



# Sensitization Toward Organ Donation Among Medical Students in Spanish Regions With More Than 50 Donors Per Million Population

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## ABSTRACT

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 donors per million population (pmp) with respect to those with rates <40 donor pmp.

**Method.** Population under study: medical students in Spanish universities. Database of the Collaborative International Donor Project, stratified by geographic area and academic course. The completion was anonymous and self-administered. Groups under study: Group 1 (n = 1136): students in universities of regions with >50 donors pmp. Group 2 (n = 2018): university students in regions with <40 donors pmp. Assessment instrument: attitude questionnaire for organ donation for transplant PCID-DTO-Ríos.

**Results.** The attitude toward organ donation for transplantation is similar among students from the autonomous communities with >50 donors pmp and with <40 donors pmp. In group 1, 79% (n = 897) of students are in favor compared with 81% (n = 1625) of group 2 (P=.29). The psychosocial profile toward donation is similar in both groups relating to the following

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variables ( $P < .05$ ): sex, having discussed transplantation with family and as a couple, considering the possibility of needing a transplant, involvement in prosocial activities, attitude toward the manipulation of corpses, knowledge of the 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.

**T**HE 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 because they will soon join health workers in active service, and a very important group who 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' increased awareness of the issue. However, while it has been shown that they are generators of opinion, and although 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, such as 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 donors pmp.

## METHOD

The population under study is medical students in Spanish universities from the database of the Collaborative International Donor Project [3], stratified by geographic area and academic year. Two groups are selected according to the donation rates in the respective Spanish regions where they study. Group 1 ( $n = 1136$ ) is students in regions' universities with >50 donors pmp. Group 2 ( $n = 2018$ ) is students in regions' universities with <40 donors pmp. Validated attitudinal questionnaire for organ donation for organ transplantation (PCID-DTO RÍOS: 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 4 subscales or validated factors in the Spanish population, presenting a total explained variance of 63.203% and a Cronbach  $\alpha$  reliability coefficient of 0.834. 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 is self-administered. Previously, the project is explained and it is indicated that the participation in the project is voluntary with verbal consent. A descriptive statistic was performed, and  $t$  test,  $\chi^2$  test, and Fisher exact test were performed.  $P$  values less than .05 were considered statistically significant.

## RESULTS

The attitude toward organ donation for transplantation is similar among students of the regions with >50 donors

pmp and with <40 donors pmp ( $P=.29$ ). Thus, in group 1 belonging to regions with >50 donors pmp, 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 it. In group 2 belonging to regions with <40 donors pmp, 81% ( $n = 1625$ ) are in favor of donating their own organs compared with 19% ( $n = 389$ ) who show this predisposition. As can be seen in Table 1, the psychosocial profile toward donation is similar in both groups, with no differences between them. In both groups, the attitude toward one's own organ donation at death is related to all psychosocial 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 geographic 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 [5–8]. Possibly, it depends on other factors such as the coordination of transplants. 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. 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 [15–17], 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 to improve donation rates. We must remember that the process of organ donation and transplant is a dynamic and active process, where we cannot decrease our diligence, 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 donation pmp 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 promoted. In conclusion, we can say that the awareness toward organ donation of Spanish medical

**Table 1. Attitude Toward Organ Donation After Dying Among Medical Students in Spain According to Donation Rates of Their Region of Residence**

Variable	Group 1: >50 Donors pmp			Group 2: <40 Donors pmp		
	In favor 79% n = 897	Not in favor 21% n = 239		In favor 81% n = 1625	Not in favor 19% n = 393	
<b>Socio-personal variables</b>						
Age, mean (SD), y	21 (3.68)	20 (3.51)	.19	21 (2.94)	23 (9.57)	.007
Sex						
Male, No. (%) (G1 n = 344 G2 vs G2 n = 578)	246 (72)	98 (28)	<.001	431 (75)	147 (25)	<.001
Female, No. (%) (G1 n = 785 vs G2 n = 1417)	644 (82)	141 (18)		1175 (83)	242 (17)	
Missing data	7	0		19	4	
<b>Variables of knowledge about donation and transplantation, No. (%)</b>						
A belief that one might need a transplant:						
I do not know (G1 n = 152 vs G2 n = 305)	107 (70)	45 (30)	.001	227 (74)	78 (26)	<.001
There is a possibility of getting sick (G1 n = 950 vs G2 n = 1672)	773 (81)	177 (19)		1375 (82)	297 (18)	
No, I lead healthy life (G1 n = 23 vs G2 n = 26)	14 (61)	9 (39)		12 (46)	14 (54)	
Missing data	3	8		11	4	
<b>Brain death concept</b>						
Right (G1 n = 757 vs G2 n = 1394)	620 (82)	137 (18)	.001	1139 (82)	255 (18)	.045
Wrong (G1 n = 379 vs G2 n = 624)	277 (73)	102 (27)		486 (78)	138 (22)	
Missing data	0	0		0	0	
<b>Variables of social interaction</b>						
Family discussion about donation and transplantation:						
Yes (G1 n = 813 vs G2 n = 1407)	703 (87)	110 (13)	<.001	1243 (88)	164 (12)	<.001
No (G1 n = 318 vs 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 vs G2 n = 1501)	687 (84)	131 (16)	<.001	1277 (85)	224 (15)	<.001
No (G1 n = 314 vs 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 vs G2 n = 1833)	18 (25)	53 (75)	<.001	1564 (85)	269 (15)	<.001
Yes (G1 n = 1047 vs G2 n = 151)	873 (83)	174 (17)		49 (33)	102 (67)	
Missing data	6	12		12	22	
Perform prosocial activities						
Yes, occasionally (G1 n = 244 vs G2 n = 410)	206 (84)	38 (16)	0.006	332 (81)	78 (19)	<0.001
Yes, habitually (G1 n = 107 vs G2 n = 201)	92 (86)	15 (14)		187 (93)	14 (7)	
No, but I would be willing (G1 n = 711 vs G2 n = 1258)	549 (77)	162 (23)		1013 (81)	245 (19)	
No, I will not participate (G1 n = 65 vs G2 n = 136)	45 (69)	20 (31)		80 (59)	56 (41)	
Missing data	5	4		13	0	
<b>Religious variables</b>						
Religious attitude						
Catholic (G1 n = 615 vs G2 n = 1168)	463 (75)	152 (25)	<.001	916 (78)	252 (22)	<.001
Atheist-agnostic (G1 n = 456 vs G2 n = 769)	388 (85)	68 (15)		655 (85)	114 (15)	
Non-Catholic religion (G1 n = 35 vs 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 vs G2 n = 751)	313 (79)	82 (21)	.05	598 (80)	153 (20)	.01
I do not know it (G1 n = 181 vs G2 n = 254)	129 (71)	52 (29)		180 (71)	74 (29)	
Against (G1 n = 110 vs G2 n = 136)	78 (71)	32 (29)		108 (79)	28 (21)	
Missing data	377	73		739	138	
<b>Variables of attitude toward the body</b>						
Concern about mutilation after donation:						
I do not care (G1 n = 711 vs G2 n = 1375)	668 (87)	103 (13)	<.001	1190 (87)	185 (13)	<.001
Yes, I am very concerned (G1 n = 138 vs G2 n = 194)	80 (58)	58 (42)		113 (58)	81 (42)	
I do not know (G1 n = 213 vs G2 n = 427)	145 (68)	68 (32)		304 (71)	123 (29)	
Missing data	4	10		18	4	

Table 1. (continued)

Variable	Group 1: >50 Donors pmp			Group 2: <40 Donors pmp		
	In favor 79% n = 897	Not in favor 21% n = 239		In favor 81% n = 1625	Not in favor 19% n = 393	
Acceptance of incineration						
Yes (G1 n = 726 vs G2 n = 1429)	608 (84)	118 (16)	<.001	1198 (84)	231 (16)	<.001
No (G1 n = 410 vs G2 n = 589)	289 (71)	121 (29)		427 (73)	162 (27)	
Missing data	0	0		0	0	
Acceptance of burial						
Yes (G1 n = 340 vs G2 n = 738)	263 (77)	77 (23)	.38	579 (79)	159 (21)	.08
No (G1 n = 796 vs 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 vs G2 n = 1788)	742 (82)	164 (18)	<.001	1460 (82)	328 (18)	<.001
No (G1 n = 230 vs G2 n = 230)	155 (67)	75 (33)		165 (72)	65 (28)	
Missing data	0	0		0	0	

Abbreviation: pmp, per million population.

students is quite homogeneous and is not related to local donation rates of each region.

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