2018.

### Ethical considerations

This study was approved by the research ethics committee at the institution. Participants were assured about confidentiality of their information including recording their voice and their right to decline the interview whenever they wish. A written consent form was signed by them.

### Data collection

The researcher explained the method of this study and distributed the questionnaires (Table 1) to participants. Participants submitted their unsigned questionnaires to the collection box.

**Table 1. The questionnaires**

Q1. Check the answer to your understanding for the living organ transplantation Answer: <input type="checkbox"/> 1.I do not understand <input type="checkbox"/> 2.I understand a little <input type="checkbox"/> 3.I understand well
Q2. Check the answer to your understanding for the brain death organ transplantation Answer: <input type="checkbox"/> 1.I do not understand <input type="checkbox"/> 2.I understand a little <input type="checkbox"/> 3.I understand well
Q3. Check the answer to your understanding for the donor of organ transplantation Answer: <input type="checkbox"/> 1.I do not understand <input type="checkbox"/> 2.I understand a little <input type="checkbox"/> 3.I understand well
Q4. Check the answer to your understanding for the recipient of organ transplantation Answer: <input type="checkbox"/> 1.I do not understand <input type="checkbox"/> 2.I understand a little <input type="checkbox"/> 3.I understand well
Q5. Check the answer to your imagination for the living organ transplantation Answer: <input type="checkbox"/> 1. Provided in overseas <input type="checkbox"/> 2. Not familiar <input type="checkbox"/> 3. Expensive medical care <input type="checkbox"/> 4. Advanced medicine <input type="checkbox"/> 5. Others
Q6. Check the answer to your interest in the living organ transplantation Answer: <input type="checkbox"/> 1. Not interested at all <input type="checkbox"/> 2. Interested a little <input type="checkbox"/> 3. Very interested
Q7. Check the answer to your thoughts for the education of organ transplantation Answer: <input type="checkbox"/> 1. Not important <input type="checkbox"/> 2. Important <input type="checkbox"/> 3. Neither
Q8. Check the answer to your understanding for the role of nursing Answer: <input type="checkbox"/> 1. Not important <input type="checkbox"/> 2. Important <input type="checkbox"/> 3. Neither

## Data analysis

We performed the descriptive statistics about the attribute of the participant, their perceptions of organ transplantation, interest, and the need of the nursing education. We compared the difference according to the school year using chi square test. Moreover, SPSS 21.0j for Windows was used and we set 5% levels of significance and performed a statistical analysis.

## Qualitative method

**Participants:** This study involved nursing students who were randomly extracted. These nursing students responded the questionnaires about organ transplantation.

### Data collection analysis period

March 2018 - December 2018

### Ethical considerations

Participants were assured about confidentiality of their information including recording their voice and their right to leave the interview whenever they wish. A written consent form was signed by them.

### Data collection

After the quantitative research, we doubted and thought that "do they know organ transplantation correctly". And then, this question became the main research topic of this qualitative study. Based on the data derived from the quantitative methods, we developed the interview guide. The location and time of the semi structured interview were determined based on participant's decision in the lecture room or the community room in not crowded hours at the end of lectures in their college. We conducted focus group semi structured interview. The length of semi structured interview was 95 min lasted and all interviews were digitally recorded and transcribed verbatim. First of all, participants described their imagination about organ transplantation and then they talked on their opinions of organ donation. For this interview, explorative and deep questions such as "what do they know organ transplantation", "what are their perceptions of organ transplantation properly?" were adopted to reach a better understanding from participants narrations.

## Data analysis

In this qualitative study, we adopted content analysis to analyze the data and used deductive method for categorizing the elements or text parts and then labeled them as themes. For deductive analysis, organizing the data was gained by open coding process, making sub themes and generalization. We performed frequent review of the data repeatedly and carefully. Summarized meaning units were generalized and yielded 394 codes. Various codes were compared and contrasted based on their similarities and dissimilarities and various codes were adjusted in the form of 31 sub categories in this study. 31 sub categories were also compared and contrasted based on their similarities and dissimilarities and temporary 6 categories were yielded. We discussed and reviewed temporary 6 categories with researchers who have mastered content analysis concerning qualitative study.

## Results

### Results of Quantitative method

**Participants:** The attribute of participants of this survey are described in Table 2 below. The number of the respondents for the questionnaires was 225 participants. The collect rate was 95.7% and the valid response rate was 88.9%. The number of valid responses in the first grade was 71, the number of valid responses in the second grade was 68, and the number of valid responses in the third grade was 70. The number of participants with working experiences was 18.

	First year	Second year	Third year
The number of students	71	68	70
Age (mean ± SD)	19.34 ± 2.57	20.94 ± 3.61	21.64 ± 3.35
Working experiences	3	9	6
No working experience	68	58	64

**Table 2:** The attribute of participants. n=209.

**Result of quantitative research:** The results of the questionnaire survey on living organ transplantation are described in Table 3 below. In terms of the understanding of living organ transplantation, 56.5% of participants answered "I do not understand" and in terms of the understanding of brain dead organ transplantation, "I do not understand" was 30.1% and "I understand a little" was 39.8%. In terms of understanding of donors, "I understand a little" was 47.8%, 33.5% had "I understand well" and in terms of the understanding of recipients, 78% of participants answered "I do not understand". In the imagination for the living organ transplantation, 18.2% of participants answered "Provided in overseas", 17.7% of participants answered "Not familiar", and "Expensive medical care" was 26.8%, "Advanced medicine" was 32.1%.

With regard to interest in the living organ transplantation, "Not interested at all" was 7.2%, "Interested a little" was 53.1%, and "Very interested" was 39.7%. In terms of the education of organ transplantation, 84.7% of participants answered "Important". With regard to the role of nursing, 77.5% of participants answered "important". As a result of examining a chi-square test about comparison of each school year, a significant difference in the school year was not found in all the question items.

Q A	First year	Second year	Third year	(%)	$\chi^2$	df	P-value
1-1	45	39	34	118 (56.5)	6.075	4	0.19
1-2	15	17	27	59 (28.2)			
1-3	11	12	9	32 (15.3)			
2-1	25	17	21	63 (30.1)	2.790	4	0.59
2-2	29	27	27	83 (39.8)			
2-3	17	24	22	63 (30.1)			
3-1	18	88	13	39 (18.7)	4.301	4	0.37
3-2	32	35	33	100 (47.8)			
3-3	21	25	24	70 (33.5)			
4-1	61	53	49	163 (78.0)			

4-2	66	88	12	26 (12.4)	5.300	4	0.26
4-3	44	77	99	20 (9.6)			
5-1	16	13	99	38 (18.2)			
5-2	12	11	14	37 (17.7)	4.683	8	0.79
5-3	20	19	17	56 (26.8)			
5-4	20	20	27	67 (32.0)			
5-5	33	55	33	11 (5.3)			
6-1	77	33	55	15 (7.2)	2.070	4	0.72
6-2	37	39	35	111 (53.1)			
6-3	27	26	30	83 (39.7)			
7-1	22	00	11	3 (1.4)	3.471	4	0.48
7-2	57	58	62	177 (84.7)			
7-3	12	10	77	29 (13.9)			
8-1	33	55	55	13 (6.20)	0.749	4	0.95
8-2	56	52	54	162 (77.5)			
8-3	12	11	11	34 (16.3)			

### Results of Qualitative method

**Participants:** This study involved 19 nursing students who were randomly extracted. We gain an agreement from 19 nursing students to conduct the semi structured interview. We divided 19 nursing students into three groups. In three groups, there were 7 first year students, 6 second year students and 7 third year students each.

**Result of qualitative study:** In the first stage of this analysis, 394 codes, 31 sub categories were yielded and finally, 6 categories such as "The wrong perceptions of recipients and donors of organ transplantation", "The feeling of appreciation for donors giving organs", "The wish for the lifesaving and popularization of organ transplantation", "The question about the rules of organ donation", "The imagination about the nurses and coordinators of organ transplantation" and "The necessity of the education concerning organ transplantation" were yielded from the focus group. These categories revealed the nursing students' perceptions of organ transplantation.

#### *"The wrong perceptions of recipients and donors of organ transplantation"*

This category was consisted from five subcategories. The wrong perceptions of recipients and donors of organ transplantation have been created by the television programs and drama concerning the transplantation in Japan. A television program on the confidentiality of brain death organ transplantation was broadcast. One participant told an image for living organ transplantation.

I have thought that why the recipient is never informed of the donor's information. I will want to say thanks to the donor if I am the recipient.

After she said her images for the recipients and donors of living organ transplantation, she realized her image was not living organ transplantation. Some participants were confused for living organ transplantation and brain death organ transplantation.

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### ***"The feeling of appreciation for donors giving organs"***

This category was consisted from two subcategories. Participants felt anew the importance of the existence of the donor of organ transplantation, considering that they could not receive this treatment or cure the disease without the organ donation. In the case of brain death organ transplantation, the recipient cannot obtain donor information. Participants felt a dilemma about not being able to convey their gratitude to the donors.

If I were the recipient of organ transplantation or the family member, how should I express my gratitude to the donor? I think that recipient should have the opportunity to say thanks to the donor or the families of the donors.

### ***"The wish for the lifesaving and popularization of organ transplantation"***

This category was consisted from three subcategories. Participants have strongly wished for popularization of organ transplantation to save the life of patients who cannot live without organ transplantation. They believed that the popularization of organ transplantation will save a lot of life of patients and also the medical cost of organ transplantation might be reduced by the popularization.

If the patient cannot live without organ transplantation, how we can support them? Even though, many lives are saved by the brain death organ transplantation, why the brain death organ transplantation has not been popularized in Japan?

### ***"The question about the rules of organ donation"***

This category was consisted from two subcategories. Participants had a lot of the questions about the rules of organ donation. They do not have an y professional knowledge for organ donation. For example, they do not know the conditions for becoming a donor and recipient of organ transplantation. Moreover, they do not know the support system for the decision making of organ donation.

I do not know that who can be a donor and recipient of organ transplantation and do they ask somebody about their decision making? Who have to explain about the organ donation?

### ***"The imagination about the nurses and coordinators of organ transplantation"***

This category was consisted from eight subcategories. Participants were strongly interested in the hospitals have conducted organ transplantation. Some participants have wish to work at the hospitals. However, they strongly felt the anxieties of their lack of knowledge regarding organ transplantation.

I am really interested in the working at the hospital which has conducted organ transplantation but I cannot think that I can work at the hospital with my lack of knowledge for organ transplantation.

Participants' imaginations about the nurses of organ transplantation were that the roles of nurses for organ transplantation was important, difficult and mental support for the recipients and

donors. Participants' imaginations about the coordinators of organ transplantation were that the coordinators have to provide the care for the recipients and donors, the coordinators should have a lot of knowledge of organ transplantation more than the nurses working at the hospital which has conducted organ transplantation.

### ***"The necessity of the education concerning organ transplantation"***

This category was consisted from eleven subcategories. Participants were feeling the necessity of the education for organ transplantation because they strongly had the anxieties of their lack of knowledge regarding organ transplantation. Participants wanted to gain the opportunity of taking the education while they are students. The reasons for taking the education were that they want to be nurses who will be able to explain about the rules of the organ donation properly. Participants wished to give the donors, recipients and their families a sense of security as a nurse with the solid knowledge of organ transplantation.

I think that acquiring knowledge as a medical care worker is p roper obligation. Because the number of organ transplantation has been increased in Japan, I should and want to study hard. Otherwise, I will not be able to care for the patients.

## **Discussion**

### **Discussion of the Quantitative findings**

For the students, the brain death organ transplantation is often understood more than the living organ transplantation, and the students feel that the brain death organ transplantation is more familiar than the living organ transplantation. In the view of the number of participants who answered "I do not understand living organ transplantation", the nursing students who will be responsible for the future nursing care have very little opportunity to acquire the correct knowledge and information about living organ transplantation. The results concerning the imagination of the living organ transplantation show that the living organ transplantation in Japan is well established as one of the general medical treatment options, but nursing students do not considered the living organ transplantation as one of the general medical treatment. With the revision of the organ transplant law in 2010, the number of the brain death organ transplantation has been increased [3].

The number of organ donors will increase in the future, and the nurses will inevitably have more opportunities to meet the donors, the recipients, their families and also the patients waiting for organ donation [4]. In the field of medical treatment of organ transplantation, nurses will be involved with the donors, the recipients and their families who are individually different role in the field of the medical treatment for organ transplantation [6,7]. Nurses have an important role not only in peri-operative nursing for the donors and the recipients but also in supporting their decision making for organ donation, and in supporting their families. In the survey of nurses at the hospitals have conducted organ transplantation, the nurses who have the correct knowledge and rich experiences have the positive opinion on the organ donation [8].

Moreover, nurses who will face various ethical issues related to organ transplantation need to learn bioethics and medical ethics related to organ transplantation [9,10]. Therefore, we have to consider the educational division for organ transplantation. The number of opportunities to acquire the collect knowledge of organ transplantation has to be increased for the nursing students in Japan.

Otherwise, the right and the life dignity of the donors, recipients and their families regarding transplantation may be threatened. In the view of the number of participants who answered for the interest in organ transplantation and the role of nursing for organ transplantation, nursing students have felt the importance of the education regarding organ transplantation. They might feel the lack of knowledge and anxieties of caring the donors and recipients in the future. As a result of examining a chi-square test about comparison of each school year, a significant difference in the school year was not found in all the question items. The acquisition of their interests and knowledges about organ transplantation are not proportional to academic year and medical knowledge, but may be related to the quantity and quality of collect information for the medical treatment of organ transplantation. Therefore, it is difficult to think that the knowledge about the transplantation medical treatment and nursing care deepen only by accumulation of conventional basic nursing education and practice.

### Discussion of the Qualitative findings

Our survey of the quantitative methods showed that participants did not understand the living organ transplantation properly. The results of this survey of qualitative method revealed that participants were confused about the difference between living organ transplantation and brain dead organ transplantation. Participants also did not understand the rules of the organ donation. However, it is a fact that participants were interested in the medical care of organ transplantation and participants tried to acquire the knowledges of organ transplantation. Unfortunately, their knowledges of organ transplantation was not enough and not appropriate acquiring from the social medias such as television news, programs [11]. In Japan, there are about 850 brain death organ transplantation facilities [4]. Considering that the number of organ transplants has been increased gradually, we have to consider the educational contents of organ transplantation. The roles of nurses includes physical and psychological care of donors and recipients [12-14].

The nursing care of donors and recipients are not only peri-operative period but also post-operative life management and psychological care [15,16]. Other roles of nurses are not only care for the recipients and donors but also their family members. There are various and complex issues in the support of decision making for organ donation, and coordination of family relationships and psychological care of families are particularly important [17,18]. From the viewpoint of the increasing number of organ transplants, and the nursing care that requires specialties and complexities of care, it is necessary as a nurse in the future to acquire basic and correct knowledge about organ transplantation.

### Limitations

We conducted this survey only at one nursing college in Japan. Participants did not receive the education for organ transplantation and did not have any knowledge on organ transplantation. Therefore, the data obtained is biased and that we need to analyze the results carefully. In the future, it will be necessary to investigate nursing students who have received education on organ transplantation, and to compare the differences with students who have not received education on organ transplantation.

### Conclusion

As a result of the research, nursing students have a strong interest in organ transplantation, but they have misrecognized because of the lack of knowledge on organ transplantation. Besides, they were interested in working in the field of transplant medicine, but they were strongly anxious because of lack of knowledge on organ transplantation. The nurses play a significant role on their care for the donor and family members who might have physically and mentally problem. The nursing educators at university in Japan have to consider the lack of present education for organ transplantation and have to understand the nursing students' perceptions of organ transplantation.

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