

# The “Psychology” of organ donation: two exploratory studies considering Italian “Health professionals” and “Citizens”

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## Abstract

**Background:** Transplantation extends and improves lives, but the shortage of organs is one of the main factors limiting the number of transplants in Italy<sup>1</sup>. **Objectives:** The aim of this research was to understand the psychological and socio-demographic determinants that can be related to the manifestation of the willingness to donate in a sample of citizens and professionals. **Methods:** In the study conducted on two samples (health professionals and citizens), two self-administered questionnaires were created ad hoc and administered to the participants recruited by means of a snowballing not-randomizing procedure. **Results:** 386 citizens and 122 health professionals completed the questionnaire. Results frequently supported the literature. Specifically, with reference to the sample of citizens, (a) women are more likely to express a willingness to donate than men; furthermore, (b) having a realistic knowledge of the topic has a relationship with this manifestation. In both samples, (c) having previously discussed the topic of donation is relevant to expressing willingness to donate. With reference to the sample of professionals only, (d) having received training on organ donation has a relationship with practitioners' willingness to donate. **Conclusion:** There are several factors that influence the manifestation of willingness to donate in both samples. Efforts should be stepped up to provide comprehensive and appropriate education, knowledge and training on the subject to increase willingness to donate.

## Introduction

Organ donation is the act of giving one or more organs, without any monetary compensation, for transplantation to someone in need<sup>1,2</sup>. This process has various implications in the medical, legal, ethical, organizational, and social realms<sup>3,4</sup>. Unfortunately, there is a shortage of organs available for transplantation, whether from living or deceased donors<sup>1,5</sup>. Research on people's willingness to donate during their lifetime has shown that women tend to have more positive attitudes and intentions towards donation, although this does not necessarily translate into a higher actual donor rate<sup>6</sup>. However, studies on the relationship between gender and organ donation have yielded conflicting results<sup>7,8</sup>. For example, previous discussions with family members have been found to influence the expression of willingness to donate, with women more likely than men to have had such conversations<sup>9,10</sup>. Several studies have highlighted increased awareness and knowledge as important factors influencing donor registration status<sup>8,11</sup>. The impact of religion on organ donation has yielded conflicting results. Some studies suggest a reduction in registrations due to the misperception that organ donation is not supported by religion<sup>12</sup>, while others find that religion has no impact<sup>8,13</sup>. If we focus on a more limited group, such as healthcare workers, with a particular emphasis on nurses who play a crucial role in this intricate process, it becomes apparent from the literature that they lack sufficient knowledge, especially regarding the concept of "brain death". It is necessary for intensive care nurses to acquire more skills and knowledge without any religious or cultural beliefs that hinder organ donation<sup>14</sup>. Hence, efforts should be intensified to provide comprehensive and appropriate scientific training to healthcare professionals to address this gap<sup>15</sup>. However, it is imperative to remember that scientific competence does not always correlate with a positive culture as it is influenced by individual ideas, personal beliefs, and group sentiments. This underscores the need for new training opportunities and models. Nurses who have participated in organ and tissue transplantation after a person has been declared brain dead often experience strong distress and display negative attitudes towards organ donation, which can influence others and

impede efforts to increase consent for donation<sup>14</sup>. Additionally, a significant deficiency in emotional and professional education has been identified in preparing operating room nurses for organ procurement<sup>16</sup>. Based on the findings in the literature, we are striving to promote research aimed at profiling potential donors among the public and investigating the variables that influence and could foster better attitudes and less opposition among citizens and healthcare practitioners themselves.

## Main aims scope

as is well known, the complex process that determines the change and adoption of new behaviors, often related to the change of explicit attitudes, is described in psychology by the Readiness to Change Theory (RTC)<sup>17</sup>. The importance of this theory can be traced to the existence of at least five determinants for the adoption of a given attitude/behavior, namely: knowledge of the problem, perceived relevance of the problem, perceived social support toward change, confidence in the proposed solution, and perceived readiness to change (self-reported). The purpose of this research was to understand the determinants described in the RTC with reference to the manifestation of willingness to donate in a sample of citizens and professionals. In agreement with the literature, the following were supposed: (i) the gender of the respondents, as women are reported as more likely to manifest willingness to donate than men<sup>7,8</sup>, (ii) in addition, a conservative hypothesis is maintained with reference to religion and no significant relationship is expected between professed religion and the manifestation of willingness to donate<sup>8,13</sup>; (iii) a good knowledge of the topic<sup>8,11</sup>, and (iv) having had discussions in the past about organ and tissue donation<sup>9,10</sup> expected to have a significant relationship with the manifestation of willingness to donate. Finally, in reference to professionals, (v) a significant relationship is expected with having received training on organ donation with the professionals' manifestation of willingness to.

## Materials and methods

### *Study design*

The study was conducted as an online questionnaire, using a cross-sectional and correlational design. Data collection occurred

between April 20 and December 13, 2021, utilizing websites and establishing contacts with nursing, medical associations, and organizations focused on the subject of donation.

### Participants and sampling

The participants were divided into two groups: practitioners and citizens. The sampling was not random and adopted a snowball sampling strategy. The only criteria for exclusion and inclusion in the study were being 18 years old or older and having a comprehension of the Italian language.

### Methods

The completion time for the questionnaires was approximately 10 minutes. The questionnaires for citizens and practitioners were custom-designed, taking into account existing literature and expert input. Citizens were recruited by sharing the questionnaire link across various online platforms and social networks. Participants had the option to withdraw from the study at any time. The obtained results were kept anonymous. To enroll practitioners, six associations were contacted via email, accompanied by a cover letter requesting their cooperation in encouraging as many members as possible to participate in the study. The associations that agreed to collaborate were: ANIARTI, AICO, AIDO, AIIAO, SIAN, SIJET.

### Measures

#### *4.1 Citizens' questionnaire*

In line with literature<sup>8</sup>, the citizens questionnaire collected some preliminary data in a first section, including age, gender, marital status, family situation, nationality, region and province of residence, occupation, and religion practiced. Next, attitudes toward organ and tissue donation/transplantation were analyzed. A third section<sup>18</sup> explored knowledge of organ and tissue donation/transplantation. A fourth section<sup>10</sup> delved into discussions and past experiences. The last section of the questionnaire aimed to explore beliefs about the possibility of organ and tissue donation and the propensity to donate in relation to the Covid-19 pandemic (Appendix 1a).

#### *4.2 Practitioners' Questionnaire*

The first section of the questionnaire for practitioners gathered preliminary data such as age, gender, marital status, and family situation. The following section aimed to explore personal attitudes and experiences regarding organ and tissue donation and transplantation. The third section of the questionnaire focused on the

professional training of practitioners in various aspects related to donation and transplantation, such as clinical, technical, procedural, ethical, legislative knowledge, as well as relational and communication skills necessary for supporting relatives during end-of-life situations and subsequent donation requests. The next section delved into professional experiences, while the final section aimed to assess the impact of COVID-19 on organ and tissue donation<sup>14</sup>. (Appendix 1b).

### **Data Analysis**

The analysis of the collected data involved, in the first stage, conducting coding and preliminary recording procedures to define the variables being investigated. Additionally, we performed checks on the obtained data to ensure that the necessary preconditions for analysis were met, such as minimum subsample size and balancing. Descriptive statistics of the sociodemographic, psychological, and operational variables from both samples were then obtained. To test our hypotheses, we used relevant contingency tables and performed chi-square tests to identify relative frequencies and percentages. The data were analyzed using aggregated forms. Initially, descriptive statistics will be presented for each sample, followed by inferential statistics to determine which variables have a significant relationship with expressing a willingness to donate, in accordance with the hypotheses we formulated.

### Ethical considerations

No ethical approval was needed according to local ethical committee (Tuscany Regional Ethical Committee) policy because no patient was involved in this study. The study protocol was drafted according to the Good Clinical Practice (GCP) and was conducted according to the principles of Helsinki Declarations. The researchers performed the study following the guidelines contained in the new national Privacy Body of Law (Italian laws numbers 196/2003 and 101/2018). All participants' data were collected and managed to maintain their anonymity.

### **Results**

#### Study 1 - Citizens

#### *Descriptive statistics*

#### *Sociodemographic data*

The number of citizens' respondents who participated was 386, with a majority being females (79.8%, 308 out of 386). The average age of the sample was 29.49 (SD = 11.218). Furthermore, most of the respondents were single (71.5%, 276/386)

and had completed their graduate or higher degrees (58%, 224/386). In terms of occupation, a significant portion of the participants were students (52.8%, 204/386) or workers (33.2%, 128/386). Additionally, our survey revealed that almost half of the respondents identified as religious (48.7%, 188/386), with 84% of believers (158/188) stating that their religion supports religion (Table a.1).

### Knowledge

87% of the sample (336/386) were aware of the possibility of donating both cadaver and living organs, and 78.5% (303/386) reported knowing which organs and tissues could be donated. However, when asked to specify what could be donated, only 11.4% (44/386) correctly selected all options. Specifically, 79% (305/386) correctly selected "heart, liver, and lungs," while only 17.9% (69/386) selected "pancreas and intestines". 87.8% (339/386) said they were familiar with the concept of brain death, but only 78.2% (302/386) correctly selected the definition: "The irreversible loss of brain activity, the ability to breathe, or maintain other vital functions independently" (Table a.1).

### Attitudes toward donation

100% of respondents (386/386) said they were in favor of organ and tissue donation, and 72.3% (279/386) expressed their willingness to donate after death. Additionally, 94% (363/386) of citizens recognized the possibility of saving lives as a positive aspect. 46.1% saw donation as an act of solidarity, while 30.8% (119/386) viewed it as a chance to give meaning to the loss of a loved one. Finally, 51.8% (200/386) regarded donation as a civic and moral act. When asked about negative aspects, 79.3% (306/386) said they didn't see any negative aspects. However, among those who did, 7.8% identified maintaining the integrity of the body as a concern, and 7.3% (28/386) highlighted a lack of recognition of brain death as the death of the person (Table a.1).

### Discussions and experiences

80.1% (309/386) said they have discussed donation in the past, mostly with parents (56%) and friends (57.8%). Only 22.5% (87/386), however, said they have had direct personal experiences regarding organ and tissue donation, and only 10.6% (41/386) have had experiences inherent in living donation. Additionally, 22 subjects (5.7%) were directly asked to consent to donation (Table a.1).

Of those who have been involved in donation,

42.5% reported a more positive attitude, while only one person (1.15%) reported a more negative attitude. Additionally, the 79.8% of the total sample said they would consent to the donation of a deceased family member should they be asked for consent. Finally, despite the current Covid-19 epidemiological emergency, 84.5% believe that it is possible to donate and 97.7% say they have not changed their propensity towards donation (Table a.1).

### Inferential statistics

The results revealed that 60.3% of males expressed a willingness to donate compared to 75.3% of females. Females demonstrated a higher willingness to donate than males (75.3% vs 60.3%,  $\chi^2=7.053$ ;  $p<0.01$ ).

There was a significant association between expressing a willingness to donate and knowledge of which organs and tissues can be donated (Table 1). Among those who reported knowledge of donation possibilities, 75.2% expressed a willingness to donate. The difference between those who knew that skin, bones, tendons, cartilage, and corneas can be donated and indicated willingness to donate, and those who knew but did not express a willingness to donate, was approximately 21%, with 83.3% indicating a willingness to donate (Table 1). Similar trends were observed for other dimensions as well (Table 1).

A positive attitude towards the process of donation, viewing it as a civic and moral act, was found to significantly increase the willingness to donate after death (Table 2). In a similar vein, individuals who did not experience any negative aspects of donation were also more likely to manifest their willingness to donate (Table 2). Conversely, a negative attitude towards donation, characterized by distrust in the healthcare system, lack of recognition of the concept of brain death, and concerns about disfigurement of body integrity, was found to be statistically significantly related to a lower willingness to donate. Specifically, among those who have not expressed a willingness to donate, 41.7% reported distrust in the healthcare system, 53.3% cited concerns about disfigurement of body integrity, and 57.1% did not recognize the concept of "brain death" (Table 2)

After discussing the topic of donation in previous research, it was found that there was a significant correlation between discussing the topic and the likelihood of expressing a willingness to donate. For instance, 86.6% of individuals who had

discussions about donation with their parents expressed a willingness to donate. Table 3 provides a breakdown of the different degrees of kinship of the individuals with whom the topic was discussed, highlighting the potential social support a person may have in the donation process. Additionally, there was a statistically significant relationship between expressing a willingness to donate and having personal experiences of family members or friends involved in the donation process. In fact, 81.6% of individuals who had prior personal experiences expressed a willingness to donate. On the other hand, there was no statistically significant relationship between being religious and expressing a willingness to donate (Table 3).

### Study 2 - Practitioners

#### *Descriptive statistics*

##### Sociodemographic variables

The respondents who participated in the study were 122 practitioners. The sample consisted mainly of women (61.5%, 75/122). The average age of the participants was 41.13 years (SD= 11.43). In the sample, 34.4% (42/122) were single, and slightly more than half identified as religious (75.4%, 92/122), with the majority being Catholic (73%, 89/122). The majority of the participants were nurses (93.4%, 114/122), and most of them had a bachelor's degree (32.8%, 40/122) as their highest level of education, followed by practitioners with bachelor's degrees (31.1%, 38/122). Additionally, 18.9% (23/122) of the participants were nurse coordinators, 2.5% (3/122) were facility managers, and 94.3% (115/122) worked in a public healthcare institution.

#### Attitudes toward donation

Most practitioners supported donation, with 98.4% (120/122) in favor, and 77.9% (95) expressing a desire to donate after death. Furthermore, 61.5% (75/122) stated that organ and tissue donation and transplantation was not a duty specifically associated with being a health care worker. Additionally, 63.1% (77/122) rated donation as an extremely important process in the realm of healthcare (Table a.2).

#### Social Dimension (Discussions and Experiences)

As many as 95.1% (116/122) of the participants discussed the topic of organ and tissue donation in the past. The majority of these discussions were with parents (51.6%, 63/122) and friends (64.8%, 79/122). In terms of personal experiences, 35.2% (43/122) of the respondents and their families and

friends had experiences related to organ and tissue donation. When it comes to experiences in the work environment, 60.7% of the participants had participated in a tissue/cornea donation pathway. Additionally, 51.6% (63/122) had taken part in a beating-heart donation pathway in the intensive care unit (ICU), and 28.7% (35/122) had taken part in a still-heart organ donation pathway in the ICU or emergency room. In the group of participants who took part in a donation pathway, 39.3% (48) were involved only in the clinical aspect, while only 2.5% (3/122) were involved in the family relationship part. Interestingly, 44.3% (54/122) of the participants mentioned that there was no staff specifically trained in organ and tissue donation in their operating unit, while 35.2% (43/122) stated that there is staff trained in donation, but it consists solely of medical staff and nurses. When asked about the frequency of donation pathways, 28.7% (35/122) of the participants considered it to be a rare occurrence, while in 19.7% (24/122) of cases, donation was considered a frequent pathway.

#### Perception of the donation process

Referring to operators' perceptions of the donation process, 23.8% (29/122) of practitioners stated that they found the transition from the curative to the donative phase to be somewhat emotionally difficult. 23% of caregivers (28 caregivers who participated in a donation pathway) perceived the support relationship with family members to be quite emotionally difficult, and 28.7% (35/122) found the donation offer interview to be emotionally challenging. In general, 42.6% (52/122) of providers described the donation process as quite stressful, while 26.2% (32/122) considered it to be very stressful. Furthermore, 40.2% (49/122) believed that the family to whom the donation request was made rarely has time to process the death of their loved one, and 50% (61/122) of practitioners believed that the family rarely has time to manage their emotions. Finally, 45.1% (55/122) of respondents emphasized the significance of the support offered to families who have been asked to donate, considering it extremely important even after the conclusion of the hospital journey.

#### Training

In the sample of operators, 64.8% (79/122) of practitioners received training on clinical, technical, and procedural aspects in reference to the organ and tissue donation pathway. Only 33.6% (41/122) had also received training on relational and communication methods useful

for supporting relatives during the end of life and the subsequent request for donation. Half of the practitioners (58.8%, 62/122) had also received training on ethical and legislative aspects of organ and tissue donation and transplantation, while 27.9% (34/122) said they had never received any kind of training. In reference to the usefulness of the training, 86 individuals who received it (70.5% of the total sample) said it was useful (Table a.2).

### ***Inferential statistics***

Having previously discussed the topic, it can be observed that there is a statistically significant relationship between discussing donation and expressing a willingness to donate (Table 4). For instance, 87.3% of individuals who had conversations about donation with their parents expressed a willingness to donate. Additionally, being involved in a donation pathway as a healthcare professional also showed a significant relationship with expressing a willingness to donate ( $p < 0.01$ ). Among those who were involved in a donation pathway, both in the clinical setting and in their interactions with patients, 80.5% expressed a willingness to donate. Furthermore, it appears that expressing a willingness to donate is related to participating in a donation pathway during the Covid-19 pandemic period. It can be stated that 90% of those who participated in a donation pathway expressed their willingness to donate (Table 4).

Having participated in training on ethical and legislative aspects in reference to the donation process was significantly associated with expressing a willingness to donate ( $p < 0.05$ ); specifically, 85.5% of individuals who underwent the training expressed a willingness to donate (Table 5).

### **Discussion and conclusion**

Organ and tissue donation is a medical procedure that has the potential to save and transform lives. The process holds personal significance, but also carries various implications<sup>3,4</sup>. Regrettably, many countries struggle to meet the demand for transplantable organs due to insufficient donors<sup>12,19</sup>. This study aimed to examine the sociodemographic and psychological factors influencing both pre-death and post-brain death organ and tissue donation. In line with existing literature<sup>6</sup>, our study found a significant association between female gender and willingness to donate<sup>7,8</sup>. Furthermore, consistent with prior research<sup>8,11,18</sup>, a notable relationship between knowledge of organ donation and the willingness to donate was observed. Indeed,

having a greater understanding of the subject and the related concept of brain death are crucial factors in determining one's donor registration status. A significant portion of our sample (78.5% - 303/386) reported being knowledgeable about which organs and tissues can be donated, but only 18.4% of the participants knew that heart valves and blood vessels are also viable for donation. In terms of familiarity with the concept of "brain death," the majority of our sample (87.8%) indicated that they were familiar with this concept, and 78.2% correctly answered a question about the definition of "brain death". Regarding attitudes towards donation, our findings revealed a significant correlation between expressing a willingness to donate and recognizing "organ donation" as a civic and moral act. Additionally, not having mistrust towards the healthcare system and showing no fear of body disfigurement were also associated with a greater likelihood of expressing willingness to donate, aligning with previous research<sup>5</sup>. The relationship between religion and donation is reported differently in existing literature. In our sample of Italian citizens, 100% expressed support for donation, and approximately 50% identified as religious. However, religiosity did not appear to have an influence on the propensity to donate in any subgroup of our study. Another factor that has been documented as influential in willingness to donate is prior discussion about donation with family or relatives<sup>9,10</sup>. Discussions with family members are found to be crucial in influencing donor families' satisfaction with their decision to donate<sup>20</sup>, and our study confirms this finding. In our study, health professionals who were involved in the donation process showed a significant positive relationship with their willingness to donate. Consistent with existing literature<sup>14,15</sup>, our study also found that receiving adequate training to undertake the donation process is a relevant factor that affects the intention to donate among healthcare workers in our sample. Based on our data, a typical donor can be characterized as being female, having a positive opinion about donation, not placing importance on body integrity, having a positive level of trust in the healthcare system, possessing good knowledge about the topic, and engaging in discussions about it with others. Regarding the sample of healthcare workers, our findings highlight the importance of training and suggest that further studies should explore its impact on increasing the propensity to donate. From a psychological perspective, organ donation is perceived as a sudden event that disrupts the balance of individuals' lives<sup>21</sup>. It causes

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significant stress and necessitates a shift in values and identity for those who are faced with making the "decision"<sup>22</sup>. The process of change and the adoption of new behaviors can be explained by the readiness to change theory (RTC) in psychology<sup>17</sup>. This theory holds importance due to the presence of at least five determinants for the adoption of a particular attitude or behavior. In the context of our study, these determinants are related to organ and tissue donation and include: (I) the individual's knowledge about organ and tissue donation, (II) their perception of the importance of the donation process, (III) their perception of support from significant individuals in their choice to donate, (IV) their confidence in the donation process while considering positive and negative factors, and (V) their belief in their ability to express their willingness to donate. These determinants help explain an individual's intention and subsequent display of willingness to donate. While some of these determinants can be addressed in the aforementioned study, further analysis is needed to explore others. However, we have also uncovered new insights that have not been extensively explored before, as well as contradictory findings that should be further investigated in future studies. Specifically, the variables that require further investigation are "caregiver involvement" in the donation process and receiving "specific training" on ethical and legislative aspects. These factors appeared to strongly influence the willingness to donate among healthcare workers. Moving forward, we hope to build upon these psychological findings and hypotheses, considering RTC to gain a more comprehensive understanding of organ and tissue donation. The ultimate goal is to encourage more individuals to express their willingness to donate through targeted interventions.

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Table a.1: In the table the descriptive statistics of the data collected from citizens (for the dichotomous questions the frequencies of affirmative answers have been reported).

Variable	Citizens (n/%)			
	Male	Female	$\chi^2$	Whole
Numerosity	78 (20.2%)	308 (79.8%)	-	386 (100%)
Religiosity	29 (37.2)	159 (51.6%)	5.20*	188 (48.7%)
Support of religion	24 (82.76%)	134 (84.28%)	ns	158 (84%)
Being in favor of donation	78 (100%)	308 (100%)	ns	386 (100%)
Manifestation of willingness to donate	47 (60.3%)	232 (75.3%)	7.05**	279 (72.3%)
<b>Positive aspects donation</b>				
Opportunity to save lives	75 (96.2%)	288 (93.5%)	ns	363 (94%)
Solidarity	39 (50%)	139 (45.1%)	ns	178 (46.1%)
Lending meaning to loss	26 (33.3%)	93 (30.2%)	ns	119 (30.8%)
Civic and moral act	44 (56.4%)	156 (50.6%)	ns	200 (51.8%)
<b>Negative aspects donation</b>				
None	64 (82.1%)	242 (78.6%)	ns	306 (79.3%)
Distrust of the health care system	5 (6.4%)	31 (10.1%)	ns	36 (9.3%)
Religious reasons	1 (1.3%)	3 (1%)	ns	4 (1%)
Ethical/cultural reasons	1 (1.3%)	5 (1.6%)	ns	6 (1.6%)
Maintenance of body integrity	6 (7.7%)	24 (7.8%)	ns	30 (7.8%)
Failure to recognize brain death	4 (5.1%)	24 (7.8%)	ns	28 (7.3%)
<b>Knowledge of organs and tissues for donation</b>				
Perception of knowing what can be donated	53 (67.9%)	250 (81.2%)	6.44**	303 (78.5%)
Skin, bones, tendons, cartilage, corneas	20 (25.5%)	160 (51.9%)	17.31***	180 (46.6%)
Heart, liver, kidneys, lungs	55 (70.5%)	250 (81.2%)	4.26*	305 (79%)
Heart valves and blood vessels	11 (14.1%)	60 (19.5%)	ns	71 (18.4%)
Pancreas and intestines	10 (12.8%)	59 (19.2%)	ns	69 (17.9%)
<b>Clarity concept brain death</b>				
Perceived clarity*	63 (80.8%)	276 (89.6%)	4.55*	339 (87.4%)
Correct answer/verified knowledge*	60 (76.9%)	242 (78.6%)	ns	302 (78.2%)
<b>Social comparison about donation</b>				
Have you ever discussed with other	57 (73.1%)	252 (81.8%)	ns	309 (80.1%)
Parents	30 (38.5%)	186 (60.4%)	12.14***	216 (56%)
Siblings/sisters	23 (29.5%)	92 (29.9%)	ns	115 (29.8%)
Friends	44 (56.4%)	179 (58.1%)	ns	223 (57.8%)
Partners	15 (19.2%)	96 (31.2%)	4.33*	111 (28.8%)
Relatives	5 (6.4%)	37 (12%)	ns	42 (10.9%)
Colleagues	10 (12.8%)	37 (12%)	ns	47 (12.2%)
Family physician	3 (3.8%)	9 (2.9%)	ns	12 (3.1%)
<b>Previous experience with organ donation</b>				
Personal experience with donation	20 (25.6%)	67 (21.8%)	ns	87 (22.5%)
Requested direct consent of donation	4 (5.1%)	18 (5.8%)	ns	22 (5.7%)
<b>Covid-19</b>				
Possibility to donate even during the pandemic	68 (87.2%)	258 (83.8%)	ns	326 (84.5%)
Change in propensity toward donation	1 (1.3%)	8 (2.6%)	ns	9 (2.3%)



Table a.2: In the table the descriptive statistics of the data collected from professionals (for the dichotomous questions the frequencies of affirmative answers have been reported).

Variable	Professional (n/%)			
	Male	Female	$\chi^2$	Whole
Numerosity	47 (38.5%)	75 (61.5%)	-	122 (100%)
Religiosity	34 (22.3%)	58 (77.3%)	ns	92 (75.4%)
Being in favor of donation	46(97.9%)	74 (98.7%)	ns	120 (98.4%)
Manifestation of willingness to donate	33 (70.2%)	62 (82.7%)	ns	95 (77.%)
<b>Social comparison about donation</b>				
Have you ever discussed with other	46 (97.9.%)	70 (93.3%)	ns	116 (95.1%)
Parents	25 (53.2%)	38 (50.7%)	ns	63 (51.6%)
Siblings/sisters	17 (36.2%)	30 (40%)	ns	47 (38.5%)
Friends	29 (61.7%)	50 (66.7%)	ns	79 (64.8%)
Partners	30 (63.8%)	35 (46.7%)	3.42*	65 (53.3%)
Relatives	12 (25.5%)	12 (16%)	ns	24 (19.7%)
Colleagues	29 (61.7%)	48 (64%)	ns	77 (63.1%)
Family physician	5(10.6%)	3(4%)	ns	8 (6.6%)
<b>Previous experience with organ donation</b>				
Personal experience with donation	17 (36.2%)	26 (34.7%)	ns	43 (35.2%)
Requested direct consent of donation	1(2.1%)	4 (5.3%)	ns	5 (4.1%)
<b>Training connected with organ donation</b>				
Clinical, technical and procedural aspects	30 (63.8.%)	49 (65.3%)	ns	79 (64.8%)
Useful relational and communicative methods	17 (36.2%)	24 (32%)	ns	41 (33.6%)
Ethical and legislative aspects	27 (57.4%)	35 (46.7%)	ns	62 (58.8%)
None of these	14 (29.8%)	20 (26.7%)	ns	34 (27.9%)
<b>Training experiences and motivation</b>				
If it did, was it helpful?(Yes)	31 (66%)	55 (73.3%)	ns	86 (70.5%)
If he didn't, he's interested in doing it (Y)	21(95.5%)	31 (96.9%)	ns	52 (33.6%)

Table 1 – Contingency table and chi-square between knowledge and having expressed willingness to donate

Variable	Level	you have expressed your willingness to donate after death		$\chi^2$
		Yes	No	
Know what organs and tissues can be donated	Yes	228(75,2%)	75 (24,8%)	6,194*
	No	51 (61,4%)	32 (38,6%)	
Skin, bones, tendons, cartilage and corneas	Yes	150 (83,3%)	30 (16,7%)	20,568***
	No	129 (62,6%)	77(37,4%)	
Heart, liver and lungs	Yes	229 (75,1%)	76(24,9%)	5,696*
	No	50 (61,7%)	31 (38,3%)	
Heart valves and blood vessels	Yes	58 (81,7%)	13 (18,3%)	3,845*
	No	221 (70,2%)	94 (29,8%)	
Perceived/Self reported Knowledge of the concept of brain death	Yes	255 (75,2%)	84 (24,8%)	12,023**
	No	24 (51,1%)	23 (48,9)	

\*: p. < 0.05; \*\*: p. < 0.01; \*\*\*: p. < 0.001;

Table2 – Contingency table and chi-square between positive and negative aspects recognized in the donation and having expressed willingness to donate in citizens

Variable	Level	you have expressed your willingness to donate after death		$\chi^2$
		Yes	No	
Donation civic and moral act	Yes	160(80%)	40(20%)	12,347***
	No	119(64%)	67(36%)	
No negative aspects	Yes	237(77,5%)	69(22,5%)	19,705***
	No	42 (52,5%)	38 (47,5%)	
Health system distrust	Yes	21(58,3%)	15(41,7%)	3,854*
	No	258(73,7%)	92(26,3%)	
Maintaining body integrity	Yes	14(46,7%)	16(53,3%)	10,651***
	No	265 (74,4%)	91(25,6%)	
Failure to recognize the concept of brain death	Yes	12(42,9%)	16(57,1%)	13,044***
	No	267 (74,6 %)	91 (25,4%)	

\*: p. < 0.05; \*\*: p. < 0.01; \*\*\*: p. < 0.001;

Tab. 3 - Contingency table and chi-square between discussions, past experience and having expressed willingness to donate

Variable	Level	you have expressed your willingness to donate after death		$\chi^2$
		Yes	No	
Discussions had in the past	Yes	246 (79,6%)	63(20,4%)	41,559***
	No	33(42,9%)	44(57,1%)	
Discussions with parents	Yes	187 (86,6%)	29 (13,4%)	50,015***
	No	92 (54,1%)	78 (45,9%)	
Discussions with brothers/sisters	Yes	108 (93,9%)	7 (6,1%)	38,260***
	No	171 (63,1%)	100 (36,9%)	
Discussions with friends	Yes	180 (80,7%)	43 (19,3%)	18,765***
	No	99 (60,7%)	64 (39,3%)	
Discussions with partner	Yes	99 (89,2%)	12 (10,8%)	22,234***
	No	180 (65,5%)	95 (34,5%)	
Discussions with colleagues	Yes	44 (93,6%)	3 (6,4%)	12,160***
	No	235 (69,3%)	104 (30,7%)	
Prior personal experience	Yes	71 (81,6%)	16 (18,4%)	4,879*
	No	208 (69,6%)	91 (30,4%)	

\*. p. < 0.05; \*\*. p. < 0.01; \*\*\*. p. < 0.001;

Tab. 4 - Contingency table and chi-square between discussions, past experience, and having expressed willingness to donate in practitioners

Variable	Level	you have expressed your willingness to donate after death		$\chi^2$
		Yes	No	
Discussions with parents	Yes	55(87,3%)	8(12,7%)	6,726**
	No	40(67,8%)	19(32,2%)	
Discussions with brothers/sisters	Yes	41(87,2%)	6 (12,8%)	3,891*
	No	54(72,0%)	21 (28,0%)	
Involvement in a pathway to donation	Yes	70(80,46%)	17 (19,54%)	12,862**
	No	7(53,85%)	6 (46,15%)	
Donation pathway during Covid-19	Yes	26 (90%)	4 (10%)	5,082*
	No	59 (72%)	23 (28%)	

\*. p. < 0.05; \*\*. p. < 0.01; \*\*\*. p. < 0.001;

Tab.5 - Contingency table and chi-square between training, involvement in the pathway, impact of the pandemic, and has expressed willingness to donate in providers

Variable	Level	you have expressed your willingness to donate after death		$\chi^2$
		Yes	No	
Training of ethical and legislative aspects	Yes	53(85,5%)	9(14,5%)	4,242*
	No	42(70%)	18(30%)	

\*. p. < 0.05; \*\*. p. < 0.01; \*\*\*. p. < 0.001;

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