

## Cadaver Transplantation in Balkans: Mission Possible?

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### Abstract

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**Keywords:** Cadaveric transplantation; interview; factor analysis; cluster analysis Balkans; Republic of Macedonia.

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**Competing Interests:** The authors have declared that no competing interests exist.

**Background:** Donation of organs is on a very low level and due to its specific nature is a very sensitive topic, especially in the post – conflict and multinational country like Republic of Macedonia.

**Aim:** The NGO National Transplant Foundation has conducted a study in order to gain understanding about factors that drive awareness, attitudes towards donation of organs and willingness to participate.

**Material and Methods:** The study was conducted on a representative sample of 1000 respondents using standardized questionnaire via face to face method in September 2009. Answers on all questions were cross tabulated in order to detect patterns. Factor analysis and cluster analysis were used for identification of different segments of respondents.

**Results:** The results revealed that majority of population in Macedonia is familiar with the term transplantation, but there is a very low awareness that a specific law for organ donation exists. Segmentation analysis identified several groups of responders: apostles (23%), mercenaries (11%), escapists (26%), neutral (13%) and hostages (28%). More precisely, apostles are people who perceive transplantation or donations of organ as human act and who already participate in some humanitarian activity like blood donation. The participants were divided upon their opinion whether they would donate their organs after death. The reasons for this are found in negative attitude towards donation and low level of trust in institutions.

**Conclusion:** The survey clearly indicates that there is a need for informing the population about the law and the process of donation of organs in Macedonia. Inclusion of certain benefits like health or social insurance will stimulate the process of donation of organs. Another important output is that mercenaries and escapists are groups which should be targeted, while apostles and neutral could be used as promoters of the idea.

### Introduction

At present, In Republic of Macedonia routinely are performed transplantation of kidneys (around 15 per year) and bone marrow around 50 per year), while introduction of liver transplantation in children is in progress. The lack of cadaveric organs for transplantation motivates some Macedonian patients,

as well as patients from other Balkan,countries to buy a kidney for example from developing countries [1]. There have been attempts to compare combined data from the national renal registries of Balkan countries with combined data from renal registries of the Western and Northern European Countries and regions contributing the ERA-EDTA Registry [2]. However, a lot of efforts remain to be done in order The Balkans and Republic of

Macedonia as part of it to meet the criteria regarding transplantation (especially cadavaeric) accepted in the developed world.

There is a very low level of awareness regarding donation of organs in Republic of Macedonia. This is a very sensitive topic, especially in the post–conflict and multinational country like Republic of Macedonia. There are different factors that are related to awareness, attitudes towards donation of organs and willingness to participate and therefore this deserves further exploration. So far, there are no data regarding transplantation and this is the first survey of this kind in Republic of Macedonia.

Regarding the legal framework, there is a law concerning conditions for taking, exchanging, passing on, and transplanting the human body parts for the purpose of patient treatment, published in Official Gazette of the Republic of Macedonia nr.30/95 from 14.06.1995 [3]. In this context, (part of this law) there are clinical rules set which apply to further examination and determination of death in person from which body parts can be taken for medical treatment. This law was later amended with another law (Law on changes and amendments to the law concerning conditions for taking, exchanging, passing on, and transplanting the human body parts for the purpose of patient treatment) which was published in Official Gazette of RM no. 139 of 04.11.2008 [4].

The mission of National Transplantation Foundation (NTF) is to raise awareness of the need for organ donation and transplantation as a critical method of improving patients' quality of life. The NTF is also aimed at encouraging application of high medical, ethical and legal standards surrounding transplantation and establish a synergy between healthcare professionals and society at large.

The objectives of the foundation are: to raise donation and transplantation awareness through education of healthcare professionals and the general public; to support research in the area of organ transplantation; to support families with members in need of transplantation or those that have already donated/received an organ transplant; to help in providing technical support, instruments and equipment required for transplantation; and to help develop, adjust and implement the legal and ethical framework for transplantation in Macedonia.

The aim of this study was to conduct analyze and understand the factors that drive awareness, attitudes towards donation of organs and willingness to participate in such a procedure. in the Republic of Macedonia through a survey

## Material and Methods

### *Study Design*

This is a descriptive study with objective to describe and measure the phenomena of interest in a certain point of time. More precisely, it is a cross-sectional study known as “snap-shots” of the population because of the one-time measurement [5].

### *Study population*

The population of interest for this study was total population (15+) of the Republic of Macedonia. The sample is a tool in order to infer something about the population [6]. Therefore, sample of 1000 respondents were included in the research. Participants were recruited on a voluntary basis, based on the method “start and step”. The interviewer receives sampling point and conducts the interview with members of households which live on the chosen street. The interviewer starts from the n-house specified and visits every n-house according to the step. The survey was conducted in the homes of the respondents via face to face method. The sample is considered representative of the population. The questionnaire was administered by interviewers from GfK Skopje which were trained for this purpose.

### *Statistical analysis*

Answers on all questions were cross tabulated in order to detect patterns. Also, factor analysis and cluster analysis were used for identification of different segments of people. Firstly, factor analysis was performed on the results from statements that describe attitudes towards donation of organs. Factor analysis is used for searching underlying factors within the data set. Out of the defined factors, several groups mostly saturated with specific factors were indentified through a cluster analysis. The basic purpose of cluster analysis is to segment objects into groups that objects within each group are similar to one another on a variety of characteristics [7].

## Results

The classification of participants in the survey is based on the guidelines accepted on a creative workshop conducted with GfK members and members of National Foundation for Transplantation. The names are given only based on personality patterns. Recruitment could be conducted with characteristics which match the specific profile. Description of profiles (extracted with

Table 1: Description of profiles (extracted with cluster analysis) – factors of lifestyle and value system.

<b>Neutral; 13%</b>	<b>Apostles; 23%</b>	<b>Mercenaries; 11%</b>	<b>Escapists; 26%</b>	<b>Hostages; 28%</b>
<b>Factors</b> •Extroverts •Practical •Intellectualism •Religious •Tolerant •Interested in sport	<b>Factors</b> •Extroverts •Practical •Ambitious •Humanists •Interested in medicine •Altruism	<b>Factors</b> •Extrovert •Ambitious •Careerists •High self confidence •Need for freedom of choice •NO Practical approach	<b>Factors</b> •Introvert •Intellectualism •Interested in medicine •Altruist •Interested in sport •Humanism •NO Practical approach	<b>Factors</b> •Introvert •Practical •Careerists •Religious •Interested in medicine •No intellectual approach •No tolerance
<b>Reasons pro or against donating organs</b> •High acceptance for signing document about voluntary donation of organs (no matter if the organs are transplanted into unknown person) •Reasons for donating – saving lives and humanism •Low need for award from the Institutions •High participation in humanitarian activities	<b>Reasons for or against donating organs</b> •High acceptance for signing document about voluntary donation of organs (no matter if the organs are transplanted into unknown person) •Reasons for donating – saving lives and humanism •Low need of award from the Institutions •High participation in humanitarian activities	<b>Reasons for or against donating organs</b> •Low acceptance of the idea for organ donation •Transplantation is perceived as very vulnerable of corruption and mismanagement •Expectation of award (material) •Low trust in Institutions •Low level of participation in humanitarian activities	<b>Reasons for or against donating organs</b> •Low acceptance of idea for organ donation •Transplantation is perceived as very vulnerable of corruption and mismanagement •Expectation for award (material) •Low trust in Institutions •Low level of participation in humanitarian activities	<b>Reasons for or against donating organs</b> •Medium acceptance of the idea for organ donation •Transplantation is an issue of which they don't want to think about •Expectation for award (material) •Stereotypes and prejudices have marked their way of thinking •Low trust in Institutions •Low level of participation in humanitarian activities
<b>Age, gender, education, marital status</b> •20-44 •Albanian •More than average population Male •single •In paid employed •Faculty education •Urban	<b>Age, gender, education, marital status</b> •From all age groups •Female •Married •In paid employed •High school	<b>Age, gender, education, marital status</b> •Young 20-34 age •Male •Single •Faculty education •Above average total family income •Urban area •Self employed	<b>Age, gender, education, marital status</b> •Young; 25- 44 •Male and female •Albanian •Single •Faculty education •Above average total family income	<b>Age, gender, education, marital status</b> •All age groups •Female •Married •Low level of education •Self employed

cluster analysis) – factors of lifestyle and value system is shown in Table 1.

The biggest part of profiles in our study were hostages and escapists with 28% and 26%, respectively, followed with apostles (23%), neutral (13%), and mercenaries (11%).

Participation in any kind of humanitarian activity is shown in Fig. 1. Three percent (3%) of population said that regularly participate in humanitarian actions and 43% that have participated few times. Neutral and Apostles have highest percentage of participation in humanitarian actions. Most of participants donate blood (56%), about one third donate clothes (24%), the rest of participants donate money (12%), and other donations.

The gender, age, education and nationality of

investigated sample according the profiles is shown in Fig. 2. Half of the participants are females (53%) with biggest percentage (70%) in apostles profile, in contrast to males with biggest percentage (73%) in mercenaries profile. The biggest percentage of all profiles belongs to the age 20-34 years. Most of the participants finished high school (58%), 78% were Macedonians, and 20% Albanians (Fig. 2).



Figure 2: Sample description.

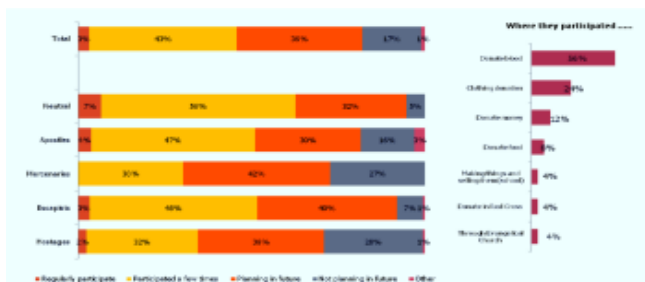


Figure 1: Have you ever participate in any kind of humanitarian activity?

High percentage of the Macedonian citizens know what the word “transplantation” means: high 89% of them describe it as transplantation of healthy organs from one person to another. Surprisingly – 6% of the population have had need of transplantation, the highest percentage needed kidney transplantation. Answers to the question “Have you or some member of your family ever had the need of transplantation?” show that 69% need kidney transplantation, 8% need bone marrow transplantation, 6% need lung and/or heart transplantaton

and the rest of participants have had need of blood, cornea or something else. Two percent of the population have had experience with organs donation – this 2% means that maximum 2.800 people experienced what transplantation means (N/A data means don't know or no answer) but still these people could be used as testimonials (Fig. 3).

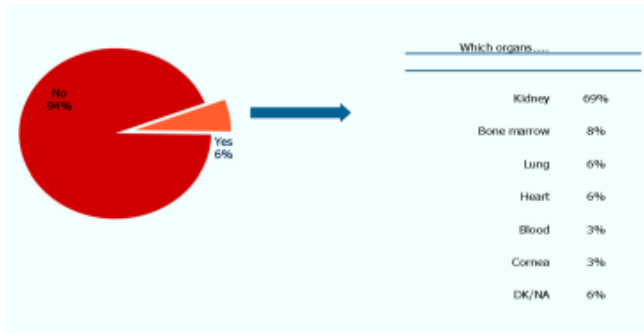


Figure 3: Have you or some member of your family ever had the need of transplantation?

Almost half of the population knows that transplantations are being made in Macedonia. However, low awareness of the existence of the Law for Transplantation in Macedonia was noted. People from segments Escapist and Hostages are informed better than people from other segments (Fig. 4).

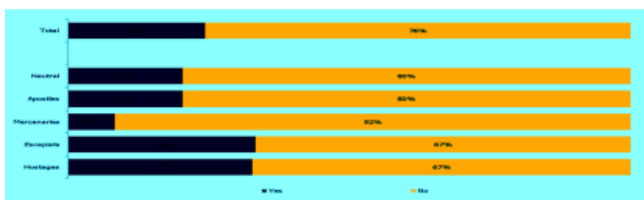


Figure 4: Do you know, if there is any law for organ transplantation in Republic of Macedonia?

Most of the participants would claim donation of their organs (22% certainly, and 40% probably) in case of death, of which Apostles are the most certain (31%). Mercenaries and Hostages are at least ready for voluntary sign of this document (Fig. 5).

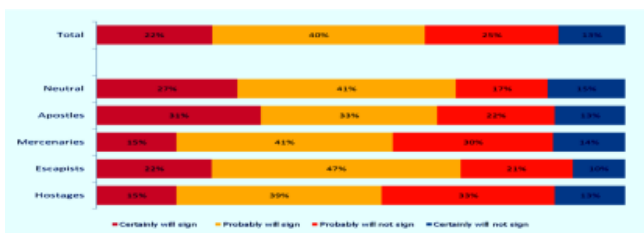


Figure 5: Would you agree to sign for donation of your organs, in case of death?

As reasons for not signing this kind of document are verbalized: morbid to think about death while you're alive (46%), contrary to common views on life and death (20%) and no trust in Institutions (22%) (Fig. 6).



Figure 6: What are the reasons because of you wouldn't sign for donation of your organs?

All segments are ready to sign this documents no matter to whom the organs will be donated except Escapists segment who will sign only for donating the organs to closely related people (Fig. 7).

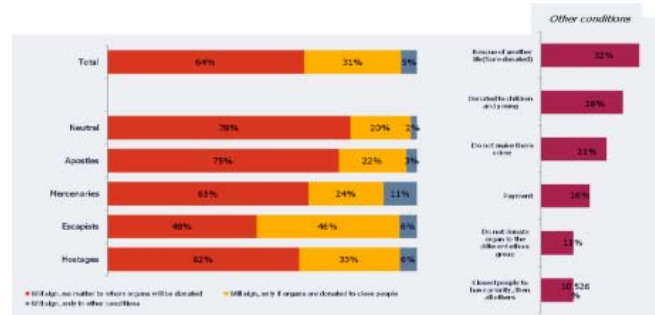


Figure 7: Would you sign this statement no matter to whom your organs will be donated or you will have particular conditions?

Expectations of award significantly influence readiness for donation among participants of the survey. Mercenaries and Escapists express opinion that donating organs should be awarded by State Institutions. Awards should be: money, health insurance benefits and social insurance benefits. As a strongest motive for stimulation of donating organs is material compensation – money, exception of tax payment and other health or social insurance benefits (Fig. 8)

Acceptance of organs in case of a need is pretty high but still seems connected with readiness of donating. The most ready to accept an organ from unknown donor are individuals in segments Neutrals and Apostles who are in the same time highly ready to donate organs to unknown person in need. The strongest motive for rejection of transplantation is belief in fate or belief that natural death is most appropriate end.

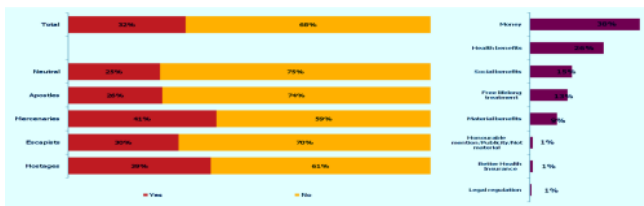


Figure 8: Do you think that donating organs should be awarded by some institutions?

Making decision about donating organs for someone close is more difficult than decision about signing the document for him/her self. Significantly lower percent of respondents express readiness for signing the documents if some close to them is in situation to be potential donor (cerebral death). This decision could be made easier with support of other members of the family. In case of need of an organ from some member of the family, the respondent's readiness for donating is significantly higher but still stratified in three segments: Mercenaries, Escapists and Hostages uncertainty is high. As main de-motivator (or uncertainty) are mentioned health problems, fear for adverse effects on their health and life in general (Fig.9).

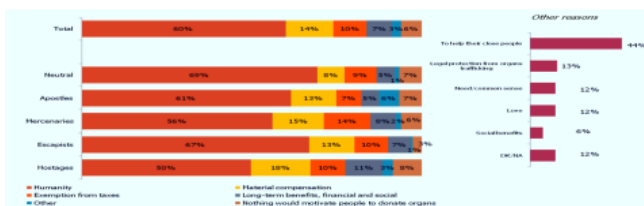


Figure 9: What would be the strongest motive for people to decide to donate organs?

According to the general opinion, reasons for low readiness for donating organs are: low trust in Institutions and low awareness for this issue. Apostles are people who perceive transplantation or donation of organ as a human act – (significantly higher percentage than in other segments are ready to donate organs). Mercenaries and Escapist are segments who are pretty suspicious about the procedure, or they think that the transplantation/donation of organs is vulnerable to corruption and mismanagement. Opposite of his/her religion is characterization of only 36% of hostages (which is surprisingly low percentage for people who feel that religious barriers are real). One of the possible explanation for misuse of religion is no other argument to avoid discussion on this topic (Fig. 10).

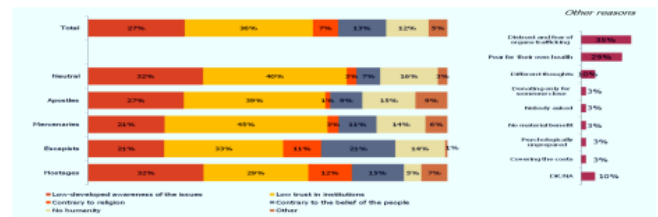


Figure 10: What are the reasons people would not decide to donate organs?

## Discussion

High percentage of the Macedonian citizens know what the word “transplantation” means: high 89% of them describe it as transplantation of healthy organs from one person to another. Surprisingly 6% of the population have need for transplantation. The highest percentage has need for kidney transplantation. 2% of the population have had experience with organs donation – this 2% means that max 2.800 people experienced what transplantation means (N/A data does this experience was positive or negative) but still these people could be used as testimonials.

Almost half of the population knows that transplantations are being made in Macedonia. The awareness about the Law for Transplantation in Macedonia have shown that: people from segments Escapist and Hostages are informed better than other segments; apostles are people who perceive transplantation or donation of organ as a Human act – (significantly higher percentage than in other segments); Mercenaries and Escapist are segments who express opinion that transplantation/donation of organs is according to their opinion in higher % than other segments but unfortunately they are pretty suspicious about the procedure or more precisely they think that the transplantation/donation of organs is vulnerable to corruption and mismanagement; opposite of my religion is characterization of only 36% of hostages (which is surprisingly low % of people who feel that religious barriers are real) one of the possible explanation for misuse of religion is no other argument to avoid discussion on this topic.

Twenty two percent of total population are ready to sign statements (in case of death) their organs to be donated, the most ready for this act is Apostles segment, Mercenaries and Hostages are at least ready for voluntary sign of this document.

As reasons for not signing this kind of document are verbalized: Morbid to think about death while you're alive; contrary to common views on life and death and no

trust in Institutions. All segments are ready to sign this documents no matter to whom the organs will be donated except Escapists segment they will sign only for donating the organs to close people.

Making decision about donating organs of some close is more difficult than decision about signing the document for self. Significantly lower % of respondents express readiness for signing the documents if some close to them is in case as potential donor (cerebral death). This decision could be made easier with support of other members of the family.

In case of need of organ from some member of family, the respondent's readiness for donating is significantly higher but still in three segments: Mercenaries, Escapists and Hostages uncertainty is high. As main de-motivator (or uncertainty) are mentioned health problems, fear for effects on health and life in general.

Acceptance of organs in case of need is pretty high but still seems connected with readiness of donating: the most ready to accept organ from unknown donor are segments Neutral and Apostles who are in the same time highly ready to donate organs to unknown person; the strongest motive for rejection of transplantation as a solution is fate or opinion that natural death is most appropriate end.

Expectations of award significantly influence readiness for donating. Mercenaries and Escapists express opinion (in higher % than Apostles and Neutral) that donating organs should be awarded by State Institutions, awards should be: money, health insurance benefits and social insurance benefits. As a strongest motive for stimulation of donating is material compensation – money, exception of tax payment and other health or social insurance benefits.

According to general opinion, reasons of low readiness for donating organs are: Low trust in Institutions and low awareness for this issue. 3% of population said that regularly participate in humanitarian actions and 43% that have participated few times. Neutral and Apostles have highest % of participation in humanitarian actions.

The conclusion clearly indicates that there is a need for informing the population about the law and the process of donation of organs in Macedonia. This implies need for further marketing activities in promoting the idea. Potential target groups are: Mercenaries and Escapists. Apostles and Neutral could be used as Promoters of ideas. As a promotions could be organized events (similar to those in Croatia and Slovenia) with

active participation of doctors, professional soldiers or representatives from army; humanitarians, professors (educational system) and foreign factor in Macedonia .

Communication should be based on: raising the trust in Institutions involved in process of transplantation; minimization of fear for negative influence on health and life (security of data for these people who will sign this document); and act of humanism, altruism.

Inclusion of some benefits like health or social insurance will stimulate the process of donation of organs. Some material benefits (health or social insurance) should be communicated (for all profiles).

Support from abroad should also be accented – NFT as a part of Eurotransplant.

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