

Knowledge, attitude and behaviors of university students on organ transplantation, in Turkey

Türkiye’de üniversite öğrencilerinin organ nakli konusundaki bilgi, tutum ve davranışları

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Abstract

Objective: In this study, knowledge, attitude and behaviors of university students on organ donation were investigated.

Material and Method: A stratified random sample of 955 students were asked for six sociodemographic, seven personal information, nine behavior and twenty attitude questions using a Likert-type scale survey form.

Results: Totally 955 students participated the study and 85.6% reported that the most significant barrier against organ transplantation was inadequate organ donation. While 363 students (38.0%) didn’t decide to donate any organs although they had positive views on organ donation, 209 students reported that they would donate all of their organs and the organ chosen as likely to be donated the most was kidney. When the reasons for negative views on organ donation were examined, the primary reasons were found to be “presence of religious barriers” and “discouragement”. Also, 719 (75.3%) students had no knowledge about where the organs were donated.

Conclusion: University students have insufficient information about organ donation. Informing them about the details of the organ donation will have an effect on increasing the donation rates.

Key words: Attitude, behavior, knowledge, Organ transplantation, student

Özet

Amaç: Bu çalışmada üniversite öğrencilerinin organ nakli konusundaki bilgi, tutum ve davranışları araştırılmıştır.

Gereç ve Yöntem: Tabakalı tesadüfi örneklem ile seçilen 955 öğrenciye; likert tipi anket formu kullanılarak, altı sosyodemografik, yedi kişisel, dokuz davranışsal ve yirmi tutumsal soru soruldu.

Bulgular: Toplam 955 öğrencinin katıldığı çalışmada, %85,6’sı organ nakli karşısındaki en büyük engelin yetersiz organ bağıışı olduğunu bildirdi. 363 öğrenci (%38,0) organ bağıışı konusunda olumlu görüşlere sahip olmasına rağmen, herhangi bir organ bağıışında bulunmamıştı. 209 öğrenci kendi organlarının tamamını bağıışlayacağını bildirdi ve en sık bağıışlanacağı söylenen organ böbrekti. Organ bağıışı konusundaki negatif görüşlerin nedeni incelendiğinde, primer sebepler “dini engeller” ve “cesaretsizlik” olarak bulundu. Aynı zamanda, 719 (%75,3) öğrenci organ bağıışının nereye yapılacağını bilmiyordu.

Sonuç: Üniversite öğrencilerinin organ bağıışı konusunda yeterli bilgileri yoktur. Organ bağıışı konusunda onları bilgilendirmek, bağıış oranlarını arttırmada etkili olacaktır.

Anahtar Kelimeler: Tutum, davranış, bilgi, organ nakli, öğrenci

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Introduction

Modern medicine has long been making efforts on replacement of tissues and organs malfunctioning due to diseases or various other reasons with healthy matched ones obtained from another individual. As it can be understood from the term “transplantation”, the issue of organ transplantation matters two subjects with regards to the right of living, which is the very basic human right,

and moreover, the issue is also associated with many problems that require solutions. Rules on this subject are determined by legislation, but boundaries of the legislation are outlined by ethical values, beliefs and culture of the society (1).

The reason for the gradually increasing historical development of organ transplantation is that chronic diseases resulting with organ deficiency such as chronic

renal, hepatic, cardiac and pulmonary deficiency do not have treatment options other than transplantation (2). Although investigations including particular genetic studies and stem cell transplantations are ongoing in an accelerated manner, the extent they will influence therapeutic programs has not been clarified yet (3). Advances in immunology and immunosuppression fields had effects on increased success rate of organ transplantation. Those advances also raised the issue of transplantation from cadaver and unrelated living donor (3).

Based on studies, 15-16 subjects in average per day die in the United States of America (USA) while they are waiting for donor organ transplant (4,5,6). In 2001, 5683 subjects died waiting for a matched organ transplant (4). While the number of patients waiting for organ transplantation was 76.000 in February 2002, the figure raised to 81.603 in May 2003 (7).

When relevant condition in European countries in 1997 was examined, it was observed that Germany was ranked the first with 1970 cadaver renal transplantations, 279 renal transplantations from living donors, 762 hepatic transplantations, 562 cardiac/pulmonary transplantations, 89 pulmonary transplantations and one pancreas transplantation. According to data from the German organ transplants have risen to %19,2 from %3,9 between 1995 and 2005 (8).

In our country, many patients die while waiting for organ transplantation due to insufficiency in organ transplantation and organ donation (9). In Turkey, 1131 renal transplantations, 447 hepatic transplantations and 53 cardiac transplantations were performed in 2007. However, experts reported that the need is much more than those figures. Last year, 244 cadaver donations were made, but this number should be at least 2 thousand. According to data, total number of organ transplantations in 2007 is around 1800, whereas, the number of patients waiting for organ donation is around 45 thousand subjects (10).

In this study, it was planned to investigate knowledge, attitude and behaviors of two-year degree and undergraduate students on this issue, who will form the society in the future.

Material and Method

This investigation was a cross-sectional study to examine knowledge, attitude and behaviors of two-year degree and undergraduate students of Afyon Kocatepe University on Organ Transplantation. For this purpose, regarding $d = 0,03$, it was determined that at least 1029 students should be reached among 22.666 students attending all departments of Afyon Kocatepe University located in the city center and districts in 2007-2008 education year. Statistical analysis of this study conducted using stratified sampling method was performed with SPSS software version 11.5. Among all questionnaire forms, 74 forms were excluded from the analysis due to missing information.

In the study, six demographic questions (age, gender, residing location, education status, graduation school and mean income level of the family), seven personal information questions, nine behavior and twenty attitude questions were asked using a survey form Likert-type scale. Survey forms were applied in spring half-term in education year 2007-2008. The region was determined based on the location where the participants lived for the longest term.

Results

Three hundred thirty three (34.9%) of the students participating in the study were students of Faculty and 622 (65.1%) were college students. Of those students, 474 (49.6%) were between the ages of 17 and 20. Four hundred fifty nine (48.1%) were male and 496 (51.9%) were female. Among families of students, 413 (47.6%) were residing at city centers and the most common residential region was Mediterranean region with a number of 262 participants (31.3%) residing in this region. Six hundred students (62.8%) reported that they graduated from regular high school and 816 students (85.4%) reported that mean income level of the family was medium (Table 1).

Views of students about organ donation and distribution of reasons for negative views about organ donation by schools of students are shown in Table 2 and 3.

Table 1: Sociodemographic characteristics of the students

Socio-demographic criteria	Number (n)	Percentage (%)
<u>School</u>		
Faculty	333	34.9
College	622	65.1
Total:	955	100.0
<u>Age</u>		
17 - 20	474	49.6
21 – 25	431	45.1
26 years and above	50	5.2
Total:	955	100.0
<u>Gender</u>		
Male	459	48.1
Female	496	51.9
Total:	955	100.0
<u>Settlement where family resided for longest period</u>		
Village	108	12.4
Town	84	9.7
City	413	47.6
Metropolitan	263	30.3
Total:	868	100.0
<u>Region where family resided for longest period</u>		
Central Anatolia	180	21.5
Mediterranean	125	14.9
Aegean	262	31.3
Black Sea	60	7.2
Marmara	166	19.8
East Anatolia	19	2.3
Southeast Anatolia	26	3.1
Total:	838	100.0
<u>Mean monthly income</u>		
Low	92	9.6
Medium	816	85.4
High	47	4.9
Total:	955	100.0
<u>Type of high school graduated</u>		
Regular High School	600	62.8
Vocational High School	211	22.1
Anatolian – Science High School	144	15.1
Total:	955	100.0

Table 2: Distribution of Students' Views on Organ Donation by the School Attended

	Students' Views on Organ Donation by the School Attended		TOTAL
	Positive	Negative	
College	504	115	619
	%81.4	%18.6	%100
Faculty	279	48	327
	%85.3	%14.7	%100
TOTAL	783	163	946

(p= 0,131)

Table 3: Distribution of Reasons reported by Students with Negative View on Organ Donation

Reasons reported by Students with Negative View on Organ Donation	Frequency (n)	Percentage (%)
Religion-related issues	52	%31.9
Distrust	39	%23.9
Discourage	52	%31.9
Negative outcomes	20	%12.3
TOTAL	163	%100

Four hundred and three students (42.2%) attending Afyon Kocatepe University, ranked kidney as the first in organ transplantation and 258 students (27%) ranked heart as the first.

Among students who reported possible organ transplants; 56 of them (5.9%) reported spleen, 27 (2.8%) reported blood, 24 (2.5%) reported skin, 25 (2.6%) reported tissue, 14 reported (1.4%) brain, 13 (1.3%) reported vessel, 6 (0.6%) reported intestine, 2 (0.2%) reported hand or ear, 1 (0.1%) reported bladder and 1 (0.1%) reported spine. Organ donation status of students according to school and socio-demographic features are shown in Table 4.

When students participating in the study were asked to state the organ they would donate, 363 students (38.0%) did not decide to donate any organs although they had positive views on organ donation. Two hundred nine students (27.1%) reported that they would donate all of their organs and the organ chosen as likely to be donated the most was kidney, which was reported by 16.2% of all participants (n:155) (Table 5).

Among all students participating in the study, 719 (75.3%) reported that they had no knowledge where

organs were donated. The ones who reported that they were informed about the places for organ donations stated as follows: state hospital, research hospital, school of medicine, Red Crescent, organ bank, organ charity, Ministry of Health, dialysis center and by driving license procedures.

One hundred eighty students (57.5%) among all faculty students and 261 (44.4%) of college students gave positive answer to the question “May a patient with brain death revive?” which indicates that the concerning patient may survive. It was observed that a significant difference favoring college students was present between faculty and college students ($p < 0.001$).

For the question “Would you donate organs of your relatives with brain death?”; 239 faculty students (76.8%) and 462 college students (79.1%) responded “Yes” (Table 6).

When students’ perceptions about organ donation in social, educational and religious terms were examined, 85.6% of all students reported that the biggest significant barrier against organ transplantation was inadequate organ donation. Other views on this issue are shown in Table 7.

Table 4: Distribution of organ donation status according to sociodemographic features

	Have you donated your organs?				TOTAL
	Yes		No		
	Faculty	College	Faculty	College	
<i><u>By Age Groups</u></i>					
Between 17-20 years	2	6	94	369	471
Between 21-25 years	3	8	198	221	430
26 years and above	2	0	32	15	49
Total (p:0,452)	7	14	324	605	950
<i><u>By Gender</u></i>					
Male	4	10	153	289	456
Female	3	4	171	316	494
Total (p:0,083)	7	14	324	605	950
<i><u>By residence settlement</u></i>					
Village	0	4	63	122	189
City	3	6	155	248	412
Metropolitan	4	4	77	177	262
Total (p:0,883)	7	14	295	547	863
<i><u>By residence region</u></i>					
Central Anatolia	5	2	72	101	180
Mediterranean	0	4	48	73	125
Aegean	0	4	75	181	260
Black Sea	1	0	20	38	59
Marmara	0	1	55	109	165
East Anatolia	0	0	9	10	19
Southeast Anatolia	0	3	12	11	26
Total (p:0,020)	6	14	291	523	834
<i><u>By familial income level</u></i>					
Low (<300\$)	0	1	27	63	91
Medium (<1000\$)	4	13	282	511	810
High (>1500\$)	3	0	13	29	45
Total (p:0,103)	7	14	322	603	946
<i><u>By graduation high school</u></i>					
Regular high school*	4	11	212	368	595
Vocational high School	0	2	16	191	209
Anatolian – Science High School**	3	1	96	43	143
Total (p:0,366)	7	14	324	602	926

* Schools offering normal day-time education following primary education

** Schools accepting students who pass an examination designed for testing knowledge level following primary education

Table 5: Distribution of responses provided by students to the question examining which organ they would donate

Organs they would donate	Frequency (n)	Percentage (%)
All	259	27.1
None	363	38.0
Eye	58	6.1
Kidney	155	16.2
Heart	87	9.1
Liver	72	7.5
Pancreas	24	2.5
Lung	50	5.2
TOTAL	1068	100

n=1068 as students could give more than one answer to this question.

Table 6: Distribution of Views of Students on Donation of organ from a relative with brain death by School Attended

	Would you donate organs of your relatives with brain death?		TOTAL
	Yes	No	
Faculty	239 %76.8	72 %23.2	311 %100
College	462 %79.1	122 %20.9	584 %100
TOTAL	701 % 78.3	194 % 21.7	895 % 100

(p= 0,543)

Table 7: Perception of Organ Donation by Students in Social, Educational and Religious Terms

	I Agree		Not Sure		I Disagree	
	n	%	N	%	n	%
1) The most important barrier against organ transplantation is inadequacy of organ donation.	800	85.6	89	9.5	46	4.9
2) I do not believe that there is nobody interested in this issue other than patients waiting for organ transplantation.	510	54.3	229	24.4	200	21.3
3) Genetic studies will replace organ transplantations in the future.	604	64.9	289	31.0	38	4.1
4) There is necessity for national unity on organ transplantation and donation.	769	82.2	106	11.3	60	6.4
5) Printed and visual media does not provide adequate information to the public on organ donation	282	30.4	150	16.1	497	53.5
6) Organ donation is of vital importance.	811	88.2	74	8.0	35	3.8
7) If a subject experiences financial bottleneck, he may donate kidney in exchange for money.	111	11.9	181	19.4	640	68.6
8) Cultural diversities may influence views on organ transplantation	601	64.8	182	19.6	144	15.5
9) There may be some conditions contrary to the organ donation in religious terms.	285	30.8	308	33.3	331	35.8
10) Doctors are reliable people with regards to the organ transplantation.	319	34.8	448	48.9	148	16.2
11) We are provided adequate knowledge on organ donation and transplantation throughout our two-year and four-year education.	108	11.7	156	17.0	656	71.3
12) European and American countries are in better conditions than our country with regards the organ donation and transplantation.	473	51.4	373	40.5	74	8.0
13) It does not matter whom I donate my organs.	580	62.4	177	19.1	172	18.5
14) I decide to donate my organs when I am healthy	256	27.8	409	44.5	255	27.7
15) Young subjects have somewhat more positive views on organ donation than elderly people.	512	55.3	310	33.5	104	11.2
16) Possible positive attitude of my family will accelerate my decision-making process.	649	69.8	170	18.3	111	11.9
17) Possible positive views of people highly recognized by the society will accelerate my decision-making process.	388	41.7	234	25.2	308	33.1
18) Chaplains should play pioneering role and they should provide information on organ donation and transplantation.	661	71.4	156	16.8	109	11.8
19) Social aspects of organ donation and transplantation have not been adequately investigated.	538	57.9	302	32.5	89	9.6
20) Medical aspect of organ donation and transplantation has not been adequately investigated.	394	42.4	374	40.3	161	17.3

Discussion

In the study, it was determined that no statistically significant difference was present in terms of sociodemographic properties of organ donation including age group, gender, residential location, familial income level and graduation school, but there were differences among students residing at different regions of Turkey. As there were not adequate equivalent studies conducted on those features in our country, a comparison could not be made, but we believe that inter-regional differences in terms of organ donation may arise from traditions, the extent of religious beliefs, education status of families and traditional structure.

A large part of students participating to the study reported positive views on organ donation. In a study conducted by Doğan et al., 77% of all students had positive views on organ donation (11). In a study conducted in Trabzon city center, it was found that 62.8% of participants decided to donate their organs (12). In a study conducted in Antalya city center, 63.3% of the healthcare personnel wanted to donate organs and tissues to be excised following death (13). It was observed in the literature that similar problems were experienced in many countries on organ donation and the required donation levels could not be reached (14). Rate of positive views on organ donation obtained in our study was higher than that of other studies.

When the reasons for negative view on organ donations reported by the subjects in our study are examined, the primary reasons are found as “presence of religious barriers” and “discouragement”, both of which had a rate of 31.9 percent. In a study conducted with university students in Ankara, 41.5% of 275 students completing the survey forms reported that they would not donate organs of their relatives in the case of a brain death. When reasons are examined, it is seen that several reasons were put forward including the “inability to understand brain death” (24%), “deterioration of body integration” (22%) and “fear against improper use of organs” (22%) (15). Donation refusal rate of families in European countries is around 30 percent. The first reason for those families’ was “abstaining from social reactions” with a rate of 39 percent. Other reasons for refusal of organ donation were determined as “unwilling to lack of body integration” (19%), “reactions against the hospital arising from treatment period” (11%), “unwillingness to make a decision” (8%), “the view that the decision should be made by donor while he is alive” (6%) and “inability to believe that relative is dead” in one percent. Sixteen percent of the participants did not report a reason (16). It is observed that similar concerns are experienced not only in our country but also in other countries (17,18). When compared with all

of the above mentioned studies, we may observe that non-approval of organ donation is based on same foundations. We believe that increasing awareness of the society on this issue will decrease negative attitudes.

Among organs reported to be donated by students in our study, kidney was ranked in first order with rate of 42.2% followed by the heart with rate of 27.0%. Moreover, there were students reporting organs impossible to transplant such as spleen, stomach, lymph, bladder and spine. In a survey study conducted by Altıntaş on 468 chaplains, 70.3%, 59.2%, 47.9%, 18.2%, 16% and 2.9 percent of participants reported that kidney, heart, liver, cornea, pancreas and lung, respectively, can be transplanted (3). In a study conducted by Durta et al. on medical school students in Northeast Brazil, 99.1%, 96.1%, 88.2%, 41.1%, 24.4%, 98.3%, 9%, 38.1%, 47.7% and 18.5% of all students reported that kidney, heart, liver, lung, pancreas, cornea, intestine, cardiac valve, skin and bone and tendon could be transplanted, respectively (19). When our study and the above mentioned studies were compared, kidney ranked the first among transplantable organs. The reason for this rank may be due to the fact that renal transplantation is the first transplantation procedure performed in our country. Moreover, another interesting point in those studies is about blood transfusion. Although blood is a tissue and the transfusion is more common and easy than transplantation of other tissues and organs, students in other studies do not consider blood transfusion as tissue transplantation. This may arise from the view that blood tissue is regarded as a body fluid and it is not considered as tissue (20).

2.1% of faculty students and 2.3% of college students responding to survey reported that they had donated organs and in a study conducted by Bal and Çolak in Eskişehir, it was observed that 2% of 528 students participating in the study had donated organs (21). It was also observed in the study conducted by Doğan et al. that 3.8% of students had donated organs (11). In the present study which was conducted 8 years after the study by Doğan et al., it was determined that a donation rate obtained was below the rate of previous study. The figures disclosed by Blanca Miranda, the President of International Organ Transplantation (ONT), demonstrates that organ donation rate in Spain increased to 31.5 donors per million on 1998 and to 33 donors per million on 2000 and the donation rate increased by 15% throughout next 3 years (22). It is observed in literature that organ donation percent ranges between 2% and 10.5% and in this respect the results of our study are compatible with the results of relevant studies. Based on these results it appears as a fact that there is a necessity for a comprehensive emphasis on organ donation

and transplantation in training programs as well as the support of printed and visual press via introductory and encouraging events. When organ donation data of Afyon Provincial Health Department is examined, it is seen that while total organ donations around Afyon was 8 in 2006, the figure reached 1013 at the end of 2008 due to introductory studies performed (10). When data obtained from Ministry of Health was evaluated, it is seen that the number of subjects who had taken organ donation cards was 1073 in 2002 and the figure sharply increased to 26970 subjects in 2007 (10). Although there is a steady increase in organ donation rates throughout years, it can be observed that the number of patients waiting for proper organ transplant is still very high and the number of donors is still very low.

Large part of students participating in the study (78.3%) reported that they may donate organs of a relative with brain death. However, although substantial part of students (82.8%) reported positive views on organ donation, 38% replied the question "Which organ would you donate?" as "none". This paradox is interesting. Of students participating in the study conducted by Doğan et al., 23.2% reported that they would donate all organs, 31.2% reported donation of more than one organ, 12.2% reported donation of one organ and 33.3% reported that they would donate none of organs (11). Results of the study can be speculated as compatible with the study of Doğan et al. In a study conducted by Agaba EI et al., voluntariness for kidney donation was very high (75.6%) (23). Again, high rate of kidney donation can be explained by the fact that kidney transplantation is more commonly known and more commonly performed.

A significant part of students (75.3%) did not know where organs are donated. We believe that lack of knowledge by large part of participants on institutions about where organs can be donated arises from inadequacy of projects oriented to inform society.

When responses obtained for the question "May patient survive and return to normal life although it is determined by doctors that brain death occurred" were examined, it was found that knowledge of college students was higher than that of faculty students. In the study performed by Doğan et al., 68.3% of respondent students reported that the aforementioned scenario could be possible (11). Presence of such view can be considered as one of the principal reasons influencing organ donation.

Among all students, 85.6% agreed with the view that the largest barrier against the organ transplantation is inadequacy of organ donation. This finding is supportive of concerning studies conducted by Haberal

and other scientists (24). In order to remove this obstacle, we believe that organ donation should be added into course curriculum of national education system in a systematic manner.

More than half of respondent students (54.3%) reported their belief that nobody except patients waiting for organ donation is interested in this issue. More publications and studies conducted on patients undergone or waiting organ transplantation will make many people aware of such an important issue and the missing information will be completed. It was evidenced by comparison of current figures with previous ones that studies conducted by our Provincial Health Department had caused a significant increase in rate of organ donation (10).

Almost half of students agreed the view that printed and visual press does not provide adequate information on organ donation. Most of the news about organ transplantation is about excessively tragic transfer and about tragic death confronted by cadaver donors rather than importance of the transplantation procedure and thus, views about organ transplantation may be negatively influenced.

Most of the students participating in the study reported that positive attitudes of the family towards organ donation will accelerate their decision making process. In the study of Sarıtaş, 25.2% of the respondents had the same idea (20). In our study, more students relative to the study of Sarıtaş were under the influence of family's positive attitude. When the question "positive attitudes of people highly recognized by the society (including artists, scientists) will have positive influence on my decision" was examined, 41.7% of students agreed. We believe that not only families, but also artists and scientist should make positive contributions to the organ donation.

Of all students, 71.4% believed that chaplains should play a pioneering role and provide information on organ transplantation and donation. Considering the fact that the chaplains are the most effective people to enlighten students and the society about religion and organ donation, it is clear why students were of this opinion.

Among all students, 57.9% held the view that the social aspect of organ transplantation and donation has not been adequately investigated. One of the reasons leading to this result is that social aspects of organ transplantation are very limitedly addressed in studies conducted in our country and another reason is that periodical publication of available studies, although scarce, is very limited (6).

Conclusion

Although people from varying sections of the society have various views on organ donation, there is serious inadequacy in terms of knowledge and behavior. Success cannot be accomplished due to inability to expand organ donation, concerns of the society about reliability of religious, legal and healthcare institutions, lack of importance given to the issue, lack of knowledge in the society, inadequate presentation of organ transplantation centers, unwilling efforts of media as well as the news about organ mafia which may worry people.

Eliminating the factor that university students, who will make up the future society, insufficiently informed about the issue of organ donation and increasing the level of sensitivity on this subject will increase organ donation rates and thus, it will provide benefits to the treatment of patients waiting for donation.

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