

Psychosocial factors in organ transplant patients at King Chulalongkorn Memorial Hospital

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- Background** : *High prevalence rate of psychosocial problems among candidates for organ transplantation appeared in a number of studies. As one of the factors influencing surgical outcome, psychosocial evaluation and support have been integral parts of transplantation process for the best cost-effective result.*
- Objective** : *To define psychosocial problems and their prevalence among candidates for organ transplantation, recipients and living donors, at King Chulalongkorn Memorial Hospital.*
- Setting** : *Consultation-liaison outpatient clinic, Department of Psychiatry, King Chulalongkorn Memorial Hospital.*
- Design** : *Prospective and descriptive study.*
- Method** : *Thirty-eight candidates for recipient and 14 candidates for living donors from the waiting list for transplantation, between January 1, 1999 to December 31, 1999, were interviewed and followed up (at least 3 visits) by a psychiatrist, using the semi-structure questionnaire. The collected data consisted of demographic, physical and psychosocial information. The psychiatric diagnosis was reported according to DSM IV. Also, the Thai version of Transplant Evaluation Rating Scale (TERS) was applied to determine the eligibility of candidates for organ transplant.*

Result : Most recruited recipients were male and lived in Bangkok; they were highly educated and had significantly higher financial status than their living donors. Psychiatric disorder was found 34.2% of the recipients, most of them were adjustment disorder and major depressive disorder. Also, problematic personality trait was found 23.7%; they were mainly narcissistic. The majority of the recipients had good supporting system; they were classified as eligible or adjustable candidates for transplantation. Most of the living donors, on the other hand, were female and sibling of the recipients; they lived in the country, had relatively lower educated and financial status than the recipients. Adjustment disorder was found in 21.4% of the living donors. All also had good psychological supporting system. Their prime reason to donate their organs were humanitarian and genetic indication.

Conclusion : The prevalence of psychiatric disorder in the study was higher, but compatible with prior studies carried out in western countries. We also found the interestingly different psychosocial factors between recipients and living donors, which might lead to further concern about the human right and discrimination. The aim of psychosocial evaluation is not for patient exclusion, but detection and solving their problems to benefit the outcome.

Key words : Psychosocial factors, Organ transplantation, Candidates, Recipients, Living donors.

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วัตถุประสงค์ : เพื่อศึกษาปัญหาทางจิตสังคมและความชุกของปัญหาดังกล่าวในผู้ป่วยที่กำลังรอการผ่าตัดปลูกถ่ายอวัยวะ และผู้ประสงค์จะบริจาคอวัยวะในโรงพยาบาลจุฬาลงกรณ์

สถานที่ทำการศึกษา : แผนกผู้ป่วยนอก ภาควิชาจิตเวชศาสตร์ โรงพยาบาลจุฬาลงกรณ์

รูปแบบการวิจัย : การศึกษาแบบพรรณนาไปข้างหน้า

วิธีการ : ศึกษาผู้ป่วยที่ได้ลงชื่ออยู่ในรายนามผู้รอการผ่าตัดอวัยวะ และผู้จะบริจาคอวัยวะในช่วงเวลาการศึกษาคือ ภายในวันที่ 1 ม.ค. 2542 - 1 ธ.ค. 2542 มีจำนวนผู้ป่วยที่รอการผ่าตัดในระยะเวลาดังกล่าว จำนวน 38 คน และผู้จะบริจาคอวัยวะจำนวน 14 คน ผู้วิจัยได้ทำการสัมภาษณ์และติดตามเป็นเวลาอย่างน้อย 3 ครั้ง และบันทึกผลการตรวจลงในแบบสอบถาม ข้อมูลที่สัมภาษณ์ประกอบด้วย 1) ข้อมูลทั่วไปของผู้ป่วย 2) ข้อมูลโรคทางกาย 3) ข้อมูลทางจิตสังคมโดยการวินิจฉัยโรคทางจิตเวช ได้ใช้เกณฑ์การวินิจฉัยของ DSM-IV รวมถึงได้ประเมินความเหมาะสมของผู้ป่วยที่จะเข้ารับการผ่าตัดอวัยวะ โดยใช้แบบสอบถามซึ่งแปลมาจาก TERS (The transplant Evaluation Rating Scale)

ผลการศึกษา : ผู้ป่วยที่ต้องการผ่าตัดปลูกถ่ายอวัยวะส่วนใหญ่เป็นเพศชาย ภูมิลำเนาอยู่ในกรุงเทพมหานคร, การศึกษาสูงและโดยทั่วไปมีฐานะทางเศรษฐกิจสูงกว่ากลุ่มผู้บริจาคอวัยวะอย่างชัดเจน พบโรคทางจิตเวชในผู้ป่วยถึง 34.2% ส่วนใหญ่เป็นโรค Adjustment disorder และโรคซึมเศร้า นอกจากนี้ยังพบปัญหาทางบุคลิกภาพอยู่บ้างประมาณ 23.7% ส่วนใหญ่เป็นแบบ Narcissistic trait ผู้ป่วยส่วนใหญ่มีครอบครัวที่ช่วยเหลือประคับประคองดี และ 40% เป็นผู้ที่เหมาะสมในการเข้ารับการผ่าตัด และ 50% สามารถปรับเปลี่ยนได้เพื่อให้เหมาะสม

ผู้ที่บริจาคอวัยวะโดยส่วนใหญ่เป็นเพศหญิง เป็นพี่น้องของผู้ป่วย และมักอายุมากกว่า อาศัยอยู่ในต่างจังหวัด โดยเฉลี่ยมีระดับการศึกษาต่ำกว่า และมีรายได้ต่ำกว่ากลุ่มผู้ป่วยอย่างชัดเจน พบโรคทางจิตเวช คือ Adjustment disorder ได้ 21.4% ในผู้บริจาคทุกรายมีครอบครัวที่ช่วยเหลือประคับประคองดี เหตุผลหลักของการบริจาคอวัยวะคือ เพื่อมนุษยธรรม และความสัมพันธ์จากการทดสอบทางพันธุกรรม

การศึกษานี้มีวัตถุประสงค์เพื่อเปรียบเทียบความชุกของปัญหาทางจิตสังคมในผู้ป่วยปลูกถ่ายอวัยวะ ในการศึกษาที่พบได้ค่อนข้างสูง เช่นกันกับที่พบในต่างประเทศ นอกจากนี้ยังพบความแตกต่างที่น่าสนใจบางประการเมื่อเปรียบเทียบกันระหว่างกลุ่มผู้ป่วยและกลุ่มผู้บริจาคอวัยวะ ซึ่งอาจนำไปสู่การศึกษาต่อด้านสิทธิมนุษยชน และความเท่าเทียมกัน

แม้ว่าการวิจัยนี้จะศึกษาถึงความเหมาะสมของการเข้ารับการรักษา แต่เป้าหมายของการประเมินทางจิตสังคมครั้งนี้มีวัตถุประสงค์เพื่อค้นหาปัญหา และช่วยเหลือผู้ป่วยเพื่อเพิ่มอัตราความสำเร็จของผลการผ่าตัด ไม่ใช่เพื่อเป็นเกณฑ์การคัดผู้ป่วยออกแต่อย่างใด

วิจารณ์และสรุป : ความชุกของปัญหาทางจิตสังคมในผู้ป่วยปลูกถ่ายอวัยวะ ในการศึกษาที่พบได้ค่อนข้างสูง เช่นกันกับที่พบในต่างประเทศ นอกจากนี้ยังพบความแตกต่างที่น่าสนใจบางประการเมื่อเปรียบเทียบกันระหว่างกลุ่มผู้ป่วยและกลุ่มผู้บริจาคอวัยวะ ซึ่งอาจนำไปสู่การศึกษาต่อด้านสิทธิมนุษยชน และความเท่าเทียมกัน

สถาบันนวัตกรรมการ จุฬาลงกรณ์มหาวิทยาลัย

During the past few decades, one of the fastest growing branches of medical science is the technology of organ transplantation. It is a composite development in different fields of medical science: surgery, internal medicine, immunology, anesthesia and psychiatry. Every part has to work together in unison to produce a transplant team for holistic approach.

A number of studies reported that the psychosocial problems were also influential in the process of transplantation.⁽¹⁻¹⁰⁾ Some psychiatric problems caused organ failure, e.g. alcohol dependence caused liver cirrhosis, suicide by paracetamol overdose caused liver failure, suicide by paraquat caused lung fibrosis. These are still controversy that whether they were contraindications for surgery.^(11,12) Also, during a period of chronic illness, being on-line and waiting for the donated organ, patients were faced with a number of dynamic mental process. They had to adjust to their illness, and still suffered from pain and disability, threat to die, changes of status role, lost of jobs, being dependent on others, being unable to control themselves etc.. The disturbance of the equilibrium and quality of life therefore involved not only the individual patients, but also their entire families.^(3,15-18) Furthermore, the psychosocial stressors such as psychiatric disorder, personality disorder, supporting system, as well as financial status, all these were reported in a number of studies as prognostic factors for surgical outcomes.^(2,19-21)

Transplantation is the most hopeful treatment for patients with organ failure, but it is an expensive procedure. Currently, limited financial sources conditioned us to be concerned with the cost-effectiveness of every medical intervention. To reassure the efficiency of

resource allocation, the selection process of those patients who is likely to benefit from transplant surgery is essential.^(1,12, 22-25) Medically, genetic compatibility is the strongest point of consideration. In psychiatry, psychosocial evaluation of transplant patients in Thailand has just developed; we had few experiences about it. As it is known from studies in the West that psychosocial problem is one of the predictive factors for the outcome of a transplant. The accepted predictive factors are, namely: psychiatric disorder, personality, coping style, health behavior, psychosocial adjustment to illness, supporting system and compliance.^(2,4,19-21, 26-28) It is reported the high prevalence rate of psychiatric disorders, mostly depression and anxiety.⁽²⁸⁻³²⁾ The presence of psychiatric disorder is associated with the increase of morbidity as measured by increased hospital admission and subsequent increased cost.^(2,5,33) The presence of personality disorder is associated with poor compliance to treatment.⁽²⁾ Given that noncompliance can lead to complication and graft rejection.^(5,34) Some studies reported that male, married, older and higher incomes were common compliant.^(8,35) There were also reports about health behaviors (eating style, smoking, exercise, etc.) that tended to continue after transplant and lead to noncompliance.⁽³²⁾ Some studies pointed out that the most powerful indicators for noncompliance was a history of substance abuse^(5,6) that exposed patients to significant risks for later psychiatric problems of depression, anxiety and personality disorder.

Psychosocial factors correlated to a successful surgical outcome were, namely: social support, coping ability, few emotional communication, self control, emotional stability, high frustration tolerance, low

aggressive level.^(3,36)

In Thailand, we never had their psychosocial information. The study was conducted to gather information concerning psychosocial problems and

their prevalence, as well as suggestions for further improvement of psychosocial care to transplant patients who would be receiving treatment at King Chulalongkorn Memorial Hospital.

Table 1. Demographic data of recipients and living donors.

		Recipient		Living donor		
		cases	Percent	cases	Percent	
Gender	Male	21	55.3	6	42.9	
	Female	17	44.7	8	57.1	
Age	Up to 20	2	5.3	0	0	
	21-30	7	18.2	2	14.3	
	31-40	14	36.4	5	35.5	
	41-50	5	12	6	42.6	
	51-60	5	13	1	7.1	
	More than 60	5	13	0	0	
Marital status	Single	13	34.2	7	50	
	Married	22	57.9	7	50	
	Other	3	7.8	0	0	
Children	Yes	16	42.1	8	57.1	
	No	22	57.9	6	42.9	
Religion	Buddhism	36	94.7	14	100	
	Other	2	5.2	0	0	
Address	Bangkok	23	60.5	4	28.6	
	Central part	7	18.4	3	21.4	
	Other part	8	21.1	7	50	
Occupation	Government officer	6	15.9	2	14.3	
	Employee	15	39.4	6	50	
	Own business	7	18.4	2	14.3	
	Housewife	4	10.5	2	14.3	
	other	6	15.8	1	7.1	
Education	Master degree or up	4	10.5	0	0	
	Bachelor degree	14	36.8	5	35.8	
	University certificate	2	5.3	3	21.4	
	Grade 12	10	26.3	0	0	
	Grade 9	3	7.9	1	7.4	
	Grade 6	1	2.7	2	14.2	
	Less than grade 6	4	10.5	3	21.4	
Monthly fam. Income	Up to 5,000	2	5.2	6	42.9	X ² =8.62 DF=3 P =0.034
	5,001-15,000	5	13.2	4	28.6	
	15,001-30,000	8	21.1	3	21.4	
	More than 30,000	23	60.5	1	7.1	
Debt	No debt	36	94.7	11	79	
	Be in debt	2	5.3	3	21	

Method

Recruitment of subjects was carried out between January 1, 1999 to December 31, 1999, from the interdepartmental consultation out patient clinic, Department of Psychiatry, King Chulalongkorn Memorial Hospital. All adult candidates for recipients and living donors who were on the waiting list for surgery had been referred to us for their psychosocial evaluation. They were registered, interviewed, determined and followed up, 3 visits at the minimum, by a psychiatrist (one of the authors). The psychiatric treatment would be provided, if there was a reasonable indication. The series comprised 52 cases, 38 candidates for recipients, and 14 candidates for living donors. Data collection was composed of demographic, physical and psychosocial information. The questionnaire translated from TERS (The transplant evaluation rating scale) with the content validity = 0.83 was also implemented, to assess the patients' eligibility for transplantation. The psychiatric diagnosis was classified by the diagnostic criteria DSM IV. The interater reliability among authors had been evaluated, $K = 0.79$.

Result

Demographic variables

Table 1 contains a summary of demographic characteristics of candidates for recipients and living donors. The recipients were predominantly male, married with children, aged 31-40 years, Buddhists, living in Bangkok. Most of them were employees, highly educated, most of them received a Bachelor degrees or higher, as well as having high financial status; most of them earned their family income over 30,000 Bahts/month and had no debt; whereas the

living donors were predominantly female, 41-50 years old, almost equally single or married, 57 % and had no children. Most of them lived in the country areas, about 71.4%. Most of them had their Bachelor degrees with their family income less than 5,000 Bahts/month.

Data displaying the relationship between living donors and recipients was in table 2. 62.3 % of the donors were siblings of their recipients. The second most common relationships were mothers and wives of the recipients. The reason for donation was shown in table 3.

Table 2. Relationship between living donors and recipients.

	Cases	Percent
Relationship to recipient		
Father	1	7.1
Mother	2	14.3
Sibling	9	62.3
Spouse	2	14.3

Table 3. Donors' reason for donation.

	Cases	Percent
Humanity	3	21.4
Genetic indication	3	21.4
Request	1	7.1
Charity	1	7.1
Others	6	43.0

Physical variables

Table 4 presents the background physical disease of the recipients. 68 % of the recipients were candidates for kidney transplantation; 42% had the comorbid physical illness, chiefly hypertension and diabetic mellitus. The common problem in health behavior among the recipients was lack of exercise, 52.6 %.

Table 4. Recipient's physical data.

Recipient	Cases	Percent (%)
Type of transplantation		
Heart/Heart-lung transplantation	10	26.3
Kidney transplantation	26	68.4
Liver transplantation	2	5.3
Comorbidity		
Hypertension	6	15.8
Diabetis	5	13.1
SLE	2	5.3
other	2	5.3
Health behavior problems		
Smoking	1	2.6
Exercise	20	52.6
Diet control	4	10.5

Table 5. Mental health data of recipients and living donors.

	Recipient		Donors	
	Cases	Percent	Cases	Percent
Past psychiatric disorder	6	15.8	3	21.4
Adjustment disorder	4	50	2	66.7
Dysthymia	1	16.7	0	0
Alcohol dependence	1	16.7	0	0
Dissociative disorder	0	0	1	33.3
Past suicidal history				
Suicidal idea	4	10.5	1	7.1
Suicidal attempt	0	0	1	7.1
Present psychiatric disorder	13	34.2	3	21.4
Adjustment disorder	7	53.8	3	100
Major depressive disorder	3	23.1	0	0
Dysthymia	2	15.4	0	0
Others	1	7.7	0	0
Personality trait	9	23.7	2	14.3
Narcissistic	5	55.6	0	0
Histrionic	1	11.1	1	50
Obsessive-compulsive	1	11.1	1	50
Others	2	22.2	0	0

Psychosocial variables

Table 5 shows their psychosocial problems. It was found that the 15.8 % of the recipients had past psychiatric disorders. 10.5 % had previous suicidal idea. Interestingly, 34 % of the recipients had current psychiatric disorders (presented during the evaluation period) which were adjustment disorder and major depressive disorder, consecutively. We found probable problematic personality trait about 23.7 % among the recipients, predominantly narcissistic trait.

In order to assess the eligibility for transplantation, "TERS" (Transplant Evaluation Rating Scale) was used to determine candidates for recipient.⁽¹⁾ Our series found eligible cases 40 % the other needed some help or correction as presented in table 6.

Table 5. Continuous.

	Recipient		Donors	
	Cases	Percent	Cases	Percent
Alcohol use				
Previous use	8	21.1	1	7.1
Supporting system				
Good-excellent	30	78.9	14	100
Fair	7	18.5	0	0
Poor	1	2.6	0	0
Compliance				
Good	32	84.2	11	78.6
Fair	6	15.8	3	21.4
poor	0	0	0	0

Table 6 . Eligibility for tranplant surgery (TERS :
Transplant Evaluation Rating Scale).

Candidates for recipient	Cases	Percent
Eligible	15	39.5
Adjustable	19	50
unsuitable	4	10.5

Discussion

The research presents the psychosocial aspects of transplant patients. Regarding demographic data, the recipients, mostly aged between 31- 40 years. They were relatively younger than those in U.S. whose average age was around 48 years.^(37,38) On the contrary, our living donors (41-50 years) were relatively older than the recipients and those living donors in U.S., whose ages were about 19-35 years,^(37,38) which were in the most healthy period. One of the long-term prognostic indicators for the function of transplanted organs was the age of donors. Because of Thai culture

it is always the elders who are givers; Thai recipients might feel more comfortable to receive organs from older siblings or even parents than from their younger sisters or brothers.

Regarding sex of the recipients, they were predominantly male; the finding was consistent with other studies. In U.S., however, it was found that women were 10% less likely to receive a transplant than men. In contrast to this, women were significantly more likely to donate organ than men, which was similar to our finding in the study.^(39,40) Some studies discussed about the issues of gender discrimination and human rights.⁽³⁹⁾ However, Nyberg suggested the reason for the imbalance because of significantly more severe characteristics of kidney pathology in men than in women.⁽⁴¹⁾

We are especially interested in the difference of the living areas, educational levels and socioeconomic statuses between the recipients and their living donors. The majority of the recipients lived in Bangkok. They were graduated of advanced education and had

significantly higher financial statuses than their donors ($p = 0.034$). It is true that people in Bangkok would have better opportunities to receive transplant because the health information and their access to healthcare services, whereas most donors were from the rural areas, rather poorer and not highly educated. These characteristics also appeared in other studies. Frazier⁽⁶⁾ reported that most recipients had their annual income over \$ 25,000 that is a good sign for compliance. Also, Gralnek⁽³⁸⁾ presented the annual income of most living donors was lower than average of those in U.S. . The reason why the poor, living in rural areas donated their organ could not be interpreted. It might be attributed to their native culture of kindness, generosity, and the spirit they might not acknowledge and recognize about the possible health problems occurred after organ donation, or even, they might expect for the future support from the recipients' family. Concerning human equity might be too pessimistic, because our samples were not large enough to conclude, and there were no cases in our series got the monetary benefit. The data of relationship between donors and recipients showed a new trend for donors. Although most donors were genetic-related, emotional-related donors (spouse) had been considering. Terasaki⁽⁴⁰⁾ reported that, except for HLA identical siblings, spousal donors were the best. The survival rate of spouse's kidney graft was significantly higher, while their complication rate (e.g. anuria) was lower than those with cadaveric graft. In psychiatric aspects, 175 cases from 176 cases of spousal donors felt very satisfied, 47% improved marital life, 29 % had better sexual relationship and 25 % gained love and respect from their children.⁽⁴⁰⁾ Most spouses were happy to donate their organs

because they shared their pain together. The phenomenon also showed excellent family support.

Physical data interested us, in particular health behavior problems among the recipients. We found that most recipients had previously and currently very few or no exercise and some even had diet-control problem. Health behavior is one of the prognostic factors for surgical outcome. Manzetti *et al.* reported a case of lung transplanted patient who participated in a health maintenance program (education and appropriate exercise) that it significantly improved physical function and quality of life of the patient.⁽⁴²⁾ Also, Paris *et al.* found that people with their diet-control problems or obese people tended to continue their eating style even after the surgery and thus affected their outcome.⁽²⁴⁾ High prevalence of problems in health behavior found in our study suggested that patients did not recognize or ignored its importance. Therefore, health behavior should be monitored and promoted.

Psychosocial problems were presented consistently with prior studies in other countries. Current psychiatric disorders were detected 34.2 % among recipients. The studies regarding the prevalence of psychiatric disorder among recipients of transplantation were reported and ranged from 11.1 % (Japan) to 66 % (U.S.).^(1,10,33,43-45) The occurrence of large interval depends on type of transplant of population under study. For example, study in kidney transplant patients would have less prevalence of psychiatric disorder than among heart and lung transplant patients. An observation of mixed type of transplant, reported a similar result to our finding. Almost psychiatric disorder we found was depressive disorder which was similar to Maricle's study.

However, Maricle had much higher prevalence of depression, about 50 % of heart transplant cases. While most studies reported both depression (17-28 %) and anxiety (27-37 %). No matter what race or country, high prevalence of psychiatric disorder appeared. As we known that untreated psychiatric disorders would increase the rate of postoperative complication and long-term compliance, as well as negatively affect psychosocial adjustment to illness.^(2,5)

Personality problem was also proved as a predictor for compliance. According to our observation, we found Narcissistic personality trait, which might be problematic in a long-term follow-up because patients might have unstable emotion, low frustration tolerance, self-centered idea and interpersonal relationship difficulty. However, personality problem identified in the series was not absolute disorder, just trait. Therefore, it was not worrisome for transplant outcome.

Another concern was the subjects' history of previous psychiatric disorder. We found past psychiatric disorder among the recipients rated as high as 15.8 %. Most of them were adjustment disorder, and 10.5 % had suicidal idea. Even, there was no current psychiatric disorder at the evaluation period, the finding was significant. Their past psychiatric disorders and suicidal idea could tell their ability to cope with stress that could affect to outcome.

Low prevalence of substance abuse (all alcohol) was reported in the study. The potential explanation for the low rate of alcohol abuse might be attributed to a small proportion of liver transplantation cases in studied samples. Previous studies concerning liver transplant patients showed the most common psychiatric condition was alcohol addiction,⁽¹⁰⁾ which

was always controversy about eligibility for surgery. Howard *et al.*⁽⁴⁶⁾ and Paris *et al.*⁽⁵⁾ had long-term followed alcoholic liver transplant patients for 6 years and found the rate of alcohol reuse as high as 80 %. Substance abuse was the most predictive factor for noncompliance and directly affects survival rate.^(5,6)

About 80 % of our recipients had good – excellent supporting system and only 2.6 % had poor support. The finding was similar to those of Shapiro⁽⁶⁾ and Lang⁽³³⁾, who reported good – excellent social support 61 – 72 % and strong conflict support 2.7-11 %. Hirth *et al.* stated that the importance of social support from family, friends and health professional during the period of waiting for surgery affected the outcome of postoperative period.⁽¹⁴⁾ Chacko reported that social support was one of the best predictor for prediction the survival and the most important supporter was spouse.⁽²⁾

Another best predictor was compliance to treatment and follow-up.⁽⁴³⁾ Some included health behaviors (exercise, diet, smoking, etc.) with that. Poor compliance led to graft loss and infection. Our study defined compliance only in term of medication taking and regularity of follow-up. We had not found poor compliance among our candidates.

Regard to eligibility,⁽¹⁾ our series found eligible cases 40 %, the other needed some help or correction. This reassured that psychosocial evaluation was helpful and essential. In some institutes, patients with severe psychosocial problems or labeled, as “unsuitable cases”, would be removed from the waiting list such as unsuitable cases 4 % (28 from 706) in Phipps' series (U.S.)⁽¹⁹⁾ and 11.4 % in Sperling's series (Germany).⁽³³⁾ The concept might be considerable under the limitation of resources and cost-

effectiveness. However, some people believed that the concept violated human rights. For example, Orentlicher disagreed to use psychosocial criteria as a contraindication for surgery.⁽⁴⁷⁾ In our practice, however, we insisted that our goal for psychosocial assessment was not for case exclusion but support and improvement of the outcome.

The first reason of donation in our living donors were genetic indication and humanitarian. Although genetic indication was not a pleasurable reasoning in term of ethics, every donor was willing to donate. Tororuyi *et al.*⁽⁴⁸⁾ studied in living kidney donors and reported the willingness to donate without concern about their health. Several studies in U.S. reported a significant improvement of the quality of life in living donors;⁽⁴⁹⁻⁵¹⁾ only 4-12 % felt grateful with their decision,^(52,53) most were attributed to the perioperative complication, the recipient died within 1 year after surgery or had conflict between recipients and donors. The most important point regarding human right was that the living donors had to be adequately acknowledged about their health information, such as short-term and long-term complications, before a decision was made.

In conclusion, trend of organ transplantation is progressing. The progression is no longer dependent on immunology advance or surgical technique advancement, it is based on the increase of donor organ supply as well as the improvement of quality of life for both recipients and donors.^(54,55) We hope that psychosocial evaluation and support will be the integrated into the success. The study was the first step to gather and assess the size of the psychosocial problems in Thailand. However, our study samples might be too small to completely detect their psychosocial

problems. Further studies are recommended for more information and monitoring postoperative outcomes correlated to psychosocial problems.

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