

# Human organ donation and spirituality: a multicentre observational study aimed at healthcare professionals who work in the Italian context

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## Abstract

**Aim.** This study aimed to assess if spirituality could be a predictor of organ donation, using a descriptive/knowledge survey aimed at healthcare professionals working in Italy.

**Methods.** This multicentre, descriptive observational study was conducted in three Italian regions (Lombardy, Piedmont and Apulia). Two scales were used for the data collection: the Organ Donation Attitude Scale (ODAS) to explore the healthcare staff's attitudes towards organ donation and the Spiritual Health Life-Orientation Measure (SHALOM) to explore their perception of the concept of spirituality.

**Results.** The sample included 688 healthcare professionals (460 females, 66.9%). The analysis of their attitudes, assessed as their predisposition to organ donation, evidenced the women's higher degree of agreement regarding the safety and effectiveness of the practice (40.7% versus 31.1%,  $p = 0.001$ ). The sample showed a high positive attitude towards organ donation ( $M = 4.25$ ,  $SD = 0.50$ ), whereas the level of spirituality was slightly lower than the midpoint of the Likert scale ( $M = 2.76$ ,  $SD = 1.31$ ). Spirituality positively predicted the positive attitude towards organ donation among Lombard professionals with shorter ( $-1$  SD) careers ( $b = 0.078$ ,  $p = 0.044$ ) and among both Piedmontese ( $b = 0.250$ ,  $p < 0.001$ ) and Apulian ( $b = 0.458$ ,  $p < 0.001$ ) professionals with longer ( $+1$  SD) careers.

**Discussion.** Regarding organ donation, the surveyed healthcare professionals showed higher scores in the positive attitude section and lower scores in the negative attitude section, regardless of the geographical context of reference.

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## Introduction

Since 1967 (when the first heart transplant was performed), medicine has made great strides in the field of organ transplant. The development of increasingly effective transplant techniques has made possible the large-scale application of this method for the treatment of otherwise incurable illnesses. Certainly, the growth of transplants has required a greater number of organs; therefore, the problem, previously restricted to the areas of medical experimentation, has become of general interest for increasing the culture of donation in the entire population (1). Citizens are encouraged to make their intention to donate organs clear during their lifetime. In order to work, the Act and the media campaign need to create the proper context where organ donation shall become the norm, as well as set up a mechanism for people to take action as intended (formally register their decision, consider appointing a representative, convey their decision to donate to their families and friends).

The Italian Law stipulates that all adult citizens must express their wish to donate their organs after death. In the case of minors, both parents must make the decision (1). In the event that a person has not issued a declaration on the matter, the donation of organs and tissues can only take place if the close family members (non-separated spouse, cohabiting partner, adult children and parents) do not object to their family member's wish (2, 3).

National organ donor registries (System Information Transplants [SIT]) currently maintain lists of people who have agreed to donate their organs in the event of their death. The basic principle behind organ donation is to give the recipients an opportunity to live longer and improve their quality of life (4).

Even if the donation rates in Italy vary among regions, Italian donations are increasing. In fact, the growth trend of donations in the period 2014–2018 reached

24.4%, and the period from January to October 2019 surpassed the same period in 2018 by 69 transplants. The registered declarations of consent exceeded 6.5 million, of which over 2 million were collected in the last 10 months alone (5).

One of the aspects that the scientific literature has not thoroughly studied is the role that spirituality plays in western medicine (4).

The World Health Organization (WHO) defines spirituality as an “individual's perception of life within the context of culture and value system of the society in relation to the individual's goals, expectations, standards, and concerns” (6).

Spirituality remains difficult to precisely define and measure, but there is general agreement that it refers to a connection with a greater reality that gives one's life its meaning, experienced through a religious tradition or, increasingly in secular western culture, through meditation or nature. Some definitions emphasize differences between spirituality and religion, other definitions stress their overlapping dimensions, and still others favour the concept of religion over spirituality in health research because the latter is more difficult to measure reliably. Nevertheless, a growing body of literature explores the role of spirituality and religion in organ donation. This study represents the first step in understanding the relation between spirituality and organ donation in the Italian context. It is advisable to increase in the future the sample size and to extend the study to other regional, national and above all, international realities. Given the inevitable overlap between religion and spirituality, along with their importance as both resources and sources of distress for patients throughout the trajectory of donation, in this study, we review the place of religion/spirituality in the adjustment to donation.

Furthermore, healthcare professionals' knowledge and attitude can positively

influence family members' and patients' willingness to consent to organ donation and thus increase organ donation rates.

We expected that the higher the level of spirituality, the more positive the attitude would be towards organ donation. Along with this main hypothesis, we wanted to test whether career length and region of origin could moderate the relation between spirituality and attitude towards organ donation.

Our study had the following objectives:

1. To explore health professionals' attitude towards organ donation.
2. To explore the perception of the concept of spirituality.
3. To investigate whether spirituality is associated with the attitude towards organ donation, using a sample of Italian healthcare professionals.

## Methods

### *Design*

A multicentre, descriptive observational study was conducted.

### *Data collection*

Google G Suite software was used for data management. It allowed an easy distribution of the questionnaire (by the first three authors) and an immediate analysis of not only the statements administered but also of the adhesion of the population sample to the project.

Every professional received a presentation letter attached to each questionnaire where the purpose of the study and the objectives and the rights of all participants were illustrated. The healthcare professionals were invited to answer the questions of the survey and to return it anonymously by clicking on the appropriate key "send questionnaire". The data were gathered from September to December 2019.

### *Instruments*

The tool used to collect the necessary information was composed of three sections:

1. The first section consisted of an information form that included the collection of demographic data from the participants, the hospital where they worked, the department to which they belong and their work experience.

2. The second section comprised the Organ Donation Attitude Scale (ODAS), a multidimensional attitude scale based on the salient beliefs of the population toward becoming an organ donor and indicating attitudes, subjective norms that significantly impact on behavioral intention, which, in turn, predict organ donor registration behavior (7). The 4-point grading scale ranged from 4 = strongly agree to 1 = strongly disagree. In this study, the scale showed good internal consistency (Cronbach's  $\alpha = .82$ ). This survey consisted of 23 closed-ended questions, divided into two subsections.

3. The third section included the questionnaire Spiritual Health Life-Orientation Measure (SHALOM) (8), valid method of evaluating the spiritual health of adults, intended to translate the Spiritual Health and Life-Orientation Measure. It consisted of 20 close-ended questions, divided into four subsections. The grades were defined on the respondent's experience, such as 5 for very high and 1 for very low.

For the choice of the tool, we reviewed the literature by evaluating previous articles that investigated the spirituality in the donation activity.

The reasons for our choice of this tool are attributable to the following elements:

1. The tool had been already used for a multicentre study.
2. The tool had been used in a country where the hospital organisation of donations and the consent system (the so-called explicit consent) were similar to the Italian ones and where the data about the opposition rates

reflected those in Italy (consent below 35%).

The questionnaire had been submitted to both the doctors and the nursing staff dedicated to the donation activity: Organ Donation Attitude Scale (ODAS) (7).

A group of experts translated the questionnaire from English to Italian. The translation process of the spirituality-related scale led to the definition of the tool, developed according to the international recommendations for cultural translation and adaptation. The original tool was distributed to the members of our research group, who produced the first draft of the translations that were later combined into a single version. We used the WHO guidelines for the linguistic translation of tools.

The internal validity of the spirituality scale, translated into Italian, was examined through the statements' internal consistency with Cronbach's alpha.

#### *Data analysis*

The continuous data were reported as mean+/standard deviation: qualitative variables as frequencies and percentages. The Wilcoxon-Mann-Whitney tests were used to obtain the continuous variables, making a comparison between two groups. The Kruskal-Wallis test was used for the comparison of multiple groups, and the Pearson chi-square test was used for the categorical variables.

A descriptive method summarised all the information of a demographic nature and relevant to the professional profiles of the healthcare workers.

A regression model was run to test the effects of spirituality, career length and region of provenance on the attitude towards organ donation. Since the region of provenance was a categorical variable measured on three levels (i.e., Lombardy, Piedmont and Apulia), two dummy variables were computed, considering Lombardy as the reference category. Along with the main effects, two-way and three-way interaction

terms were also estimated. Significant interactions were further analysed through the simple slope analysis, estimating the effect of the main predictor (i.e., spirituality) at meaningful values of the moderator(s):  $\pm 1$  *SD* for career length and ad hoc dummy coding for the region of provenance. Since the above-mentioned dummy coding would not have allowed comparing Piedmont with Apulia, a second (equivalent) regression model was run using Piedmont as the reference category. In both the regression models, age and gender were inserted as control variables, and spirituality, career length and age were mean-centred before running the analysis. The software used for the analysis was SPSS, version 25 (IBM Corporation, 2018).

*A priori* power analysis was conducted to compute the required sample size to test our hypothesis, using the software G\*Power (9). The minimum sample size to detect a medium effect size ( $f = 0.25$ ), with an alpha equal to 0.05, a power of 0.90, 13 degrees of freedom in the numerator, and three groups (i.e., three regions of provenance) was 371.

#### *Ethical considerations*

The study protocol was in line with the Declaration of Helsinki, reviewed in 2013, and was approved by the inter-hospital Ethics Committee of the national health hospital SS Antonio e Biaggio e Cesare Arrigo (protocol n. 0002285 and executive resolution of 30/01/2020).

## **Results**

#### *Study sample*

The sample included 688 healthcare professionals (460 females, 66.9%) from three Italian regions: Lombardy ( $n = 314$ , 45.6%), Piedmont ( $n = 190$ , 27.6%) and Apulia ( $n = 184$ , 26.7%). The majority of the sample consisted of nurses ( $n = 510$ , 74.1%) (Table 1).

Table 1 – Descriptive statistics of the sample.

	Total Sample	Lombardy	Piedmont	Apulia
Gender				
Female	460 (66.9%)	183 (58.3%)	159 (83.7%)	118 (64.1%)
Male	228 (33.1%)	131 (41.7%)	31 (16.3%)	66 (35.9%)
Age				
18-25	30 (4.4%)	14 (4.5%)	6 (3.2%)	10 (5.4%)
26-35	226 (32.8%)	106 (33.8%)	56 (29.5%)	64 (34.8%)
36-45	159 (23.1%)	94 (29.9%)	31 (16.3%)	34 (18.5%)
46-55	208 (30.2%)	85 (27.1%)	69 (36.3%)	54 (29.3%)
> 56	65 (9.4%)	15 (4.8%)	28 (14.7%)	22 (12.0%)
Occupation				
Nurse	510 (74.1%)	260 (82.8%)	116(61.1%)	134 (72.8%)
Healthcare Worker	65 (9.4%)	13 (4.1%)	40 (21.1%)	12 (6.5%)
Doctor	48 (7.0%)	16 (5.1%)	16 (8.4%)	16 (8.7%)
Other	65 (9.4%)	25 (8.0%)	18 (9.5%)	22 (12.0%)
Career Length				
0-10 years	216 (31.4%)	81 (25.8%)	59 (31.1%)	76 (41.3%)
11-20 years	262 (38.1%)	169 (53.8%)	43 (22.6%)	50 (27.2%)
21-30 years	154 (22.4%)	62 (19.7%)	56 (29.5%)	36 (19.6%)
31-40 years	48 (7.0%)	2 (0.6%)	30 (15.8%)	16 (8.7%)
> 40 years	8 (1.2%)	0 (0.0%)	2 (1.1%)	6 (3.3%)

Of the staff members, 66.9% were female and 33.1% were male; 37.2% were not over 35 years old (37.3% males, 37.2% females), 53.3% were between 36 and 55 years old (52.6% males, 53.7% females), and 9.4% were over 55 years old (10.1% males, 9.1% females).

Of the sample, 74.1% were nurses, 7% were doctors, and the remaining 18.9% were divided among other healthcare professional categories; 42.7% worked in medical departments, 38.8% in surgical departments, and the remaining 18.9% in accident and emergency (A&E) units, intensive care units (ICUs), rehabilitation units and other services. The average professional seniority of the sample is within the 11–20-year bracket (38.1%) (Table 1).

#### *Willingness towards organ donation*

The greatest degree of agreement was found in the statement, “Generally, I think that organ donation is a good thing” (“I

strongly agree” = 80.4%), followed by “Organ donation is consistent with my moral values and beliefs” (79.4%). The greatest level of disagreement was found in the statements with a negative value that referred to the willingness to donate: “I was told that organ donation is against life” (“I strongly disagree” = 91.3%); “I was told that organ donation is against my religion” (89.8%); and “People who choose to donate the organs of a family member have additional medical fees” (89.7%). The statement “Organ donation enables us to obtain something good from the death of a person” was the least shared among the operators; 49% strongly disagreed with that statement (Table 2, 3).

A separate assessment could be made for the statement, “I believe in an afterlife”, to which 60.5% of the operators gave a positive response (“I strongly agree” = 36.5%, “I agree” = 24%).

When analysing the degree of agreement

with the individual statements, more significant differences were found, which were summarised by reporting the percentage of maximum agreement as “strongly agree” (S.A.) and that of maximum disagreement as “strongly disagree” (S.D.) (Table 2, 3).

Table 2 – Items for assessing the predisposition to organ donation

Item for evaluating the availability of organ donation	Degree of agreement (%)				
	Totally Dis-agree	Fairly Dis-agree	Agree	Fairly agree	Totally agree
I believe in an afterlife	16.4%	6.8%	16.3%	24.0%	36.5%
I support organ donation	1.9%	0.6%	8.1%	12.5%	76.9%
If your life were in danger, would you like to receive an organ	2.2%	0.9%	10.2%	12.4%	74.4%
If necessary, would you accept an organ from a person of a different race than yours	1.7%	1.0%	7.8%	11.8%	77.6%
I'm ready to donate my organs after death	2.3%	1.6%	10.2%	12.4%	73.5%
It is important to discuss one's wishes after death with the family	2.3%	1.0%	11.0%	15.0%	70.6%
I discussed my wishes after death with my family	15.6%	8.7%	17.4%	12.4%	45.9%
I would like to donate an organ to someone of a different race	3.9%	2.6%	17.2%	11.9%	64.4%
I was taught that organ donation is against my religion	89.8%	1.5%	3.8%	2.2%	2.8%
I was taught that organ donation is against life	91.3%	2.3%	2.9%	1.7%	1.7%
I think organ donation is a safe and effective practice	21.4%	7.7%	14.5%	18.9%	37.5%
I think organ donation deforms (disfigures/maims/mutilates) the body	57.4%	9.3%	14.1%	10.3%	8.9%
I trust that doctors and hospitals use the donated organs because they are intended to be transplanted	1.9%	0.9%	9.9%	18.0%	69.3%
I think doctors would do everything to save my life	1.0%	0.7%	9.3%	19.2%	69.8%
In general I think that organ donation is a good thing	1.5%	0.6%	6.8%	10.8%	80.4%
Organ donation is coherent with my values and moral beliefs	2.3%	1.0%	7.4%	9.9%	79.4%
It's important that a person's body keeps all its organs after death	79.5%	7.0%	5.8%	3.2%	4.5%
It's impossible to have a normal funeral service after organ donation	83.4%	4.1%	3.8%	2.8%	6.0%
People who choose to donate family members organs pay extra medical bills	89.7%	4.1%	4.4%	1.0%	0.9%
Transplanting organs can be bought and sold on the black market	78.9%	6.5%	9.4%	2.6%	2.5%
Organ donation allows you to get something positive from the death of a person	49.0%	3.1%	8.3%	8.3%	31.4%
Most people who receive an organ transplant earn years of life in excellent conditions (quality life)	20.2%	6.0%	22.4%	24.0%	27.5%
With equal needs, a poor person has the same possibilities as a rich person to receive a transplant	7.7%	2.5%	13.7%	24.4%	51.7%

Table 3 – Items for assessing the predisposition to organ donation: summary statistics

Item for evaluating the availability of organ donation	Frequency	Mean +/- dev st.
I believe in an afterlife	688	3.57+/-1.45
I support organ donation	688	4.62+/-0.81
If your life were in danger, would you like to receive an organ	688	4.56+/-0.87
If necessary, would you accept an organ from a person of a different race than yours	688	4.63+/-0.81
I'm ready to donate my organs after death	688	4.53+/-0.91
It is important to discuss one's wishes after death with the family	688	4.51+/-0.90
I discussed my wishes after death with my family	688	3.64+/-1.50
I would like to donate an organ to someone of a different race	688	4.30+/-1.09
I was taught that organ donation is against my religion	688	1.27+/-0.86
I was taught that organ donation is against life	688	1.20+/-0.73
I think organ donation is a safe and effective practice	688	3.43+/-1.56
I think organ donation deforms (disfigures/maims/mutilates) the body	688	2.04+/-1.39
I trust that doctors and hospitals use the donated organs because they are intended to be transplanted	688	4.52+/-0.85
I think doctors would do everything to save my life	688	4.56+/-0.77
In general I think that organ donation is a good thing	688	4.68+/-0.75
Organ donation is coherent with my values and moral beliefs	688	4.63+/-0.85
It's important that a person's body keeps all its organs after death	688	1.46+/-1.05
It's impossible to have a normal funeral service after organ donation	688	1.44+/-1.10
People who choose to donate family members organs pay extra medical bills	688	1.19+/-0.64
Transplanting organs can be bought and sold on the black market	688	1.43+/-0.94
Organ donation allows you to get something positive from the death of a person	688	2.70+/-1.80
Most people who receive an organ transplant earn years of life in excellent conditions (quality life)	688	3.33+/-1.45
With equal needs, a poor person has the same possibilities as a rich person to receive a transplant	688	4.10+/-1.20

### Gender differences

The analysis of attitudes, assessed as predisposition to organ donation, evidenced the women's higher degree of agreement compared with the men's, regarding the safety and effectiveness of the practice (S.A. = 40.7% versus 31.1%,  $p = 0.001$ ). For the women, having a family discussion about their wishes that should be fulfilled after their death was also more relevant (S.A. = 50% versus 37.7%,  $p < 0.001$ ). The women were also less suspicious of the statement that concerned the way in which donation could be practised: "Organs can be bought and sold on the black market" (S.D. = 81.5% versus 73.7%,  $p = 0.017$ ).

### Differences among age groups

The younger operators, up to 25 years old, expressed the greatest agreement with the statements that referred more directly to the personal predisposition to donation. They were the most in favour of both receiving an organ if their lives were in danger (S.A. = 86.7%,  $p < 0.001$ ) and donating an organ in the event of their death (S.A. = 86.7%,  $p = 0.004$ ). They were even more inclined to receive an organ from a person whose race differed from their own (S.A. = 93.3%,  $p = 0.001$ ) and to donate an organ to such a person (S.A. = 80%,  $p < 0.001$ ). They considered it important to have a family discussion about their wishes that should

be fulfilled after their death (S.A. = 90%,  $p = 0.008$ ). In principle, staff members up to 45 years old significantly supported organ donation (S.A.: 18–25 = 83.3%, 26–35 = 84.1%, 36–45 = 83.6%; those who were less inclined belonged to the 46–55 age group (63%,  $p < 0.001$ ). Staff members over the age of 55 expressed a greater level of agreement on the statement concerning the safety and effectiveness of the organ donation practice (S.A. = 50.8%,  $p = 0.023$ ) and the value of organ donation in obtaining something positive from the death of a person (S.A. = 52.3%,  $p < 0.001$ ).

#### *Differences among regions*

There was a much lower degree of agreement on the statements concerning beliefs and prejudices related to organ donation in Lombardy rather than in Piedmont and Apulia. The most relevant differences were noted in the following statements: “They told me that organ donation is against my religion” (S.D. = 96.8% of the Lombard staff,  $p < 0.001$ ). “They told me that organ donation is against life” (S.D. = 98.4%,  $p < 0.001$ ). “It’s important to be told that a person’s body should retain all its organs after death” (S.D. = 98.4%,  $p < 0.001$ ). On one hand, 82.5% of the Lombard staff were “very much in agreement” on supporting the donation, versus 73.7% of the Piedmontese staff and 70.7% of the Apulian staff ( $p = 0.002$ ). On the other hand, significantly the Lombard staff had a lower percentage of agreement on the safety and effectiveness of the donation practice (S.D. = 45.5% versus 58.4% of the Piedmontese staff and 55.4% of the Apulian staff,  $p < 0.001$ ).

#### *Differences among types of staff*

Regarding organ donation, 80.2% of the nurses supported it versus 70.8% of the doctors, 66.2% of the healthcare workers and 71.7% of all the other professions included in the study sample ( $p = 0.003$ ). Moreover, 81.3% of the doctors, 75.9% of the nurses,

58.5% of the healthcare workers and 67.9% of all the other professions “strongly agreed” to donate their organs after death ( $p = 0.003$ ). Regarding the perception of consistency with personal moral values and beliefs, the percentages were 63.1% of the healthcare workers (showing a significant drop) versus 82% of the nurses, 85.4% of the doctors and 75.5% of the other professional healthcare staff ( $p < 0.001$ ). Compared with all the other staff members, the healthcare workers expressed a greater agreement on the statement “Organ donation allows one to obtain something positive from the death of a person” (S.A. = 40% versus 35.4% of the doctors, 29.8% of the nurses and 30.2% of the other professional healthcare staff,  $p = 0.015$ ).

#### *Differences based on years of service*

Staff members with up to 10 years of service were more willing to donate their organs compared with those with 21–30 years of service. In the first group, 86.6% “strongly agreed” to support organ donation versus 60.4% of the second group ( $p < 0.001$ ); the first group’s members were also more in favour of donating their organs after death compared with the second group’s members (S.A. = 80.1% versus 59.1%,  $p < 0.001$ ). The greater predisposition of the first group was particularly evident in the following statements: “I would like to donate an organ to someone of a different race” (S.A. = 78.7% versus 52.6%,  $p < 0.001$ ). “If necessary, I would accept an organ from a person of a different race than mine” S.A. = 88.4% versus 61.7%,  $p < 0.001$ ). Those with a greater length of service (over 30 years) indicated a more positive attitude on the perception of the correctness of the practice and of the objective and moral benefits that donating can provide, as shown in the following statements: “Donation is a safe and effective practice” (S.A. = 66.1%,  $p < 0.001$ ). “Most people who receive transplants earn more years of quality of life” (S.A. =



44.6%,  $p < 0.001$ ). “Organ donation makes it possible to achieve something positive from a person’s death” (S.A. = 57.1%,  $p < 0.001$ ).

#### *Concept of spirituality in the study sample*

The average percentage of highest ratings (“very high”) attributed to the statements assessed by the spirituality questionnaire was equal to 18%. The greatest value as a spiritual ideal was attributed to statements referring to the following altruistic values: “Love for other people” (“very high” = 27.6%), “Respect for others” (“very high” = 27.4%), “Kindness towards other people” (26.9%) and one purely ethical, “The meaning of life” (26.6%). Staff members recognised as less ideal two statements belonging to the group of religious values,

“Feeling close to God” (“very low” = 41%) and

“Worship of the Creator” (40.4%), and a “Sense of magic in the environment” (40.7%) and “How important is spirituality in your life?” (40.6%) (Table 4, 5).

#### ***Correlations between spirituality and willingness towards donation***

The sample showed a high positive attitude towards organ donation ( $M = 4.25$ ,  $SD = 0.50$ ), whereas the level of spirituality was slightly lower than the midpoint of the Likert scale ( $M = 2.76$ ,  $SD = 1.31$ ).

The highest significant correlations between predisposition towards organ donation and aspects of individual spirituality were found in the following statements: “I think that organ donation is a safe and

Table 4 – Items for assessing Spirituality

Item evaluation of Spirituality	Value attribution to Spiritual ideals (%)				
	Very low	Low	Moderate	High	Very high
Love for others	30.1%	6.5%	19.0%	19.6%	24.7%
Personal relationship with Divinities (God)	41.0%	11.0%	24.7%	12.8%	10.5%
Forgiveness towards others	32.7%	8.1%	27.5%	17.9%	13.8%
Connection with nature	36.0%	8.3%	20.9%	15.0%	19.8%
Sense of identity	34.7%	8.6%	21.0%	20.7%	15.0%
Worship towards the Creator	40.4%	10.3%	20.8%	14.7%	13.8%
Astonishment to a breathtaking view	34.6%	7.4%	17.0%	18.0%	23.0%
Trust between individuals	35.2%	9.3%	27.6%	17.6%	10.2%
Self-awareness	30.4%	6.0%	20.8%	24.0%	18.9%
United with nature	35.2%	9.0%	20.8%	18.8%	16.3%
United with God	35.6%	10.0%	22.2%	17.3%	14.8%
In harmony with nature	35.3%	6.3%	19.9%	20.2%	18.3%
In peace with God	35.8%	8.3%	22.7%	16.1%	17.2%
Joy in life	33.9%	6.1%	17.6%	22.4%	20.1%
Inner peace	34.6%	7.1%	19.8%	18.5%	20.1%
Respect of others	33.7%	4.5%	13.7%	20.5%	27.6%
The meaning of life	32.4%	5.2%	14.2%	21.5%	26.6%
Kindness towards others	34.2%	4.7%	15.0%	19.3%	26.9%
A sense of magic in the environment	40.7%	7.6%	25.1%	15.3%	11.3%
How much is Religion important in your life?	27.0%	10.2%	25.7%	21.2%	15.8%
How much is important Spirituality in your life?	40.6%	8.1%	20.1%	17.3%	14.0%

Table 5 – Items for assessing Spirituality: summary statistics

Item evaluation of Spirituality	Frequency	Mean +/- dev st.
Love for others	688	3.02+/-1.57
Personal relationship with Divinities (God)	688	2.41+/-1.40
Forgiveness towards others	688	2.72+/-1.43
Connection with nature	688	2.74+/-1.55
Sense of identity	688	2.73+/-1.49
Worship towards the Creator	688	2.51+/-1.48
Astonishment to a breathtaking view	688	2.87+/-1.60
Trust between individuals	688	2.58+/-1.38
Self-awareness	688	2.95+/-1.51
United with nature	688	2.72+/-1.50
United with God	688	2.66+/-1.48
In harmony with nature	688	2.80+/-1.54
In peace with God	688	2.71+/-1.51
Joy in life	688	2.89+/-1.56
Inner peace	688	2.82+/-1.55
Respect towards others	688	3.04+/-1.64
The meaning of life	688	3.05+/-1.62
Kindness towards others	688	3.00+/-1.64
A sense of magic in the environment	688	2.49+/-1.43
How much is Religion important in your life?	688	2.89+/-1.42
How much is important Spirituality in your life?	688	2.56+/-1.50

effective practice”; “Organ donation makes it possible to achieve something positive from the death of a person”; “Most people who receive a transplant earn years of healthy life” (positive correlation) and “I think that organ donation disfigures the body” (negative correlation) (Table 6, 7).

The results of the regression model are presented in Table 5 and graphically displayed in Figure 1 concerning the main effects. Spirituality and career length, respectively, were positively and negatively associated with the attitude towards organ donation.

The value of adjustment was significant ( $p < 0.001$ ), with a coefficient *pseudo r-quadro* of McFadden equal to 0.2. This means that (1) the higher the spirituality level, the more positive the attitude towards donation, and (2) the longer the career, the less positive the attitude towards donation.

Conversely, the main effect of the region of provenance was not significant.

Spirituality positively predicted the positive attitude towards organ donation among Lombard professionals with shorter ( $-1$  SD) careers ( $b = 0.078$ ,  $p = 0.044$ ) and among both Piedmontese ( $b = 0.250$ ,  $p < 0.001$ ) and Apulian ( $b = 0.458$ ,  $p < 0.001$ ) professionals with longer ( $+1$  SD) careers (Table 8).

Finally, the six slopes displayed in Figure 1 were compared to detect possible differences. The analysis showed that the slope of Apulian professionals with longer careers was the steepest one, followed by the slope of Piedmontese professionals with longer careers, and both were significantly steeper than all the other slopes. This indicated that the role of spirituality in increasing the positive attitude towards organ donation was especially important for

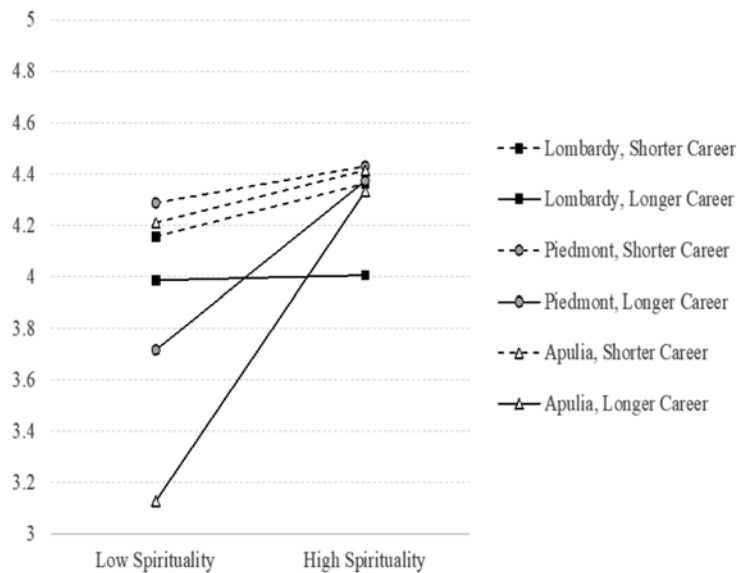


Figure 1 – The results of the regression model: association between spirituality (X-axis) and positive attitude towards organ donation (Y-axis) according to region of provenance and career length.

Apulian and Piedmontese professionals with longer careers.

## Discussion

In this study, we explored the health professionals' attitudes towards organ donation and their perception of the concept of spirituality to assess whether differences in their perceived spirituality would be related to certain attitudes towards donation. Consistent with the results of the studies referring to donation, the surveyed health professionals showed higher scores in the positive attitude section and lower scores in the negative attitude section, regardless of the geographical context of reference (10-12).

Statistically significant differences in the attitude towards donation were found with reference to gender, age, department of reference, profession and length of service.

Generally, the majority of the sub-groups of the interviewed sample, including nurses

(80.2%), doctors (70.8%), healthcare workers (66.2%) and other healthcare professionals (71.7%), supported organ donation. However, 80.3% of the doctors, 75.9% of the nurses, 58.5% of the healthcare workers and 67.9% of the other healthcare professionals "strongly agreed" to donate their organs after death. The differences in percentages may be explained by the fact that doctors and nurses receive more information and training regarding organ donation compared with the remaining professional categories. These results were in contrast with those of the study conducted by Ahlawat et al. (13), which showed no statistically significant difference in the attitudes towards organ donation among the different professional categories, on the contrary to what emerged in several other studies (14-16).

The departments, where the healthcare professionals were employed, also seemed to be significantly correlated with donation attitudes. In line with the findings of other studies (17, 18), the respondents who worked







I trust that doctors and hospitals use the donated organs because they are intend to be transplanted	r	0.022	-0.080	0.014	0.015	0.055	0.029	0.067	0.040	-0.065	-0.025
	p	0.566	0.036	0.718	0.698	0.146	0.451	0.078	0.294	0.087	0.505
I think doctors would do everything to save my life	R	-0.031	-0.050	-0.046	-0.042	-0.022	-0.053	-0.024	-0.005	-0.020	-0.042
	p	0.410	0.192	0.226	0.271	0.558	0.163	0.537	0.902	0.595	0.271
In general I think that organ donation is a good thing	r	0.060	-0.010	0.049	0.024	0.070	0.052	0.078	0.029	0.019	-0.006
	P	0.115	0.799	0.204	0.535	0.067	0.176	0.040	0.441	0.616	0.868
Organ donation is coherent with my values and moral beliefs	r	0.017	-0.028	0.017	-0.011	0.014	0.010	0.023	0.012	0.018	-0.014
	p	0.666	0.460	0.664	0.768	0.710	0.785	0.541	0.757	0.634	0.713
It's important that a person's body keeps all it's organs after death	r	0.093	0.115	0.061	0.047	0.068	0.036	0.067	0.090	0.077	0.087
	p	0.015	0.002	0.107	0.220	0.073	0.344	0.081	0.018	0.043	0.022
It's impossible to have a normal funeral service after organ donation	r	0.206	0.236	0.216	0.224	0.211	0.210	0.205	0.213	0.206	0.254
	p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
People who choose to donate family members organs pay extra medical bills	r	0.103	0.109	0.099	0.100	0.069	0.077	0.101	0.159	0.090	0.142
	p	.007	0.004	0.009	0.008	0.070	0.044	0.008	0.000	0.019	0.000
	r	.061	0.106	0.095	0.088	0.087	0.070	0.069	0.043	0.093	0.127
	p	0.112	0.006	0.013	0.021	0.022	0.068	0.069	0.265	0.015	0.001
Transplanting organs can be bought and sold on the black market											
Organ donation allows you to get something positive from the death of a person	R	0.669	0.388	0.629	0.619	0.706	0.653	0.703	0.580	0.156	0.556
	p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Most people who receive an organ transplant earn years of life in excellent conditions (quality life)	r	0.475	0.342	0.459	0.460	0.498	0.489	0.509	0.422	0.222	0.453
	p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
With equal needs, a poor person has the same possibilities as a rich person to receive a transplant	r	0.042	0.011	0.028	0.048	0.062	0.039	0.070	0.062	-0.013	0.025
	p	0.275	0.764	0.465	0.210	0.107	0.310	0.065	0.104	0.734	0.519

in the A&E unit/ICU “strongly agreed” to support organ donation compared to their colleagues in the other departments. The first group’s greater propensity to have a positive attitude towards organ donation could have been due to the greater attention to these issues in their practical training curriculum (19).

Beyond what can be considered, professional characteristics, gender and age also seemed to influence the attitude towards donation. In fact, the analysis of attitudes, assessed as having a predisposition to organ donation, highlighted women’s higher degree of agreement regarding the safety and efficacy of the practice, as well as the opportunities to obtain something positive from the death of a person and to ensure that most of the transplant recipients would gain years of life in excellent condition.

Furthermore, in agreement with the results of the study conducted by da Damar et al. (10), but in contrast to those analysed by Lin et al. (11) and Makhoul et al. (20), the results of this study showed statistically significant differences in the attitude towards donation in relation to the age group considered. The younger healthcare staff members, until 25 years old, expressed the greatest agreement on the statements referring more directly to the personal willingness to donate. However, in principle, the staff members until 45 years old supported organ donation to a significant extent; the least willing to donate were the 46–55-year-old respondents. The healthcare professionals with less than 10 years of service were also more willing to donate.

In this study, the attitude and the availability regarding donation were also analysed in relation to the concept of spirituality. The scores relating to spirituality in the studied sample were lower than the central point of the used Likert scale ( $M = 2.76$ ,  $SD = 1.31$ ). The regression analysis allowed the construction of a predictive model of the willingness to donate, whose value to comply was significant ( $p < 0.001$ ), with a

coefficient *pseudo r-quadro* of McFadden equal to 0.2. The results confirmed those of other studies that provided evidence of an association between religious/spiritual beliefs and the willingness to donate organs (21, 22).

In particular, our results showed that the higher the spirituality level, the more positive the attitude towards donation, and the longer the career, the less positive the attitude towards donation. Conversely, the main effect of the region of origin was not significant.

A study conducted on American and Chinese populations showed that altruism and spirituality were not significant predictors of the availability for organ donation (21). These were just two of the dimensions we used to investigate the construct of spirituality. Regarding the relation between work experience and attitude towards donation, our results differed from a Swedish study’s findings that work experience had an impact on forming a positive attitude towards donation (17).

## Strengths and Limitations

Based on our knowledge, this is the first study to test the existence of a predictive model that relates the concept of spirituality to the attitude towards donation by health professionals. This goal was achieved by using a multicentre approach that involved three populations from different geographical areas in the same country.

Although the sample potential was supported by ad hoc statistical analysis, a numerical disparity was evident between the sample from southern Italy and that from northern Italy (184 versus 515). Based on the professional category, nurses had the highest response rate (74.1% of the nurses in the study sample), probably because they were directly involved in the organ donation process on a daily basis. Another



limitation was related to the method used to administer the questionnaire survey; not being heterogeneous, the groups could not be analysed to evaluate their differences. On one hand, if the method of administration through Google forms allowed reaching a wider population, on the other hand, it was impossible to estimate the response rate.

Finally, the study was conducted in Italy, particularly in three geographical regions. We cannot guarantee the same results in other national contexts.

## Conclusions

This study represents the first step in understanding the relation between spirituality and organ donation in the Italian context. It is advisable to increase the sample size and to extend the study to other regional, national and, above all, international realities. Organ transplant is considered a life-saving treatment for patients with end-stage pathologies. The society accepts the fact that organ donation offers a source of health for everybody, but considerable obstacles and resistances continue to limit its widespread use. Potential donors are currently unaware of this possibility. Appropriate information and awareness-raising campaigns are therefore needed through scientific papers, conferences and debates, as well as via wider audience channels, such as mass media in general, that involve not only the medical profession, whose role is nevertheless crucial, but also citizens as a whole (23). The knowledge and the attitude of healthcare professionals can positively influence the willingness of family members and patients to give their consent to organ donation and, consequently, to an increase of the organ donation rates (24, 25). It would be even more interesting to compare the relation between the healthcare staff's willingness to donate their organs and its actual underwriting. In fact, several reference studies document a strong positive

attitude towards organ donation but a low behavioural commitment to sign a donor card (26, 27).

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## Riassunto

**Donazione di organi e spiritualità: uno studio osservazionale multicentrico rivolto agli operatori sanitari che operano nel contesto italiano**

**Obiettivo.** Lo scopo di questo studio è analizzare come la spiritualità influenzi la disponibilità alla donazione di organi tra gli operatori sanitari che lavorano in Italia.

**Metodi.** Lo studio è stato uno studio osservazionale descrittivo multicentrico condotto in tre regioni italiane (Lombardia, Piemonte e Puglia). Per la raccolta dei dati sono state utilizzate due scale: "Organ Donation Attitude Scale" (ODAS) per esplorare l'atteggiamento del personale sanitario nei confronti della donazione di organi e la scala "Spiritual Health Life-Orientation Measure" (SHALOM) per esplorare la percezione del concetto di spiritualità.

**Risultati.** Il campione comprendeva 688 operatori sanitari (460 donne, 66.9%). L'analisi degli atteggiamenti, valutati come predisponenti alla donazione di organi, ha evidenziato un maggior grado di accordo nelle donne riguardo alla sicurezza e all'efficacia della pratica, 40.7% vs. 31.1% ( $p = 0.001$ ). Il campione ha mostrato un atteggiamento molto positivo nei confronti della donazione di organi ( $M = 4.25$ ,  $SD = 0.50$ ), mentre il livello di spiritualità era leggermente inferiore al punto medio della scala Likert ( $M = 2.76$ ,  $SD = 1.31$ ). Abbiamo osservato che la spiritualità predice l'atteggiamento positivo verso la donazione di organi per i professionisti lombardi con carriere più brevi ( $-1 SD$ ),  $b = .078$ ,  $p = .044$ , e tra i professionisti piemontesi,  $b = .250$ ,  $p < .001$ , e pugliesi,  $b = .458$ ,  $p < .001$ , con carriere più lunghe ( $+1 SD$ ).

**Discussioni.** Per quanto riguarda la donazione, gli operatori sanitari intervistati hanno evidenziato punteggi più alti nella sezione atteggiamento positivo e punteggi più bassi nella sezione negativa, indipendentemente dal contesto geografico di riferimento.

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