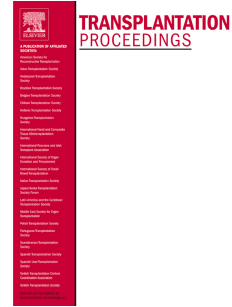


Accepted Manuscript



Sensitization towards organ donation among medical students in Spanish Regions with more than 50 donors per million population

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PII: S0041-1345(18)31115-1

DOI: <https://doi.org/10.1016/j.transproceed.2018.10.004>

Reference: TPS 28800

To appear in: *Transplantation Proceedings*

Received Date: 14 August 2018

Accepted Date: 23 October 2018

Please cite this article as: A R, López-Navas A, PR G, FJ G, J I, R H, G B, FJ L, A A, P S, A F, de Jesús M, Alarcón L M, A L, L F, JR H, J V, J Y, JA B, Hernández A, Ayala M, Flores-Medina J, J C, Á S, P R, P P, Sensitization towards organ donation among medical students in Spanish Regions with more than 50 donors per million population, *Transplantation Proceedings* (2018), doi: <https://doi.org/10.1016/j.transproceed.2018.10.004>.

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TITLE PAGE:

Sensitization towards organ donation among medical students in Spanish Regions with more than 50 donors per million population

Authors: Ríos A^{1,4}, López-Navas A^{1,5}, Gutiérrez PR¹⁴, Gómez FJ⁷, Iriarte J⁸, Herruzo R⁹, Blanco G¹⁰, Llorca FJ¹¹, Asunsolo A¹², Sánchez P¹³, Fernández A¹⁴, de Jesús MT¹⁵, Martínez Alarcón L¹³, Lana A¹⁶, Fuentes L¹⁷, Hernández JR¹⁸, Virseda J¹⁹, Yelamos J²¹, Bondía JA¹³, Hernández AM²¹, Ayala MA¹²²⁻²⁴, Flores-Medina J⁵, Carrillo J¹², Sánchez A¹, Ramírez P¹⁻⁴, Parrilla P²⁻³.

(1) Proyecto Colaborativo Internacional Donante (“International Collaborative Donor Project”), Murcia, Spain; (2) Department of Surgery, Paediatrics, Obstetrics y Gynaecology, University of Murcia, Spain; (3) Transplant Unit, Surgery Service, IMIB - Hospital Clínico Universitario Virgen de la Arrixaca, Murcia, Spain; (4) Regional Transplant Centre. Consejería de Sanidad y Consumo de la Región de Murcia, Spain. (5) Department of Psychology, Catholic University of Murcia (UCAM), Spain; (6) Servicio de Urología (Complejo Hospitalario Universitario de Canarias, CHUC) y Departamento de Cirugía (Universidad de La Laguna, ULL) San Cristóbal de La Laguna. Tenerife. Spain; (7) Universidad de Granada, Granada, Spain; (8) Universidad de Navarra, Navarra, Spain; (9) Universidad Autónoma de Madrid, Madrid, Spain; (10) Servicio de Cirugía HBP y Trasplante Hepático. Complejo Hospitalario Universitario de Badajoz. Hospital Infanta Cristina, Badajoz. Spain; (11) Universidad de Cantabria, Santander. Spain; (12) Departamento de Cirugía, Ciencias Médicas y Sociales. Facultad de Medicina y Ciencias de la Salud. Universidad de Alcalá Campus Científico-Tecnológico. Alcalá de Henares, Madrid, Spain; (13) Facultad de Medicina. Universidad de Málaga, Málaga. Spain; (14) Departamento de Ciencias Biomédicas Básicas, Facultad de Ciencias Biomédicas. Universidad Europea de Madrid, Madrid. Spain; (15) Universidad Rey Juan Carlos, Madrid. Spain; (16) Facultad de Medicina y Ciencias de la Salud. Área de Medicina Preventiva y Salud Pública. Universidad de Oviedo, Oviedo. Spain; (17) Departamento de Farmacología y Fisiología Facultad de Ciencias de la Salud y del Deporte. Universidad de Zaragoza, Huesca. Spain; (18) Universidad de las Palmas de Gran Canaria, Las Palmas de Gran Canaria. Spain; (19) Universidad de Castilla La Mancha, Albacete. Spain; (20) Department of Immunology. Hospital del Mar, Barcelona. Spain; (21) Endocrinology and Nutrition Service. Hospital Clínico Universitario Virgen de la Arrixaca. El Palmar. Servicio Murciano de Salud. Murcia; (22) Hospital Regional de Alta Especialidad del Bajío. León, Guanajuato, México; (23) Hospital Regional no. 58 del IMSS, Delegación Guanajuato, México; (24) Escuela de Medicina de la Universidad de Quetzalcoatl en Irapuato, México.

Email addresses of authors

Ríos: arzrios@um.es, López-Navas: ailopez@ucam.edu, Gutiérrez: prguti@ull.es, Gómez: fgomez@ugr.es, Iriarte: jiriarte@unav.es, Herruzo: rafael.herruzo@uam.es, Blanco: gblanco@aecirujanos.es, Llorca: javier.llorca@unican.es, Asunsolo: angel.asunsolo@uah.es, Sánchez: pilars@uma.es, Fernández: ana.fernandez@uem.es, de Jesús: mariateresa.dejesus@urjc.es, Martínez Alarcón: lma5@um.es, Lana: lanaalberto@uniovi.es, Fuentes: lfuentes@unizar.es, Hernández JR: jurahh@yahoo.es, Virseda: juliovirseda@hotmail.com, Yelamos: jyelamos@imim.es, Bondía: jabondia@uma.es, Hernández AM: amiguel.hernandez@gmail.com, Ayala: drmarcoayalaotmail.com, Flores-Medina: jflores@ucam.edu, Carrillo: minutoimedio@gmail.com, Sánchez A: sanchalvaro91@gmail.com, Ramírez: pablo.ramirez@carm.es, Parrilla: pascual.parrilla2@carm.es.

Corresponding autor

Dr. Antonio Ríos Zambudio. Avenida de la Libertad nº 208. Casillas. 30007. MURCIA. SPAIN. arzrios@um.es; arzrios4@gmail.com; Telephone: 34.968.27.07.57.

Grant information: This study does not have any financial support.

Keywords: Organ Donation; Transplant; Attitude; Psychosocial.

Abbreviations: Donación de órganos de cadáver: DTO

Tables: 1.

Figures: 0.

The 5th Congress of the Spanish Transplantation Society (SET) Poster P17

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ABSTRACT

INTRODUCTION. The awareness of organ donation among health professionals is important at the time of transplant promotion. In this sense, the training and awareness of the professionals in training is fundamental.

OBJECTIVE. To analyze the differences in the attitude toward organ donation and the factors that condition it, among medical students of Regions with donation rates >50 *pmp* donors with respect to those with rates <40 *pmp* donors.

METHOD.

-*Population under study:* Medical students in Spanish Universities. Database of the Collaborative International Donor Project, stratified by geographical area and academic course. The completion was anonymous and self-administered.

-*Groups under study:* Group 1 (n=1,136): Students in universities of Regions with >50 *pmp* donors. Group 2 (n=2,018): University students in Regions with <40 *pmp* donors.

-*Assessment instrument:* Attitude questionnaire for organ donation for transplant "PCID-DTO-Rias".

RESULTS. The attitude toward organ donation for transplantation is similar among students from the Autonomous Communities with >50 *pmp* donors and with <40 *pmp* donors. Thus, in group 1, 79% (n=897) of students are in favor compared to 81% (n=1625) of group 2 ($p=0.292$). The psycho-social profile towards donation is similar in both groups, relating to the following variables ($p<0.05$): sex; to have discussed about transplantation with family and with couples; consider the possibility of needing a transplant; perform pro-social activities; attitude towards the manipulation of corpses; knowledge of brain death concept; and religion.

CONCLUSIONS. The awareness of organ donation in Spanish medical students is quite homogeneous and is not related to the local donation rates of each Region.

INTRODUCTION. The awareness of organ donation among health professionals is important at the time of transplant promotion. In this sense, training and sensitization of future professionals are fundamental, which in the very near future will be health workers in active service, and a very important group that generates opinions regarding the attitude toward organ donation and transplantation. Classically, it has been argued that higher donation rates are usually associated with health workers more aware of the issue. However, while it has been shown that they are generators of opinion, and as they condition the attitude of the population in a significant way (1), it has not been specifically demonstrated that the donation rates have a direct relationship with the attitude of health professionals, especially in countries with high donation rates, as the case of Spain (2).

Therefore, the objective of this work is to analyze the differences in the attitude toward organ donation among medical students in Spain, depending on whether the donation rates in their Regions of origin are > 50 donors per million population (*pmp*) with respect to those with rates < 40 *pmp* donors.

METHOD. *Population under study:* Medical students in Spanish Universities. Database of the Collaborative International Donor Project (3), stratified by geographical area and academic year. *Study groups:* Two groups are selected according to the donation rates in the respective Spanish Regions where they course their studies. Group 1 ($n=1,136$): Students Regions' universities with > 50 *pmp* donors. Group 2 ($n=2,018$): Students in Regions' universities with < 40 *pmp* donors. *Valuation tool:* Validated attitudinal questionnaire for organ donation for organ transplantation (PCID-DTO RIOS: The questionnaire of "*Proyecto Colaborativo Internacional Donante sobre Donación y Trasplante de Órgano*" (in Spanish), developed by Dr. Ríos (4). This questionnaire includes questions distributed in four sub-scales or validated factors in the Spanish population, presenting a total explained variance of 63.203% and a Cronbach Alpha Reliability Coefficient of 0.834. *Fieldwork:* After the project was approved in each university, the questionnaire was distributed in the selected courses, all supervised by a professor from each of the universities collaborating with the project. The questionnaire is completed anonymously and self-administered. Previously the project is explained and it is indicated that the participation in the project is voluntary. The consent is verbal. *Statistics:* A descriptive statistic was performed, and Student's t test and χ^2 , Fisher. P values less than 0.05 were considered statistically significant.

RESULTS. The attitude towards organ donation for transplantation is similar among students of the Regions with > 50 *pmp* donors and with < 40 *pmp* donors ($p=0.292$). Thus, in group 1 belonging to Regions with > 50 *pmp* donors, the 79% ($n=897$) of the students are in favor of donating their own organs after dying, while the remaining 21% ($n=239$) are undecided or against. In this same sense in group

2, belonging to Regions with <40 *pmp* donors, the 81% (n=1625) are in favor of donating their own organs compared to 19% (n=389) that show this predisposition. As can be seen in *Table 1*, the psycho-social profile towards donation is similar in both groups, with no differences between them. In both groups, the attitude towards own organ donation at death is related to all psycho-social variables analyzed, as shown in *Table 1*.

DISCUSSION. Frequently in research there are affirmations that are assumed as true by groups of professionals, but that have not really come to contrast. In this sense, it is observed that at least in geographical areas with high donation rates, the attitude toward donation among professionals in training does not vary depending on whether the rates are higher in some geographical areas than in others inside the same country (5, 6, 7, 8). Possibly, it depends on other factors such as the coordination of transplants. It is true that we must clarify that the study is carried out in a country with very high donation rates, and the groups analyzed have very acceptable donation rates in both cases. Probably, if the study is replicated, and we encourage researchers in the field of donation and transplantation to do so, in other countries and with lower donation rates, the results could be different (9-14). In Spain, as we had previously seen (15, 16, 17), the attitude toward organ donation among medical students is favorable and as we see in this study is very homogeneous throughout the Spanish territory. Our group (3) considers that the awareness of health professionals, both in training and active, is essential to maintain high donation rates, and the more quality data are, the better we can act in promotional campaigns and it will be able to go improving donation rates. We must remember that the process of organ donation and transplant is a dynamic and active process, where we cannot decrease our guard and we must always be attentive to any social or professional change that may influence the donation rates (18,19). Thus, only a few years ago *pmp* donation ceilings were proposed, and now they are currently exceeded. In addition, obtaining high donation rates does not guarantee its persistence over time, so the process must be permanently cared. In conclusion, we can say that the awareness towards organ donation of Spanish medicine students is quite homogeneous and is not related to local donation rates of each Region.

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Table 1. Attitude towards organ donation after dying among medical students in Spain according to the donate rates of their Region of Residence.

Variable	Group 1: > 50 donors PMP			Group 2: < 40 donors PMP		
	In favor 79% n=897	Not for 21% N=239		In favor 81% n=1625	Not for 19% n=393	
SOCIO-PERSONAL VARIABLES						
Age	21 ± 3,68	20 ± 3,51	0,194	21 ± 2,94	23 ± 9,57	0.007
Gender						
Male (G1 n=344 G2 /s. G2 n=578)	246 (72%)	98 (28%)	<0.001	431 (75%)	147 (25%)	<0.001
Female (G1 n=785 /s. G2 n=1417)	644 (82%)	141 (18%)		1175 (83%)	242 (17%)	
Missing data	7	0		19	4	
VARIABLES OF KNOWLEDGE ABOUT DONATION AND TRANSPLANTATION						
A belief that one might need a transplant:						
I do not know (G1 n=152 /s. G2 n=305)	107 (70%)	45 (30%)		227 (74%)	78 (26%)	
There is a possibility of getting sick (G1 n=950 /s. G2 n=1672)	773 (81%)	177 (19%)	0.001	1375 (82%)	297 (18%)	<0.001
No, I lead healthy life (G1 n=23 /s. G2 n=26)	14 (61%)	9 (39%)		12 (46%)	14 (54%)	
Missing data	3	8		11	4	
Brain death concept						
Right (G1 n=757 /s. G2 n=1394)	620 (82%)	137 (18%)	0.001	1139 (82%)	255 (18%)	0.045
Wrong (G1 n=379 /s. G2 n=624)	277 (73%)	102 (27%)		486 (78%)	138 (22%)	
Missing data	0	0		0	0	

VARIABLES OF SOCIAL INTERACTION

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Family discussion about donation and transplantation:						
Yes (G1 n=813 /s. G2 n=1407)	703 (87%)	110 (13%)	<0.001	1243 (88%)	164 (12%)	<0.001
No (G1 n=318 /s. G2 n=607)	189 (59%)	129 (41%)		378 (62%)	229 (38%)	
Missing data	5	0		4	0	
Discuss the issue of donation with friends						
Yes (G1 n=818 /s. G2 n=1501)	687 (84%)	131 (16%)	<0.001	1277 (85%)	224 (15%)	<0.001
No (G1 n=314 /s. G2 n=515)	206 (66%)	108 (34%)		347 (67%)	168 (33%)	
Missing data	4	0		1	1	
Donate the organs of a relative						
No (G1 n=71 /s. G2 n=1833)	18 (25%)	53 (75%)	<0.001	1564 (85%)	269 (15%)	<0.001
Yes (G1 n=1047 /s. G2 n=151)	873 (83%)	174 (17%)		49 (33%)	102 (67%)	
Missing data	6	12		12	22	
Perform Prosocial Activities						
Si, occasionally (G1 n=244 /s. G2 n=410)	206 (84%)	38 (16%)	0.006	332 (81%)	78 (19%)	<0.001
Si, habitually (G1 n=107 /s. G2 n=201)	92 (86%)	15 (14%)		187 (93%)	14 (7%)	
No, but I would be willing (G1 n=711 /s. G2 n=1258)	549 (77%)	162 (23%)		1013 (81%)	245 (19%)	
No, I will not participate (G1 n=65 /s. G2 n=136)	45 (69%)	20 (31%)		80 (59%)	56 (41%)	
Missing data	5	4		13	0	

RELIGIOUS VARIABLES

Religious attitude						
Catholic (G1 n=615 /s. G2 n=1168)	463 (75%)	152 (25%)	<0.001	916 (78%)	252 (22%)	<0.001
Atheist-agnostic (G1 n=456 /s. G2 n=769)	388 (85%)	68 (15%)		655 (85%)	114 (15%)	
Non-catholic religion (G1 n=35 /s. G2 n=57)	25 (71%)	10 (29%)		34 (60%)	23 (40%)	
Missing data	21	9		20	4	
Knowledge of one's religion toward donation and transplantation:						
In favor (G1 n=395 /s. G2 n=751)	313 (79%)	82 (21%)	0.050	598 (80%)	153 (20%)	0.013
I do not know it (G1 n=181 /s. G2 n=254)	129 (71%)	52 (29%)		180 (71%)	74 (29%)	
Against (G1 n=110 /s. G2 n=136)	78 (71%)	32 (29%)		108 (79%)	28 (21%)	
Missing data	377	73		739	138	

VARIABLES OF ATTITUDE TOWARD THE BODY

Concern about mutilation after donation:						
I do not care (G1 n=711 /s. G2 n=1375)	668 (87%)	103 (13%)	<0.001	1190 (87%)	185 (13%)	<0.001
Yes, me preocupa mucho (G1 n=138 /s. G2 n=194)	80 (58%)	58 (42%)		113 (58%)	81 (42%)	
No lo sé (G1 n=213 /s. G2 n=427)	145 (68%)	68 (32%)		304 (71%)	123 (29%)	
Missing data	4	10		18	4	
Acceptance of incineration						
Yes (G1 n=726 /s. G2 n=1429)	608 (84%)	118 (16%)	<0.001	1198 (84%)	231 (16%)	<0.001
No (G1 n=410 /s. G2 n=589)	289 (71%)	121 (29%)		427 (73%)	162 (27%)	
Missing data	0	0		0	0	
Acceptance of burial						
Yes (G1 n=340 /s. G2 n=738)	263 (77%)	77 (23%)	0.385	579 (79%)	159 (21%)	0.075
No (G1 n=796 /s. G2 n=1280)	634 (80%)	162 (20%)		1046 (82%)	234 (18%)	
Missing data	0	0		0	0	
Acceptance of autopsy, if necessary						
Yes (G1 n=906 /s. G2 n=1788)	742 (82%)	164 (18%)	<0.001	1460 (82%)	328 (18%)	<0.001
No (G1 n=230 /s. G2 n=230)	155 (67%)	75 (33%)		165 (72%)	65 (28%)	
Missing data	0	0		0	0	

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HIGHLIGHTS

- 1) The awareness of organ donation in Spanish medical students is quite homogeneous and is not related to the local donation rates of each Region.
- 2) The attitude toward organ donation for transplantation is similar among students from the Autonomous Communities with > 50 *pmp* donors and with < 40 *pmp* donors.
- 3) In both groups, the attitude towards own organ donation at death is related to all psycho-social variables analyzed.
- 4) Only a few years ago *pmp* donation ceilings were proposed, and now they are currently exceeded.
- 5) To obtain high donation rates does not guarantee its persistence over time, so the process must be permanently cared