

# Attitudes and Preferred Information Sources in Medical Students and Family Doctors Regarding Organ Donation and Transplantation

Jung H<sup>1</sup>, Egyed-Zsigmond I<sup>2</sup>, Hecser L<sup>1</sup>, Brînzaniuc Klara<sup>3</sup>

<sup>1</sup> Institute of Legal Medicine, University of Medicine and Pharmacy, Tîrgu Mureş, Romania

<sup>2</sup> Department of Pathology, University of Medicine and Pharmacy, Tîrgu Mureş, Romania

<sup>3</sup> Department of Anatomy, University of Medicine and Pharmacy, Tîrgu Mureş, Romania

**Background:** Organ transplantation is a modern treatment for many patients, however current organ shortage determines the need to identify strategies to eliminate barriers and increase organ donation rate. Aim of the study is to determine present and future health care professionals' attitude and methods of further knowledge acquisition on the topic of organ donation and transplantation.

**Material and method:** We performed a cross-sectional survey in a study population consisting of preclinical medical undergraduates and of general practitioner doctors, the self administered questionnaires were anonymously statistically analyzed, the association between variables was considered significant for values  $p < 0.05$ .

**Results:** One-hundred forty students and 48 doctors participated in our study, both groups showed positive attitude towards organ donation, 81.4% and 68.8% respectively were willing to donate own organs after death. Previous family discussions determined significant change of attitude among students but not within the group of doctors. Formal earlier education on the topic of transplantation was reported by 25% of the students but by none of the doctors. Preferred information channels are medical journal articles in both groups (37.9% vs. 35%), additionally medical students would prefer lectures and seminars while doctors would like to receive information during conferences and congresses. Internet is chosen (30–32%) over classical mass media.

**Conclusions:** although health care professionals have a natural inclination towards accepting donation and transplantation, providing information is essential in structuring their attitude in the way of promoting an environment that has a positive influence on organ donation rates.

**Keywords:** medical students, organ donation, transplantation, information

## Introduction

Organ transplantation is a modern medical lifesaving technique, usually performed as last-choice therapy for end-stage, potential lethal illnesses. The major problem worldwide, being a limiting factor and an obstacle for the development of transplantation programs, is the shortage of deceased donors. The magnitude of insufficient organ donation is even worse in Romania, a recent European survey revealing that willingness to donate was in our country as low as 31% in 2009, compared to the European Union average of 55% [1]. Increasing public awareness of transplantation and organ donation should partly eliminate the reluctance about this humanitarian gesture. Health care professionals, including medical students are highly responsible in the organ donation perception because they are usually the first contacts of the donor families. Several barriers to physicians' involvement in organ donation have been described, including: lack of time to discuss donation with families, unwillingness to address the issue in a non-urgent setting, discomfort with the subject and a lack of adequate knowledge and criteria for the process of donation [2]. Therefore, education of medical students and family doctors should be a major concern in public policies aiming increase of organ donation rates. In this study we intend to determine the willingness of medical students and general practitioner doctors to donate organs and in the same time to identify reliable ways of information acquisition in order to facilitate efficient educational tools for these important target groups.

## Material and method

Between November 2010 and January 2011 we performed a cross-sectional survey in a study population consisting of preclinical medical undergraduates in their second and third year of study on the one hand and of general practitioner doctors on the other hand, both groups from Mures County, Romania. A 23-item questionnaire with multiple choice questions and open questions was distributed and completed without indicating names or other data that could lead to personal identification. The participants were randomly selected and the participation in the study was voluntary, before the questionnaires were distributed we explained the background and the aim of the survey and obtained proper consent. After completion, results were analyzed anonymously. Each questionnaire was structured into four sections, evaluating social and demographic data (gender, age, residence, religion, and spiritual practice in connection to the Church), attitude towards organ donation, self-evaluated psychological profile and knowledge acquisition about organ donation and transplantation. The last part included a question concerning previous specific lectures attendance and a question dedicated to preferred ways of learning about the subject of donation and transplantation. For statistical evaluation we used descriptive statistics parameters such as mean, mode value and inter-quartile range for continuous variables (age), the chi-square test and the Fischer's exact test for the association between categorical (nominal) variables and the t test to compare means of continuous variables in independent samples. We

**Table I. Socio-demographic characteristics of the study population**

	Group 1 (n=140)	Group 2 (n=48)
Gender		
Males	42	4
Females	98	44
Age		
Range	19–25	24–65
Interquartile range (Q1–Q3)	20–21	43–56
Mode	20	56
Coming from		
Village	30	14
Town	110	34
Religious beliefs		
Orthodox	34	18
Catholic	50	7
Protestant	51	22
Other	4	0
Atheistic	1	1
Spiritual practice/Church attendance		
Every week	58	11
At events	68	32
Not at all	14	5

applied 95% confidence intervals and considered  $p < 0.05$  as significant.

## Results

Our population included 188 survey participants in total, divided into two groups: 140 medical students and 48 general practitioner physicians (family doctors). The mean age was 20.5 years in the students group and 48.3 years in the doctors group. Descriptive statistics of age other and socio-demographic characteristics of the study population are shown in Table I. Female gender was better represented in both groups, achieving 75.5% in the total study population. To the question “Did you discuss within your family the issues of organ donation and transplantation” the number of participants that answered affirmative was 89 (63.6%) in the medical students group and 33 (68.8%) in the doctors group. In order to investigate the gender influence on family discussions we performed crosstabulation with chi-square and Fischer’s exact test, the result indicating no difference among men

**Table III. Willingness to donate own organs after death**

Choice	Medical Students		Family Doctors	
	No.	%	No.	%
Specialized courses (lectures)	49	35.0%	11	22.9%
Seminars (small group talks)	60	42.9%	9	18.8%
Formal meetings	11	7.9%	7	14.6%
Medical Journal articles	53	37.9%	17	35.0%
Newspaper articles	12	8.6%	8	16.7%
TV/radio	30	21.4%	9	18.8%
Internet	43	30.7%	15	31.3%
Conferences, congresses	34	24.3%	16	33.3%
Others	0	0.0%	1	2.0%
No interest	0	0.0%	0	0.0%
Other	3	0		
Atheistic	1	0	0	0

**Table II. Willingness to donate own organs after death**

Type of answer	Group 1 Medical Students			Group 2 Family Doctors		
	YES	Undecided	NO	YES	Undecided	NO
Gender						
Males	34	6	2	3	1	0
Females	80	15	3	30	12	2
Coming from						
Village	26	3	1	12	2	0
Town	88	18	4	21	11	2
Religious beliefs						
Orthodox	30	3	1	16	2	0
Catholic	43	6	1	3	4	0
Protestant	37	12	2	14	7	1
Other	3	0	1			
Atheistic	1	0	0	0	0	1

and women regarding discussions in their families on the studied topic ( $p > 0.05$ ).

The item concerning the subjects availability to donate their own organ after death revealed 114 affirmative answers (81.4%) in the students group and 33 (68.8%) in the family doctors group. The number of hesitating answers was 21 (15%) and 13 (27.1%) respectively. The percentage of negative answers was low, 3.6% in the first group and 4.2% in the second one. Detailed distribution of this item is presented in Table II. Statistical association between item e03 (availability to donate own organ after death) and gender, place of residence or religion (including Church attendance) showed no significant differences ( $p > 0.05$ ) within the two groups. When comparing the items e01 (family discussions) and e03 (availability to donate own organ) we found more affirmative answers to e03 among students who discussed the subject within their families (77 vs. 72) and less hesitating answers than expected (8 vs. 13); the differences were statistically significant ( $p = 0.027$ ). Among family doctors this association was not statistically confirmed ( $p > 0.05$ ).

A number of 35 students (25%) declared they attended lectures with the theme of organ donation and transplantation, while 105 (75%) answered negative. Among family doctors the percentage of negative answers was 100%, none of the interviewed general practitioners ever attended a lecture on this topic.

One further item contained several choices of preferred ways of receiving information about organ donation and transplantation. Sixty-one (43.6%) students made only one choice, while 79 students (56.4%) indicated two or more preferred methods of learning about organ donation and transplantation. Answers received from the participants in the two groups are represented in Table III. We performed a significance test to check the association between previous attendance to courses (lectures) and the desire of receiving future information in the same way. The number of medical students who answered affirmative to the question regarding previous lectures and also indicated they would like to receive information in the future by participating to specialized

courses was 17, compared to expected value 12 ( $p = 0.05$ , Fischer's one-sided  $p = 0.04$ ).

## Discussions

Evidence suggests that health care professionals' knowledge, attitudes and behaviors are essential factors for creating and promoting an environment that has a positive influence on organ donation rates [3]. A number of studies focused on students' willingness to donate evaluation, both of non-medical and medical students: theology students in Turkey seem to be more reticent when asked if they accept to donate their organs after death (only 23.6% responded positive) [4] while journalism students in Spain are more available to donate: 78% out of 126 interviewed future journalists stated they would donate their organs after death, one of the factors associated with a favorable attitude being a previous contact with the matter (knowing a transplant recipient or family discussions) [5]. We also demonstrated in our study the association between previous family discussions on the topic of transplantation and willingness to donate own organs after death in case of medical students, and further established that this association was not present at family doctors; it is possible that other type of life experience might be involved as attitude-determinants in higher age-groups. Surveys performed on medical students in Brazil, France, United States of America (Ohio), Italy and Iran revealed high potential after death organ donation rates (willingness to donate), between 69% and 88% [6,7,8,9,10]. A prospective survey showed that medical students' understanding on this topic did not improve significantly during medical school, their opinions being strongly positive already at the beginning of their University courses [10]. Our cross-sectional survey revealed 81.4% of the students respondents are willing to donate their organs after death, but among family doctors the percentage was significantly lower – 68.8%; our two groups were differentiated by the hesitating answers, meaning doctors did not definitely decline donation, thus suggesting a possible opinion change through education. A study in Brazil revealed significant differences between preclinical and clinical medical students regarding knowledge about the concept of brain death and there was a temporal relationship between years of medical school and positive attitude towards organ donation [11]. Only 22% of the students reported formal coursework on donation and transplantation during their first two years of study at a medical University [7], in our study the percentage was similar – 25% declared they received formal training on this topic.

Knowledge and type of knowledge are considered determinants of individual willingness to donate organs [12,13]. More positive and beliefs were associated with the following type of knowledge: the donation process, general donation-related statistics, the allocation system, religious institutions objections, personal knowledge of a recipient, how medical suitability is determined [13]. In our survey

we explored the information communication channels preferred by medical students and family doctors respectively in order to learn about organ donation and transplantation. Articles in medical journals are indicated by both students and doctors as reliable information source but also medical students prefer seminars (small group discussions – 42.9%) and lectures (35%) whereas the doctors incline to participate in conferences and congresses (33.3%). Internet was preferred in both groups (30–32%), more than classical mass media.

## Conclusions

Health care professionals manifest a natural inclination towards accepting organ donation and transplantation, percentage of positive attitude is much higher than in the general population. However, providing information is essential in structuring their attitude in the way of promoting an environment that has a positive influence on organ donation rates. Both information channels and type of knowledge is important to develop reliable educational tools for medical students and doctors. Influence of family discussions is important among students. While seminars and courses seem to be more proper for students, conferences are recommended for doctors; articles in medical journals would target both groups. Information provided through the internet is generally preferred over classical mass media.

## Acknowledgement

This paper is partly supported by the Sectorial Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number POSDRU 60782.

## References

1. \*\*\* Europeans and organ donation. Eurobarometer 2009 [http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_333a\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_333a_en.pdf)
2. Siminoff LA, Arnold RM, Caplan AL. Health care professional attitudes toward donation: effect on practice and procurement. *J Trauma* 1995; 39:553.
3. Evanisko MJ, Beasley CL, Brigham LE. Readiness of critical care physicians and nurses to handle requests for organ donation. *Am J Crit Care* 1998; 7:4.
4. Naçar M, Çetinkaya F, Baykan Z, Poyrazoğlu S. Attitudes and Behaviours of Students From the Faculty of Theology Regarding Organ Donation: A Study From Turkey. *Transplantation Proceedings* 2009; 41(10):4057-4061.
5. Martínez-Alarcón L, Ríos A, Sánchez J, Guzman D, López-Navas A, Ramírez P. et. al. Do Future Journalists have a Favorable Attitude toward Deceased Donation? *Transplantation Proceedings* 2011; 43:52-54.
6. Sanavi S, Afshar R, Lotfizadeh AR, Davati A. Survey of Medical Students of Shahed University in Iran About Attitude and Willingness Toward Organ Transplantation. *Transplantation Proceedings* 2009; 41(5):1477-1479.
7. Essman C, Thornton J. Assessing Medical Student Knowledge, Attitudes, and Behaviors Regarding Organ Donation. *Transplantation Proceedings* 2006; 38(9):2745-2750.
8. Dutra MMD, Bonfim TAS, Pereira IS, Figueiredo IC, Dutra AMD, Lopes AA. Knowledge about transplantation and attitudes toward organ donation: a survey among medical students in Northeast Brazil. *Transplantation Proceedings* 2004; 36(4):818-820.
9. Mekahli D, Liutkus A, Fargue S, Ranchin B, Cochat P. Survey of First-Year Medical Students to Assess Their Knowledge and Attitudes Toward Organ Transplantation and Donation. *Transplantation Proceedings* March 2009; 41(2):634-638.

10. Burra P, De Bona M, Canova D, D'Aloiso MC, Germani G, Rumiati R, Ermani M, Ancona E. Changing Attitude to Organ Donation and Transplantation in University Students During the Years of Medical School in Italy. *Transplantation Proceedings* March 2005; 37(2): 547-550.
11. Lima CX, Lima MVB, Cerqueira RG, Cerqueira TG, Ramos TS, Nascimento M, Andrade CRM, Cunha DG, Garcia SLM. Organ Donation: Cross-Sectional Survey of Knowledge and Personal Views of Brazilian Medical Students and Physicians. *Transplantation Proceedings* 2010; 42(5):1466-1471.
12. Zhang L, Li Y, Zhou J, Miao X, Wang G, Li D, Nielson K, Long Y, Li J. Knowledge and Willingness Toward Living Organ Donation: A Survey of Three Universities in Changsha, Hunan Province, China. *Transplantation Proceedings* 2007; 39(5):1303-1309.
13. Jacob AK, Robinson D, Perryman JP, Thompson N. Understanding the relationship between knowledge and African Americans' donation decision-making. *Patient Education and Counseling* 2008; 70(2):242-250.