



Multivariate Analysis of Factors That Condition the Attitude Toward Organ Donation Among the Population of Mali Residents in Spain

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ABSTRACT

Introduction. The population from Mali is migrating toward Europe in a significant way.

Objective. To analyze the attitude toward organ donation (ODT) among the population born in Mali who are currently residents in Spain.

Method. Study population: people born in Mali who are ≥ 15 years of age and residents of Spain, stratified by age and sex. The assessment instrument is the validated attitude questionnaire toward organ donation (PCID-DTO-Ríos). Fulfillment was anonymous and self-administered. The statistics used were descriptive, χ^2 test, Student *t* test, and a logistic regression analysis.

Results. This study surveyed 402 Malians. Thirty-four percent ($n = 136$) are in favor of donating their own organs after dying, 39% ($n = 156$) are against organ donation, and 27% ($n = 110$) are undecided. Multiple factors are associated with this attitude, such as level of studies ($P = .042$, OR = 6.535), having a positive attitude toward ODT ($P = .001$, OR = 47.619), performing prosocial activities ($P = .001$, OR = 141.679), being familiar with the scope of the transplant ($P < .001$, OR = 16.949), the attitude toward the incineration of the body ($P = .002$, OR = 8.928) and toward autopsy ($P = .003$, OR = 8.620), having had a prior donation or transplantation relationship ($P = .001$, OR = 17.910) and not having concerns about the possible mutilation of the body after donating ($P < .001$; OR = 90.909).

Conclusions. The Malians have an unfavorable attitude toward the donation of their own organs, which is conditioned by multiple psychosocial factors.

THE GROWING immigration to southern European countries from the African continent, and especially from sub-Saharan countries such as Mali, is having repercussions in the world of transplantation. In Spain, which has a universalized health system, there is an increase in patients from other nationalities on the waiting list of transplants and the list of future donors [1,2]. Mali, like the vast majority of African countries, is a country with little tradition and awareness and lacks an active program of organ donation and transplantation (ODT); hence, there

are no studies on the attitudes and knowledge regarding organ donation and transplantation of the population inside or outside its borders. This lack of sensitization can mean a decrease in donation rates in the countries to which the population emigrates [1,3]. The final result of the donation

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process will depend closely on the final decision of the people, so it is vital to know what factors may affect certain decisions that make the donation effective [2]. The objective of this project is to analyze the attitude toward ODT in the population born in Mali who currently reside in Spain.

METHOD

Population Under Study

The population used in this study included people from the Mali population who reside in Spain and were over 15 years old, stratified by age and sex. A random representative sample was used according to the respondents' legal situation. Population with legal documentation: The population census of Spain provides the number of people of every nationality living in Spain, giving the age, sex, and municipality of residence (this information can be found at <http://www.ine.es/inebase/cgi/axi>). The sample was stratified by age and sex according to this data.

Information about this population is not as accurate as the previous group because there is no official information. Different immigration associations were consulted in order to estimate the size of this group. The sample was stratified by age and sex.

Instrument of Evaluation

The attitude was assessed using a validated questionnaire of attitude toward organ donation—PCID-DTO Rios: the questionnaire of Proyecto Colaborativo Internacional Donante sobre Donación y Trasplante de Organos (in Spanish), developed by Dr. Ríos [4–6]. This questionnaire presented a total of 63.005% explained variance and a Cronbach's alpha reliability coefficient of 0.778.

Fieldwork

The random selection of people to be surveyed was based on stratification. Support was needed from African immigration associations to advise the authors on the location of potential respondents. Fulfillment was anonymous and self-administered. Verbal consent was requested to collaborate in the study.

RESULTS

The Attitude Toward Cadaveric Organ Donation

This study surveyed 402 Malians. Thirty-four percent ($n = 136$) are in favor of donating their own organs after dying, 39% ($n = 156$) are against organ donation, and 27% ($n = 110$) are undecided.

Factors That Determine the Attitude Toward Organ Donation

Socio-personal Variables. For these variables, only the level of studies is associated. Thus, university students have the most positive attitude (52.3%, $P < .001$).

Knowledge Variables About Organ Donation. There is no association with any of these variables.

Variables of Social Interaction. There is a favorable attitude toward organ donation among those who would authorize the donation of a relative's organs (60% vs 0%, $P < .001$) and those in the family that have dealt with the subject of ODT in a positive way (60.3% vs 23.1%, $P < .001$), participants in prosocial activities (51.7% vs 8.7%,

$P < .001$), and those who had a previous relationship with donation and transplantation (50% vs 32.4%, $P = .034$).

Variables of Religion. Catholics are more in favor of donation compared with Muslims and atheist-agnostics (66.7% vs 30.2% and 37.5%, $P < .001$). Similarly, those who know the positive attitude of their religion about ODT have a favorable attitude toward those who affirm that their religion opposes organ donation (38.2% vs 0%, $P < .001$).

Attitude Variables About the Body. Respondents who have a favorable attitude toward donation are those who agree with the performance of autopsies (56.7% vs 29.8%, $P < .001$), prefer incineration as a way to treat the body after death (48.3% vs 31.4%, $P = .012$), are not worried about possible mutilation after donation (70.6% vs 9.2%, $P < .001$), or believe that in the future they may need a transplant (63.1% vs 0%, $P < .001$).

Multivariate Analysis of the Factors That Determine the Attitude Toward Donation

As can be seen in Table 1, the next variables persist as independent: level of studies ($P = .042$, OR = 6.535), positive attitude toward the ODT of a family member ($P = .001$, OR = 47.619), prosocial activities ($P = .001$; OR = 141.679), familiarity of the scope of the transplant ($P < .001$, OR = 16,949), attitude toward the body's incineration ($P = .002$, OR = 8.928) and toward autopsy ($P = .003$, OR = 8.620), prior relationship to donation and transplantation ($P = .001$, OR = 17.910), and lack of concern about the possible mutilation after donating ($P < .001$; OR = 90.909).

DISCUSSION

Detecting population groups that are not very sensitized and require a special approach to organ donation is one of the objectives of the Collaborative International Donor Project Group. Hence, the importance of psychosocial studies regarding donation to detect these groups and advance them must be studied with the aim of continuing to improve donation rates [6]. One of the most emergent groups in all Europe, and especially in Spain, is the population with African origins, among them those born in Mali [1–4,7–10]. As the results of this study show, the Malian population in Spain has a low sensitization rate, and an unfavorable attitude, with only 34% in favor of organ donation. This situation, accompanied by the language barrier (a small percentage of the Malian population speaks Spanish or English), makes it a difficult group for organ donation [2,6,10]. In Mali, there are no specific studies on the attitude toward donation and organ transplantation of its population. There are also no specific data on the Mali migrant population, but there are data on migrant populations from the African continent. In Spain, existing studies show an unfavorable attitude among immigrants, with 27% of Algerians and 32% of Guineans favoring organ donation. [1,10]. In general terms, among

Table 1. Variables Affecting Attitude Toward Deceased Organ Donation: A Multivariate Logistic Regression Analysis

Variable	Regression Coefficient (β)	Standard Error	Odds Ratio (Confidence Intervals)	P
Level of Education:				
No education			1	
Primary	1.748	0.566	5.747 (17.543–1.893)	.002
Secondary	1.877	0.923	6.535 (40–1.070)	.042
University	3.626	3.456	37.037 (1000–0.042)	.294
Attitude Toward ODT of a Familiar:				
Not for			1	
In favor	3.883	1.124	47.619 (500–5.376)	.001
Carrying Out Prosocial Activities:				
I will not take part in them			1	
Yes	4.954	1.534	141.679 (7.006–2864.967)	.001
No but I would like to	3.412	1.387	30.311 (1.999–459.496)	.014
Family Discussion About Donation and Transplantation:				
No			1	
Yes	2.833	0.780	16.949 (75.923–3.690)	< .001
Acceptance of Cremation:				
No			1	
Yes	2.191	0.694	8.928 (34.482–2.293)	.002
Acceptance of Autopsy if One Were Necessary:				
No			1	
Yes	2.155	0.724	8.620 (35.714–2.087)	.003
Previous Experience of Donation and Transplantation:				
No			1	
Yes	2.885	0.887	17.910 (3.150–101.821)	.001
Concern About Mutilation After Donation:				
Doubts			1	
Concern	0.720	0.999	2.054 (0.290–14.553)	.471
No concern	4.507	0.837	90.909 (500–17.543)	< .001

Bold values indicate significance.

the African population living in Spain, the study conducted by López et al [2] informs us of a favorable attitude among Africans living in the country, between 21.4% and 48.9%. These results very distant from other immigrant populations such as Latin Americans, with figures of 60%, or Western Europeans, with data of 65% of Germans and 72% of Anglo-Saxons [6,11,12]. An analysis of the psychosocial profile of the respondents shows us that most of the factors described in the population studies of Western countries also appear among the Malians residing in Spain [4,7,8,11–13]. The educational level, social interaction, and attitude toward the treatment of the body are the factors most related to the attitude toward donation; integration into the Spanish society by learning the Spanish language and the improvement of the population's educational level could create an improvement of this situation, just as donation promotion campaigns should focus on this social group, remembering that the messages given in Spanish will have little effect and that they should be translated into the Malian population's native language. No less important is encouraging dialogue about donation and transplantation issues within family circles [1,6,10]. In conclusion, we can say that the Mali immigrant population living in Spain has a very unfavorable attitude toward the donation of their own organs at death and a very small percentage have had any direct or indirect relationship with the world of organ transplantation.

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